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EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

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Abbreviations

AYA	Adolescent and young adult (cancer patients)
CDI	Citation distribution index
CEF	Connecting Europe Facility
CPS	Call Passport System
CSA	Coordination and support action
DEP	Digital Europe programme
DG	Directorate-General
ECA	European Court of Auditors
EESC	European Economic and Social Committee
EFSD	European Fund for Strategic Investments
EIC	European Innovation Council
EIT	European Institute of Innovation and Technology
EMPIR	European Metrology Programme for Innovation and Research
ERA	European Research Area
ERC	European Research Council
ESIF	European Structural and Investment Funds
ERDF	European Regional Development Fund
EU	European Union
FP	Framework programme
FTE	Full-time equivalent
GDP	Gross domestic product
IA	Innovation actions
IF	Individual fellowships
IKAA	In-kind contributions to additional activities
IKOP	In-kind contribution to operational activities
INFRA	Research infrastructures
IOI	EU innovation output indicator
IPR	Intellectual property rights
JRC	Joint Research Centre
JU	Joint undertaking

KIC	Knowledge and Innovation Communities
MAA	Multi-actor approach
MSCA	Marie Skłodowska-Curie actions
NEIA	New European Innovation Agenda
PRC	Private for-profit entities (excluding higher or secondary education bodies)
RIA	Research and innovation actions
RIV	Regional Innovation Valleys
R&I	Research and innovation
RI	Research infrastructure
SDG	Sustainable Development Goals
SME	Small and medium-sized enterprises
SoE	Seal of excellence
SWD	Staff working document
SEWP	Spreading excellence and widening participation
SSH	Social sciences and humanities
TFEU	Treaty on the Functioning of the European Union
TRL	Technology readiness levels
VC	Venture capital
UN	United Nations

Glossary

<i>Term</i>	<i>Meaning or definition</i>
Administrative data	Data collected by government entities and agencies in the course of their regular activities for administrative purposes, such as to keep track of project payments.
Applicant	Legal entity submitting an application for a call for proposals.
Application	The involvement of a legal entity in a proposal. A single applicant can make several applications in different proposals. A single proposal can include several organisations and, therefore, several applications.
Art. 185 initiatives	Article 185 of the TFEU allows the integration of national efforts into a programme undertaken jointly by several Member States, with the participation of the EU, including participation in the structures created for carrying out the joint programme. In Horizon Europe, this includes the European Metrology Programme for Innovation and Research.
Associated countries	Association is the closest form of international cooperation. Entities from associated countries can participate under similar conditions as those from EU countries. A country becomes associated to Horizon Europe through an international agreement. 19 countries are associated to Horizon Europe ¹ (those not previously associated under Horizon 2020 are marked in bold): Albania, Armenia, Bosnia and Herzegovina, Canada , Faroe Islands, Georgia, Iceland, Israel, Kosovo [*] , Moldova, Montenegro, New Zealand ² , North Macedonia, Norway, Serbia, Tunisia, Türkiye, Ukraine, United Kingdom ³ .
Background and foreground IPR	Background IPR applications that are inputs of research rather than outputs, i.e. for which no causal link can be established with the support received by the programme (e.g. IPR applications reported by participants but filed before the start of a project. Foreground IPR are those filed after the start of the project that are genuine outputs of project research.
Causality	The sufficient link from one factor or event (the cause) to another factor or event (the effect).
Citation distribution index (CDI)	The citation distribution index is the sum of the weighted share of each decile of a distribution of publications, ranked by citation count (i.e. the first decile includes the 10% least-cited publications, the 10th decile includes the 10% most cited publications). This indicator is also normalised by year and by subfield of science. The CDI is normalised to 0 (i.e., the world average). A score above 0 indicates an above average level of performance, while a score below 0 indicates the opposite.
Cluster	To maximise impact, flexibility and synergies, the Horizon Europe Regulation organises R&I activities in six clusters, interconnected through pan-European research infrastructures, which individually and together incentivise interdisciplinary, cross-sectoral, cross-policy, cross-border and international cooperation (Annex 1 to the Regulation). Clusters make up Horizon Europe's second Pillar, 'Global Challenges and European Industrial Competitiveness'. They serve to structure expected impacts which have been defined based on existing strategic documents that are developed together with external stakeholders. Input from these is translated in research topics in a process of co-design (with external stakeholders and the public) and co-creation

¹ https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-auratom_en.pdf

^{*} This designation does not affect positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

² Associated to Pillar II 'Global Challenges and European Industrial Competitiveness' as from the work programmes, including for the institutionalised European partnerships.

³ Associated to the entire programme, with the only exception of the EIC Fund, for award procedures implementing the EU budget from 2024 onwards.

	(among Commission services). The six clusters are: health; culture, creativity and inclusive society; civil security for society; digital, industry and space; climate, energy and mobility; food, bioeconomy, natural resources, agriculture and environment.
Co-funded partnerships	In Horizon Europe, co-funded partnerships involve EU countries, with research funders and other public authorities at the core of the consortium. This evaluation covers nine such partnerships: 1. Water4all: Water security for the planet 2. Clean Energy Transition 3. Driving urban transitions to a sustainable future (DUT) 4. A climate neutral, sustainable and productive Blue Economy 5. European Partnership on Transforming Health and Care Systems 6. ERA for Health 7. European Biodiversity Partnership (Biodiversa+) 8. European Partnership on the Assessment of Risks from Chemicals (PARC) 9. Innovative SMEs. State-of-play (implementation) statistics also include data on other, more recent co-funded partnerships, namely: accelerating farming systems transition – agroecology living labs and research infrastructures; animal health and welfare; personalised medicine; and sustainable food systems for people, planet and climate.
Co-funding rate	Ratio (expressed as a percentage) between the partners' contribution to a project (see "co-investment") and the total eligible costs of that project. It is the opposite of the funding rate. It differs from the leverage factor, as the denominator is the total project costs, not the EU contribution to the project.
Cohesion policy funds	Financing provided under Cohesion Policy funds from, e.g. the European Regional Development Fund (ERDF), European Social Fund Plus (ESF+) and the Cohesion Fund in the 2021-2027 period (previously referred to as the European Structural and Investment Funds, ESIF, in the 2014-2020 period). In the current financial framework, the European Agricultural Fund for Rural Development (EAFRD) is not part of the Common Provision Regulation (2021/1060) but part of Common Agricultural Policy regulation (2021/2115). The scope of Common Provision Regulation has thus changed.
Co-investment (or "direct call leverage")	At the level of R&I projects, the difference between the project's total eligible costs and the EU contribution to the project. This is equal to Key Impact Pathway #9, short-term indicator ("Co-investment").
Contractual public-private partnership (cPPP) under Horizon 2020	These are structured public-private partnerships that have direct input into the preparation of work programmes in areas of major industrial significance. They develop roadmaps for R&I activities. There are currently eight partnerships: Factories of the future; Energy-efficient buildings; Green vehicles; Future internet; Sustainable process industry; Robotics; Photonics; and High-performance computing.
Control group	A group that is suitable for comparison with the group of units that were subject to a given policy. For more information, see Annex 2.
Coordination and support action (CSA)	An action consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructures. This may also include complementary networking and coordination activities between programmes in different countries.
Co-programmed partnerships	In Horizon Europe, co-programmed partnerships are concluded between the Commission and mostly private (and sometimes public) partners. The evaluation covers 11 such partnerships: 1. Artificial Intelligence, Data and Robotics

	2. Made in Europe 3. Photonics Europe 4. Processes4planet 5. Batteries: towards a competitive European industrial battery value chain 6. Clean steel – Low-carbon steelmaking 7. Towards zero-emission road transport (2ZERO) 8. People-centric Sustainable Built Environment (Built4People) 9. Zero-emission waterborne transport 10. Connected and Automated Mobility (CCAM) 11. European Open Science Cloud (EOSC) Association
CORDA (and eCORDA)	CORDA stands for Common Research Datawarehouse. It is the internal repository of R&I data gathered from EU R&I framework programmes. eCORDA stands for External COMmon Research Datawarehouse. It contains data on projects and proposals.
Correlation	Association between two variables. The establishment of a reasonable correlation between variables does not imply the establishment of a causal effect.
Counterfactual impact evaluation (CIE)	Refers to statistical procedures to assess the effect of a policy measure and gauge the degree to which it attained its intended consequences. For more information, see Annex 2.
Differences in differences (DiD)	A counterfactual impact evaluation (CIE) method. For more information, see Annex 2.
Direct leverage	Difference between a project's total costs and the EU contribution.
Dissemination action	The public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium.
European Partnerships	European Partnerships bring the European Commission and private and/or public partners together to address some of Europe's most pressing challenges through concerted R&I initiatives. They are a key implementation tool of Horizon Europe. There are three types: • institutionalised partnerships in the field of R&I between the EU, EU Member States and/or industry (including joint undertakings, Art. 185 partnerships and the EIT Knowledge and Innovation Communities – described and listed as separate items in this glossary); • co-programmed partnerships between the Commission and mostly private (and sometimes public) partners; • co-funded partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.
European Research Council (ERC)	The European Research Council is a European funding organisation for excellent frontier research which offers various grant schemes such as: starting grants, consolidator grants, advanced grants, synergy grants and proof of concept. The ERC is led by an independent governing body, the Scientific Council.
European Structural and Investment Funds (ESIF)	ESIF covers the 2014-2020 programming period. It includes the following funds: - European Regional Development Fund (ERDF) - European Social Fund (ESF) - Cohesion Fund (CF) - European Agricultural Fund for Rural Development (EAFRD) - European Maritime and Fisheries Fund (EMFF). The relevant legislation for these funds was the Common Provision Regulation (1303/2013).

Evaluation criteria	According to better regulation guidelines and toolbox, the five evaluation criteria assess the extent to which an intervention is: 1) <i>effective</i> in fulfilling expectations and meeting its objectives; 2) <i>efficient</i> in terms of cost-effectiveness and proportionality of actual costs to benefits; 3) <i>relevant</i> to current and emerging needs; 4) <i>coherent</i> internally and externally with other EU interventions or international agreements; and 5) has <i>EU added value</i> - i.e. produces results beyond what would have been achieved by Member States acting alone.
Exploitation action	Using results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities.
Financial instruments	Equity or quasi-equity investments, loans, guarantees and other risk-sharing instruments. Horizon 2020's financial instruments operated in conjunction with those of COSME. Strong synergies were to be ensured with the European Fund for Strategic Investments (EFSI) to create the maximum possible impact. This was the main form of funding for activities close to market under Horizon 2020.
Fast track to innovation (FTI) actions	A type of action under Horizon 2020 that funded any kind of project on close-to-market innovation activities.
Focus areas in Horizon 2020	Horizon 2020 set out four focus areas to stimulate the development of knowledge and technologies deemed crucial to tackling societal challenges. These were: • boosting the effectiveness of the Security Union (predominantly funding projects on vulnerabilities and threats related to European cybersecurity, migration and (financial) technologies); • connecting economic and environmental gains - the circular economy (predominantly funding projects on technological innovations in industrial processes and the reuse of resources to reduce waste and CO₂ emissions); • digitising and transforming European industry and services (predominantly funding projects concerned with automation, artificial intelligence and machine learning, as well as Earth observation); • building a low-carbon, climate-resilient future (predominantly funding projects on energy production and consumption, emphasising the economic and environmental aspects of electricity storage, distribution and use).
Funding rate	Ratio (expressed as a percentage) of the EU contribution to a project and project's total eligible costs.
GDP multiplier	The GDP multiplier is obtained by dividing the cumulative change in GDP by the magnitude of the policy stimulus and can be understood as the amount of GDP produced for each euro invested in the policy. It represents the economic effect of the policy, and does not account for other direct and indirect costs.
High-quality proposal	A proposal that scores above the threshold established for the action. Depending on the action, admissible and eligible proposals are evaluated and ranked against the award criteria (excellence, impact, quality and efficiency of the implementation). Award criteria and their thresholds are specified in the general annexes ⁴ to the Horizon Europe work programme.
In-kind contributions to additional activities (IKAA)	Private members of some joint undertakings (JU) had to provide a minimum amount of in-kind contributions for costs incurred for 'additional activities' outside the JU's work programme and budget, but falling within the scope of the JU's general objectives. In Horizon Europe, the JUs' Single Basic Act (Art. 2) defines them as 'contributions by the private members, constituent entities or the affiliated entities of either, and by

⁴ Horizon Europe work programme 2023-2025, general annexes, pp. 23-26, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-13-general-annexes_horizon-2023-2024_en.pdf

	international organisations, consisting of the costs incurred by them in implementing additional activities less any contribution to those costs from the Union and from the participating states of that joint undertaking’.
In-kind contribution to operational activities (IKOP)	All private members must contribute a minimum amount to the costs of the JUs’ R&I projects. In Horizon Europe, the JUs’ Single Basic Act (Art. 2) defines them as ‘contributions by private members, constituent entities or the affiliated entities of either, by international organisations and by contributing partners, consisting of the eligible costs incurred by them in implementing indirect actions less the contribution of that joint undertaking and of the participating states of that joint undertaking to those costs’.
Innovation action	An action primarily consisting of activities that directly aim to produce plans and arrangements or designs for new, altered or improved products, processes or services, possibly including prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.
Interservice groups	Commission mechanism to ensure internal consistency of policy interventions.
Intervention logic	A (narrative) description and usually a diagram summarising how the intervention was expected to work. It describes the expected logic of the intervention or chain of events that should lead to the intended change
Joint undertakings (JUs)	Public-private institutionalised partnerships of the Union with industry and stakeholders for the joint funding and implementation of strategic R&I agendas under Article 187 of TFEU (via a dedicated funding body). Under Horizon 2020, these were: the Innovative Medicines Initiative 2 (IMI2); Electronic Components and Systems for European Leadership (ECSEL); Fuel Cells and Hydrogen (FCH); Clean Sky, Bio-based Industries (BBI); Shift2Rail (S2R); Single European Sky ATM Research (SESAR); and Fusion for Energy (F4E) – most of which also existed under FP7⁵. Under Horizon Europe, the JUs include: the Innovative Health Initiative (IHI); Global Health EDCTP3 Partnership, Europe High-Performance Computing (EuroHPC); the Chips JU (formerly, Key Digital Technologies, KDT); Smart Networks and Services (SNS); Circular Bio-based Europe (CBE); the Clean Aviation JU; the Clean Hydrogen JU; the Europe’s Rail JU; and Single European Sky ATM Research 3 (SESAR 3).
Knowledge and Innovation Communities of the European Institute of Innovation and Technology (EIT KICs)	Institutionalised partnerships, as referred to in Regulation (EU) 2021/695, of higher education institutions, research organisations, companies and other stakeholders in the innovation process. They take the form of a strategic network, encouraged and funded by the EIT. The network can have various legal forms and carries out joint innovation planning (mid- to long-term), to develop innovative products and services, start or support new companies and train entrepreneurs, to meet the EIT challenges and contribute to attaining the objectives established under Regulation (EU) 2021/695. The EIT KICs launched prior to Horizon 2020 were EIT Climate-KIC (2010), EIT Digital (2010), EIT InnoEnergy (2010); the EIT KICs launched under Horizon 2020 included EIT Health (2014), EIT Raw Materials (2014), EIT Food (2016), EIT Manufacturing (2018) and EIT Urban Mobility (2018). The EIT Culture and Creativity has been launched in 2022 under Horizon Europe.
Leverage factor	The ratio (expressed as a number or a value in euro) between the total costs borne by partners other than the EU for R&I activities and the EU contribution to R&I activities. It is calculated for all measures of leverage set out above. For co-investment, the formula is: CA_{Part} / CA_{EU} And for total direct leverage (including additional activities): $(CA_{Part} + AA_{Part}) / (CA_{EU} + AA_{EU})$.

⁵ ECA annual report on EU Joint Undertakings for the financial year 2020, pp. 11-12, Figure 1.2. https://www.eca.europa.eu/Lists/ECADocuments/JUS_2020/JUS_2020_EN.pdf

	No financial data is available to this evaluation on additional activities funded by the EU (AA _{EU}) which therefore equals to zero: this means other funding sources with their origin in the EU budget, such as cohesion policy funds, are not accounted for in additional activities.
Lighthouses	This concept/term is used by three EU Missions, in different ways: • Mission Soil: places for demonstration of solutions, training and communication that are exemplary in their performance in terms of soil health improvement. • Mission Ocean & Waters: sites piloting, demonstrating and deploying the Mission activities across EU sea and river basins. • Mission Cities: projects or initiatives with well-defined and measurable goals. They focus on implementation, fast delivery and creating a positive impact-minded culture in a specific area of action.
Living labs	This concept/term is used by two EU Missions, in somewhat different ways. • Mission Soil: user-centred, place-based and transdisciplinary R&I ecosystems, which involve land managers, scientists and other relevant partners in systemic research and co-design, testing, monitoring and evaluation of solutions, in real-life settings, to improve their effectiveness for soil health and accelerate adoption. • Mission Cities: open innovation ecosystems that are deployed in real-life environments. They serve to co-design, test, prototype and/or scale-up specific technical or social solutions.
National contact points	Network funded by the framework programme tasked with providing guidance, practical information and assistance on all aspects of participation in Horizon Europe.
Newcomer	Horizon Europe participant who was not involved in a Horizon 2020 project (not a Horizon 2020 participant). For Horizon 2020, a participant that was not involved in any FP7 project.
Openness	Horizon Europe is 'as open as possible as closed as necessary'. It is open to almost ⁶ all countries, 'by default'. It follows a non-discriminatory approach: researchers and innovators of any nationality can apply for grants (e.g. MSCA, ERC). According to Article 14 of the regulation establishing Horizon Europe, this principle does not apply to scientific publications which are all open.
Oversubscription rate	Share of eligible proposals evaluated as being above the quality threshold that were not retained due to budgetary constraints, out of all eligible proposals evaluated by experts with a score above the quality threshold.
Participant	Any legal entity carrying out an action or part of an action under Horizon Europe.
Participation	The involvement of a legal entity in a project. A single participant can be involved in multiple projects.
Policy mix	The set of activities, instruments and types of action used to implement Horizon Europe.
Prizes	Financial contribution (lump-sum) given as the prize in a contest. Prizes are a 'test-validate-scale' open innovation approach that brings together players who are new to an industry and small players that may pursue more radically new concepts than large, institutionalised contestants. Inducement prizes offer an incentive by mobilising new talent and engaging new solver communities around a specific challenge. They are only awarded based on the achievement of a set target, which solves a specific challenge.
Reciprocal access	Reciprocal access is a new requirement laid down in Article 16.4 of the Horizon Europe Regulation: entities from the EU should be permitted access to and, to the

⁶ Russia and Belarus under sanctions; China cannot participate to innovation actions (IA) calls.

	extent possible, be allowed to participate in the equivalent programmes of associated countries. This clause refers only to the provision of <i>access</i> and not dedicated funding.
Regression discontinuity design (RDD)	A counterfactual impact evaluation (CIE) method. For more information, see Annex 2.
Final rate of reimbursement	Proportion of EU funding, i.e. the eligible cost of the action compared to the final grant amount ⁷ .
Research and innovation action (RIA)	An action primarily consisting of activities aiming to establish new knowledge or to explore the feasibility of a new or improved technology, product, process, service or solution. This may include basic and applied research, technology development and integration, testing, demonstration and validation on a small-scale prototype in a laboratory or simulated environment.
Research output	The results generated by a given action to which access can be given in the form of scientific publications, data or other engineered results and processes such as software, algorithms, protocols and electronic notebooks.
Safeguards	Several articles in the Horizon Europe Regulation safeguard EU interests: • Art. 19 on ethics and integrity screening, Article 20 on security screening, • Art. 22.5 on protecting the EU's strategic assets, interests, autonomy or security, • Art. 22.6 on additional eligibility criteria based on specific policy requirements, Art. 39.6 and 40.4 with provisions on exploitation, dissemination and right to object to transfer of ownership and licences to non-associated third-country entities in line with EU interest.
Seal of excellence	A quality label which shows that a proposal submitted to a call for proposals exceeded all of the evaluation thresholds set out in the work programme, but could not be funded due to lack of budget available for that call for proposals in the work programme and might receive support from other EU or national sources of funding.
Social sciences and humanities (SSH)	The Horizon Europe programme guide lists the following SSH disciplines: <i>Social sciences, education, business and law</i> Social and behavioural sciences: economics, economic history, political science, sociology, demography, anthropology (except physical anthropology), ethnology, futurology, psychology, geography (except physical geography), peace and conflict studies, human rights. Education science: curriculum development in non-vocational and vocational subjects, educational policy and assessment, educational research. Journalism and information: journalism, library and museum sciences, documentation techniques, archival sciences. Business and administration: retailing, marketing, sales, public relations, real estate, finance, banking, insurance, investment analysis, accounting, auditing, management, public and institutional administration. Law: law, jurisprudence, history of law. <i>Humanities and the arts</i> Humanities: religion and theology, foreign languages and cultures, living or dead languages and their literature, area studies, native languages, current or vernacular language and its literature, interpretation and translation, linguistics, comparative literature, history, archaeology, philosophy, ethics. Arts: fine arts, performing arts, graphic and audio-visual arts, design, crafts.
Strategic R&I plan	This is an implementing act setting out a strategy to achieve the work programme. The strategy draws on a broad, mandatory multi-stakeholder consultation process and

⁷ Annotated grant agreement, EU funding programmes 2021-2027, version 2024, p. 226.
https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

	covers a maximum period of 4 years. It specifies the priorities, suitable types of action and forms of implementation to be used.
Success rate	The percentage of proposals that are selected for funding out of the total number of eligible proposals expressed as a percentage (Retained proposals/Eligible proposals*100).
Synergy	Synergy occurs when the impact of the results or programmes as a whole is greater than that of the sum of their individual impacts. There are different types of synergies. <u>Upstream</u> synergies are when another programme paves the way to apply to Horizon Europe. <u>Downstream</u> synergies are when other programmes take up the outputs of Horizon Europe and bring them to the market. <u>Cumulative funding</u> occurs when an operation/project that receives support from more than one fund, programme or instrument (including both shared and directly managed funds) for the same item of cost/expenditure. <u>Combined funding</u> is when an ERDF programme or another EU fund supports R&D projects that complement Horizon Europe projects. <u>Transfers</u> are resources allocated to Member States under shared management being - at the request of the Member State concerned - transferred to Horizon Europe. The <u>Seal of excellence</u> is explained under a separate entry above.
Technology readiness levels (TRL)	Technology readiness levels indicate the maturity level of particular technologies through a common understanding of technology status and address the entire innovation chain. TRL 1 – basic principles observed; TRL 2 – technology concept formulated; TRL 3 – experimental proof of concept; TRL 4 – technology validated in the lab; TRL 5 – technology validated in a suitable environment; TRL 6 – technology demonstrated in a suitable environment; TRL 7 – system prototype demonstration in an operational environment; TRL 8 – system complete and qualified; TRL 9 – actual system proven in an operational environment.
Time-to-Grant (TTG)	The time from the date of closure for a call for proposals (call deadline) and the date of signature of a grant by the European Commission. For two-stage calls, the second stage call deadline is used. The target for the Commission is 245 days (8 months). It is the sum of other two indicators, Time-to-Inform and Time-to-Sign (see below)
Time-to-Inform (TTI)	The time from the date of closure for a call for proposals (call deadline) and the date of communication of evaluation results (invitation letter). The target for the Commission is 153 days (5 months).
Time-to-Sign (TTS)	The time from the date of communication of evaluation results (invitation letter) and the date of signature of a grant by the European Commission. The target for the Commission is 92 days (3 months).
Total direct leverage	For European partnerships only: co-investment plus additional activities linked to the goal of the partnership, where applicable. It therefore represents the difference between the total costs of the R&I activities of the partnership (operational project costs, and additional activities) and the contribution of the EU to such activities. Contributions to the administrative costs of the partnership are not included. For non-partnerships, or partnerships without additional activities, this indicator is identical to co-investment.
Widening countries	Countries identified as ‘low-performing’ in R&I, and thus eligible to apply for actions dedicated to spreading excellence and widening participation. In Horizon Europe: • from the Member States, those countries are Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia; • for associated countries, the list of eligible countries is based on an indicator and published in the work programme⁸: Albania, Armenia, Bosnia Herzegovina, Faroe

⁸ Article 2, point 17, Regulation 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the FP for Research and Innovation, <http://data.europa.eu/eli/reg/2021/695/oj>

	Islands, Georgia, Kosovo, Moldova, Montenegro, North Macedonia, Serbia, Tunisia, Türkiye, Ukraine, and once associated Morocco. Outermost regions of the EU (defined in Art. 349 TFEU) are also eligible for participation in widening actions. These are Guadeloupe, French Guiana, Martinique, Réunion, Saint-Barthélemy, Saint-Martin (France), the Azores, Madeira (Portugal, itself a widening Member State) and the Canary Islands (Spain).

1. Introduction: purpose and scope of the evaluation

Horizon Europe is the EU's ninth research and innovation (R&I) funding programme. Set up by Regulation (EU) 2021/695⁹, it covers the period 2021-2027 and has a budget of EUR 93.5 billion¹⁰. The objective of the interim evaluation of Horizon Europe is to analyse the programme's design, implementation and first results. It is published 4 years after the start of the implementation. It covers all instruments, in every scientific field supported. This evaluation will support the implementation of current EU R&I measures and the design of future measures. It fulfils the Commission's legal obligation to explain how it has spent public funds.

The evaluation addresses the **better regulation criteria** of relevance, coherence, efficiency and effectiveness, and the EU value added of the Horizon Europe programme. It investigates the rationale for the programme, its implementation and achievements, and the longer-term impacts of EU investment in research and innovation. Effectiveness is assessed for the first time following the **Key Impact Pathways** towards the programme's scientific, societal and economic impacts. The efficiency analysis reviews costs and benefits for applicants to the programme and includes an assessment of potential unnecessary burdens and complexities for applicants and participants.

The evaluation faced some data limitations, described in Annex 2. In addition, it is widely acknowledged that it takes time for R&I activities to produce results, outcomes, and impacts and given the lifecycle of research and innovation projects, their impact is expected to become apparent only towards the end of the programme period – or even later.

The evaluation is based on the 15 148 signed projects as of 6 January 2025, including 983 closed projects (6.5%)¹¹. This evaluation also assesses the performance of ongoing projects and steps taken for future implementation.

Evaluations of 19 institutionalised partnerships are set out in annexes to this evaluation. They are:

- Eight Knowledge and Innovation Communities of the European Institute of Innovation and Technology¹² (EIT Health, EIT Manufacturing, EIT Raw Materials, EIT Digital, EIT Urban Mobility, EIT Climate KIC, EIT Food, EIT InnoEnergy).
- Nine joint undertakings under the Single Basic Act¹³ (Europe Rail, Single European Sky, the Chips JU (previously Key Digital Technologies JU), Smart Network and Services, Global Health EDCTP3, Clean Hydrogen, Circular Bio-based Europe, Clean Aviation and Innovative Health Initiative). Their evaluation includes a final evaluation of the preceding JUs under Horizon 2020, covering a period of 10 years of support by the EU budget.
- The European High Performance Computing JU (EuroHPC).

⁹ Complemented by Council Decision (EU) 2021/764 of 10 May 2021 establishing the Specific Programme implementing Horizon Europe

¹⁰ The mid-term revision of the multi-annual financial framework (MFF) in February 2024 has resulted in a net reduction of EUR 2.1 billion for the Horizon Europe programme over 2025-2027 (redeployed to cover new initiatives), but also added EUR 100 million from previously decommitted funds.

¹¹ This number also includes 30 suspended and 134 terminated projects.

¹² According to Article 20 of the EIT Regulation 'The Commission (...) shall carry out an interim and final evaluation of the EIT and the KICs. Those evaluations shall feed into the HE evaluations provided for in Art. 52 of Regulation (EU) 2021/695.'

¹³ Art. 171.4: 4. States that 'The Commission shall carry out an interim and final evaluation of each JU feeding into the Horizon Europe evaluations (...).' Art 174.13: 3. States that 'The interim evaluations shall include a final evaluation of the preceding JUs.'

- The European Metrology Programme for Innovation and Research (‘Article 185’ initiative)¹⁴.

The European Defence Fund, a specific programme of Horizon Europe, is outside the scope of this evaluation. It will be evaluated separately in the second quarter of 2025.

2. What are the expected outcomes of Horizon Europe?

2.1 Horizon Europe and its objectives

The Horizon 2020 interim evaluation and Horizon Europe impact assessment identified four key R&I challenges that should be tackled through future R&I programmes:

- 1) The creation and diffusion of high-quality new knowledge and innovation in Europe should be improved.
- 2) The impact of R&I should be reinforced to deliver on EU priorities.
- 3) The lack of rapid uptake of innovative solutions in the EU should be addressed.
- 4) The European Research Area (ERA) needs to be strengthened.

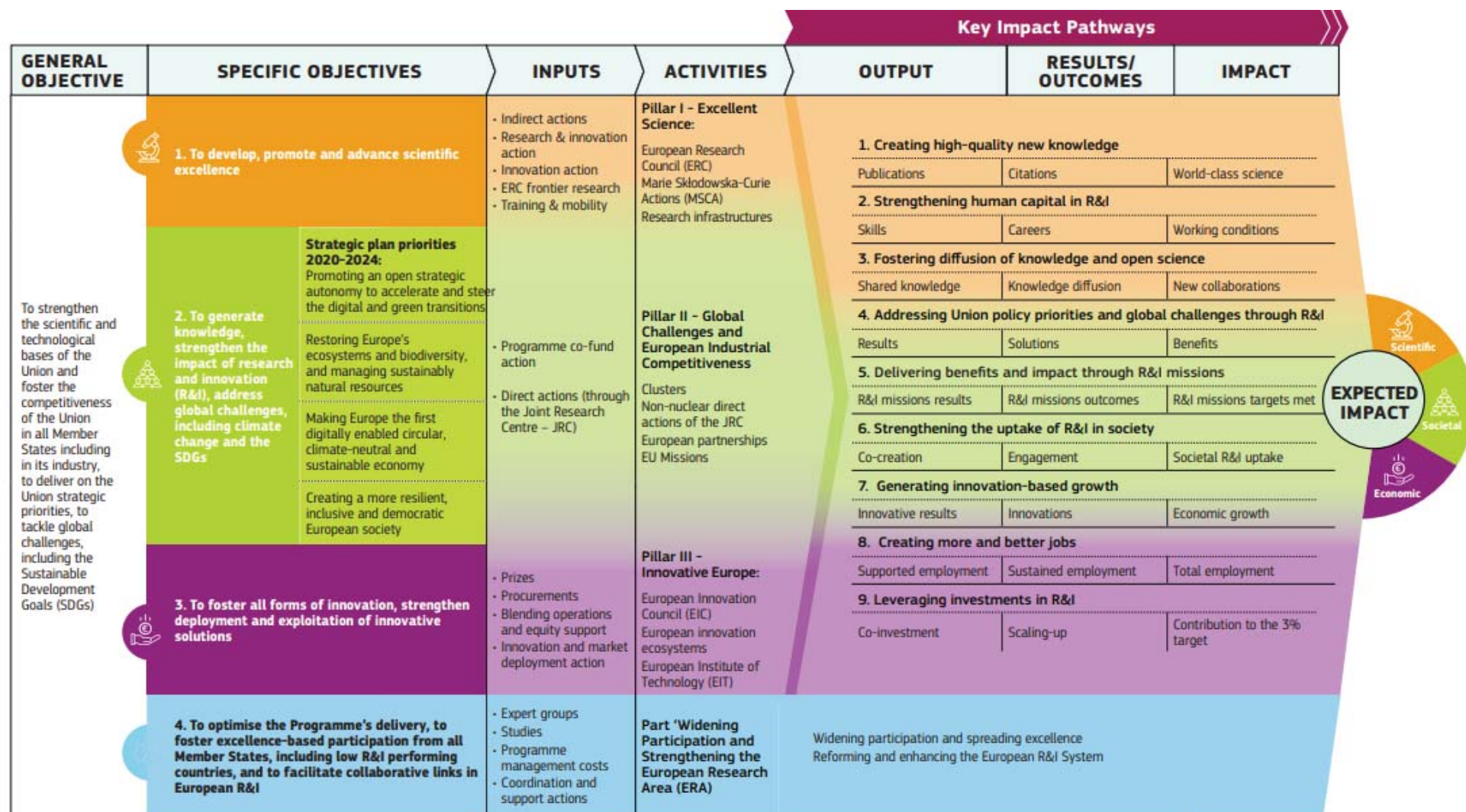
Based on these challenges, Horizon Europe aimed at promoting scientific excellence, generating new knowledge and high-quality technologies, addressing EU priorities and global challenges, providing the appropriate environment, and scaling up finance to turn great ideas into products and services that will create sustainable jobs and economic growth.

The **general objective** of Horizon Europe is to ‘deliver scientific, technological, economic and societal impact from the Union's investments in R&I so as to strengthen the scientific and technological bases of the Union and foster the competitiveness of the Union in all Member States including in its industry, to deliver on the Union strategic priorities and to contribute to the realisation of Union objectives and policies, to tackle global challenges, including the SDGs by following the principles of the 2030 Agenda and the Paris Agreement, and to strengthen the ERA’¹⁵. The Programme’s **specific objectives** and intervention logic are shown in Figure 1.

¹⁴ The evaluation provision of the European partnership on Metrology decision of 2021 foresees that “The Commission shall conduct an interim evaluation and a final evaluation of the Metrology Partnership in the framework of the Horizon Europe evaluations, in accordance with Article 52 of Regulation (EU) 2021/695.

¹⁵ Article 3, Regulation 2021/695. <http://data.europa.eu/eli/reg/2021/695/oj>

Figure 1: Horizon Europe intervention logic



Principles of the Programme: exclusive focus on civil applications, integration of Social Sciences & Humanities, balance between Technology Readiness Levels, international cooperation, broad geographical coverage, equal opportunities and gender mainstreaming, synergy with other Union programmes, administrative simplification and reduction of burden for applicants, contribute to increasing public and private investment in R&I in Member States, climate mainstreaming, co-creation and co-design, transparency and accountability of public funding.

The general and specific objectives of Horizon Europe come from Art. 3 of the regulation establishing the programme (No. 2021/695). Principles are from Art. 7. Inputs come from Art. 2, while activities are taken from Art. 4 and 8. The Key Impact Pathways are defined in Annex V of the regulation.



Horizon Europe brought a considerable change compared to previous framework programmes by introducing **Key Impact Pathways** (KIPs for short, listed on the right-hand side of Figure 1). Every KIP is monitored using a short-term, medium-term and longer-term indicator¹⁶. Support for basic research remains a cornerstone of the programme, pursued primarily under the first pillar (Excellent Science), but also in the other two pillars. Applied research and incremental innovation are the centre of gravity in the second pillar, addressing both industrial and societal needs (Global challenges and European industrial competitiveness), while innovation is the focus of the third pillar (Innovative Europe). The **mission-oriented** approach provides direction to all activities supported by the programme. The European Partnerships approach was also reinforced under Horizon Europe to become more strategic, coherent, and impact-driven.

The strategic orientations for R&I investments are defined in the multi-annual Horizon Europe strategic plans which act as a compass for defining Horizon Europe's activities. Topics from the Work Programmes come from the Strategic Plan¹⁷.

Support to **innovation ecosystems** was reinforced under Horizon Europe, and it was given a dedicated programme part under the Innovative Europe pillar. The European innovation ecosystem 'encompasses relations between material resources (such as funds, equipment, and facilities), institutional entities (such as higher education institutions and support services, research and technology organisations, companies, venture capitalists and financial intermediaries) and national, regional and local policy-making and funding entities'¹⁸.

JRC's direct research actions are funded under the framework programme, continuing its role as in previous periods, to generate scientific evidence for good public policies¹⁹.

Figure 2: Horizon Europe programme structure



The Horizon Europe Regulation identifies gender equality as a cross-cutting requirement to be followed during implementation²⁰ and underlines the relevance of social sciences and humanities in the description of cluster priorities. It also states that 'the activities developed under the

¹⁶ Described in more detail in the Commission SWD(2023) 132 final: 'Evidence Framework on monitoring and evaluation of Horizon Europe'. <https://research-and-innovation.ec.europa.eu/system/files/2023-05/swd-2023-132-monitoring-evaluation-he.pdf>.

¹⁷ The Strategic Plan relevant for the evaluation period is available at: https://commission.europa.eu/system/files/2021-09/ec_rtd_horizon-europe-strategic-plan-2021-24.pdf

¹⁸ Regulation 2021/695, Article 2.

¹⁹ Ibid, Annex 1.

²⁰ Ibid, Article 7(6).

Programme should aim to **eliminate gender bias and inequalities, enhancing work-life balance and promoting equality between women and men in R&I**, including the principle of equal pay without discrimination based on sex', that 'the gender dimension should be integrated in R&I content and followed through at all stages of the research cycle' and that 'activities under the Programme should aim to eliminate inequalities and promote equality and diversity in all aspects of R&I with regard to age, disability, race and ethnicity, religion or belief, and sexual orientation'²¹.

The importance of **exploiting** research and innovation results is also underlined in the Regulation: 'More emphasis should be placed on exploiting those results, and the Commission should identify and help maximise opportunities for beneficiaries to exploit results, in particular in the Union'²². This aspect is also integrated in the third specific objective. While exploitation is not obligatory, a 'best effort' is expected from beneficiaries²³.

Horizon Europe has several new features, compared to the preceding programme:

1. strategic plans, multi-annual strategic documents co-designed with stakeholders to guide preparations for bi-annual work programmes;
2. a new instrument: EU missions;
3. streamlined European partnerships;
4. enhanced synergies with other EU and national programmes;
5. a stronger open science policy, to promote collaboration;
6. an updated monitoring system.

The Horizon Europe Work Programme Group discusses indicative timelines for work programme preparation and provides guidance for topic drafting. The group has over 300 members from DGs AGRI, BUDG, CLIMA, CNECT, COMP, DEFIS, DIGIT, EAC, ECFIN, EMPL, ENER, ENV, GROW, HERA, HOME, IAS, JRC, MARE, MOVE, REGIO, RTD, SANTE, SG, TRADE. In addition, representatives from the Executive Agencies (CINEA, EISMEA, ERCEA, HADEA, REA) and the Joint Undertakings (Circular Bio-based Europe, Clean Aviation, Clean Hydrogen, EU Rail, Innovative Health Initiative, Key Digital Technologies) are also part of this group. The Horizon Europe 'main' work programme 2023-2024 and limited extension to 2025 contains 1 060 topics and other actions. The work programme 2023-2024 has 3 297 pages.

The initial budget for Horizon Europe was set at EUR 95.5 billion²⁴ for 2021-2027. In February 2024, the Council unanimously agreed, and the European Parliament gave consent, to the first ever mid-term revision of the expenditure ceilings in the multi-annual financial framework (MFF). The revision included a redeployment of EUR 2.1 billion from Horizon Europe to cover new initiatives but also added EUR 100 million from previously decommitted funds. Therefore, Horizon Europe Programme budget now stands at EUR 93.5 billion for 2021-2027²⁵. The budget of the framework programme draws on a number of sources in addition to the one directly established in its legal base. Added to funds within the MFF²⁶, were EUR 5.4 billion from the Next Generation EU (NGEU) instrument in support of the green and digital recovery from the COVID crisis, as well as reused decommitted funds²⁷. Funding is allocated through work programmes, which can be either annual or multi-annual, covering different parts of the

²¹ Ibid, recital point 53.

²² Ibid, recital point 85.

²³ Ibid, Article 39.

²⁴ Excluding EFTA and third country contributions.

²⁵ Excluding EFTA and third country contributions.

²⁶ EUR 84.2 million from MFF (Horizon Europe's legal base) and EUR 3 447 million estimative fines as per Article 5 of the MFF Regulation (fines linked to competition rules and other penalties, sanctions and imposed interest).

²⁷ In total, the budget includes EUR 678 million estimative reconstitution of decommitments as per Financial Regulation Art 15.3 (Joint declaration).

framework programme. In evaluating project proposals, the following criteria were assessed: (a) excellence; (b) impact; and (c) quality and efficiency²⁸.

2.2 Points of comparison

This evaluation compares the current Horizon Europe results to those from the same stage of implementation in Horizon 2020. This is the case for the KIP indicators and contribution to Sustainable Development Goals. For funding by country category, success rates, as well as the gender balance indicators – data is compared with the final Horizon 2020 averages.

Where the expected effects were quantitatively estimated or targets were set in the legal base, this evaluation compares the actual Horizon Europe data to these expectations. This is the case for the efficiency metrics (time to contract, time to pay, error rate, etc.) and leverage factors per JU.

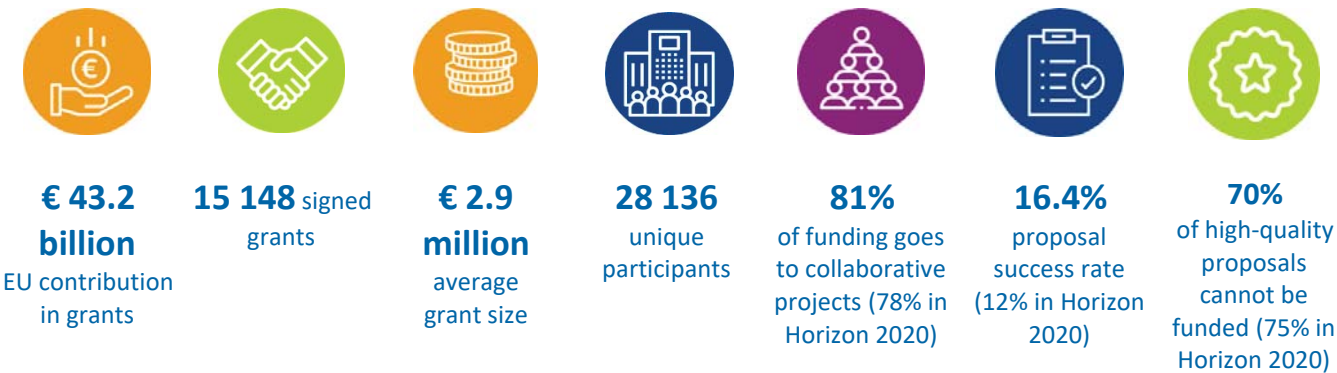
If none of the above is possible, newly available data on Horizon Europe is presented without any baseline or benchmark. This is the case for KIP indicators that did not have an exact equivalent using a comparable methodology in the previous framework programme (e.g. KIP 2 and KIP 6), the share of funding spent on gender equality objectives and biodiversity, as well as some of the new indicators for the EIT KICs.

For all the KIP indicators, data comes from validated periodic project reports in the central database, which is also used for comparison with the baseline from Horizon 2020. In sections on some specific programme parts (i.e. the ERC, MSCA, EIT), the implementing entities also provided data from their internal, continuous monitoring.

3. How has the situation evolved during the evaluation period?

Horizon Europe was launched in April 2021 with a total budget of EUR 95.5 billion, which was reduced to EUR 93.5 billion in February 2024. By the end of 2024, 58.4% of the voted budget (including NGEU funds) had been committed and 34.5% of the payments made.

Figure 3: Horizon Europe key figures



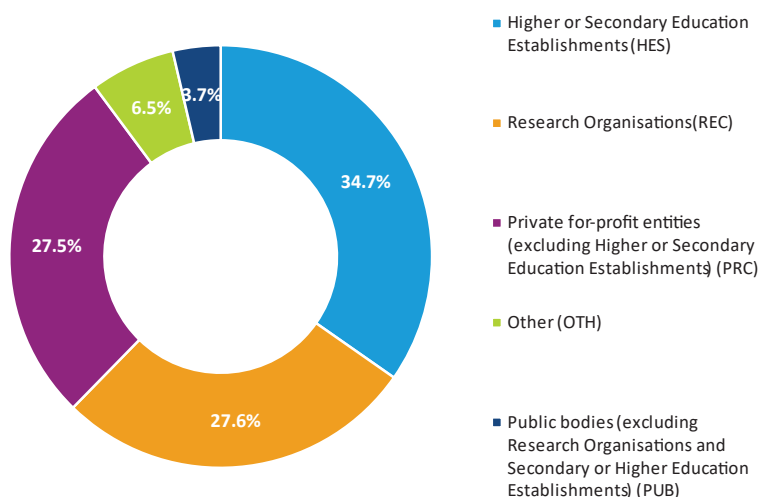
Source: All figures in this chapter come from CORDA²⁹ and the cut-off date is 6 January 2025.

²⁸ Ibid, Article 28.

²⁹ For cascading actions in European partnerships (primarily EIT KICs and co-funded partnerships), the evaluation data source only includes the amounts for the grant initiating the partnership. This should be intended as an *ex-ante* value, as at the reference date the partnership may have not used the Commission grant in full. For more information about this data limitation, see section 4.2.5.

Between 2021 and 2024, **15 148 grants** were signed, with a value of **EUR 43.2 billion** in EU contribution. Slightly more than half of Horizon Europe participants (51.1%) are newcomers, i.e. they did not participate in any Horizon 2020 project. Most newcomers are from the private sector, SMEs in particular.

Figure 4: Distribution of Horizon Europe grant funding by type of beneficiary



Higher education establishments have received the largest contribution (EUR 15.0 billion), followed by research organisations and private for-profit entities, which received similar amounts of contributions (EUR 11.9 billion). Around 16 220 private-for-profit entities (companies) were supported through grants, out of which 2 571 in pillar III (excluding the EIC Fund).

The share of funding per type of organisation is similar to Horizon 2020. Across the entire Horizon Europe programme, 81% of EU funding has been allocated to collaborative projects; in Horizon 2020, this was 78%³⁰.

A total of **10 077 SMEs received grants for EUR 7.4 billion**. Each SME joined on average 1.7 projects. **Pillar II involves 70% of all SME unique participants, and a majority of all EU contributions for SMEs, with EUR 4.7 billion allocated to them (68%)**. Within Pillar II, joint undertakings contributed EUR 697 million to SMEs, 15% of the funds managed by JUs. Pillar III plays an increasingly important role: the European Innovation Council alone issued EUR 1.8 billion in grants to SMEs, more than any other programme part.

Additionally, the EIC Fund has approved equity investments towards start-ups and SMEs for further EUR 1.7 billion³¹ for the Horizon Europe period alone. This leads to a total amount of Horizon Europe funding allocated to SMEs of EUR 9.1 billion as of 6 January 2025 (20.3% of total FP funding including approved equity investments). However, just around one third of approved EIC Fund investments (EUR 0.57 billion) have actually been paid out to beneficiaries to date³².

³⁰ SWD(2024)29final, p. 16.

³¹ The Horizon Europe EIC Fund figures are provided by the European Investment Bank, which manages the Fund on behalf of the Commission. The reference date is 1 December 2024. Unless where expressly specified, statistics in this section do not include the EIC Fund.

³² For more statistics and analysis on SMEs (at an earlier reference date), see European Commission, SME participation in Horizon Europe, EU Publications Office, 2024.

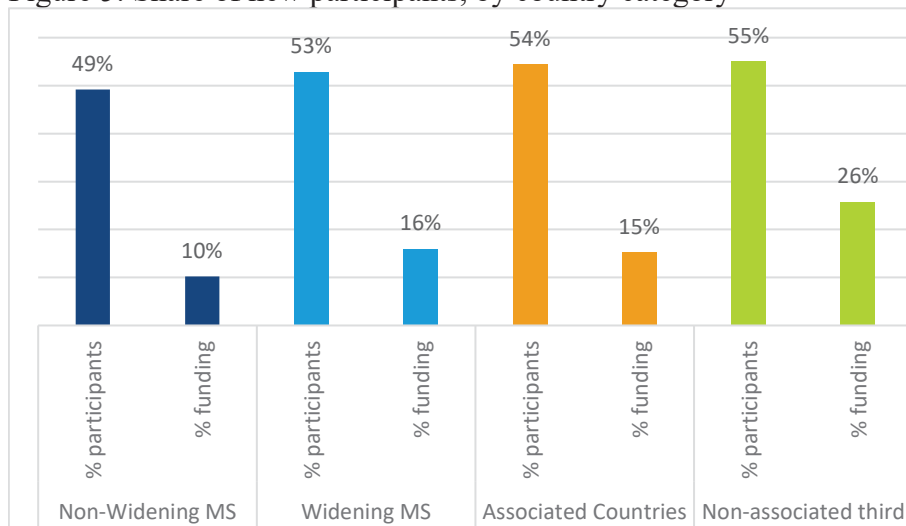
The Horizon Europe 15 ‘widening’ Member States³³ have received 14% of all the funding to date³⁴ - the same 15 MS had received 9% of the total funding in Horizon 2020³⁵. Still, entities in four ‘non-widening’ Member States – Germany, France, Spain, and the Netherlands, in this order – received 50.9% of all Horizon Europe funding. Nonetheless, according to a monitoring report by the Commission³⁶, once EU contribution is weighted by national R&D expenditure, beneficiaries from widening Member States received double the amount as beneficiaries from other Member States.

Number of new programme participants on the rise

Newcomer organisations currently represent a majority of all grant participants: 51%. The share is nonetheless significantly lower than at the end of Horizon 2020, where almost three-quarters of all participants were not recorded in FP7.

14 365 newcomers have received **EUR 4.2 billion** in EU contribution. This is about 12% of all funding allocated under Horizon Europe.

Figure 5: Share of new participants, by country category



The discrepancy between the high share of participants and the relatively low share of funding to newcomers is due to the fact that most newcomers are small organisations, joining on average only one or two projects per framework programme. Larger organisations, which participate in many more projects and are also much more likely to be coordinators, are rarely Horizon Europe newcomers: just 4% of universities and 7% of research organisations coordinating projects did not participate in Horizon 2020.

More than half of all private for-profit participants and SMEs are newcomers (56.8%), as are those in the ‘other’ organisations category (e.g. civil society organisations) (59.2%). Around a quarter of higher education institutions in the programme are newcomers (23.7%), but they receive a negligible share of all funding (less than 1%). Among EIC Fund beneficiaries, 67% (165 organisations) are newcomers to Horizon Europe. The amount of EIC Fund investment approved towards newcomers is EUR 1.1 billion (65% of all investments approved by the Fund).

³³ The Widening Member States in Horizon Europe are: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, and Slovenia.

³⁴ Entities from the Horizon Europe 15 ‘widening’ Member States received 15% of the funding going to EU27 beneficiaries - those same 15 MS had received 12% of funding for EU27 beneficiaries in Horizon 2020.

³⁵ Looking even further back, the Horizon Europe 15 ‘widening’ Member States account for 8% of the total funding in FP7 (cut-off date: 6 January 2025).

³⁶ European Commission, Country Participation in the EU R&I Framework Programmes: A retrospective on the first three years of Horizon Europe (2021-2023), 2024, <https://data.europa.eu/doi/10.2777/485995>, p. 11.

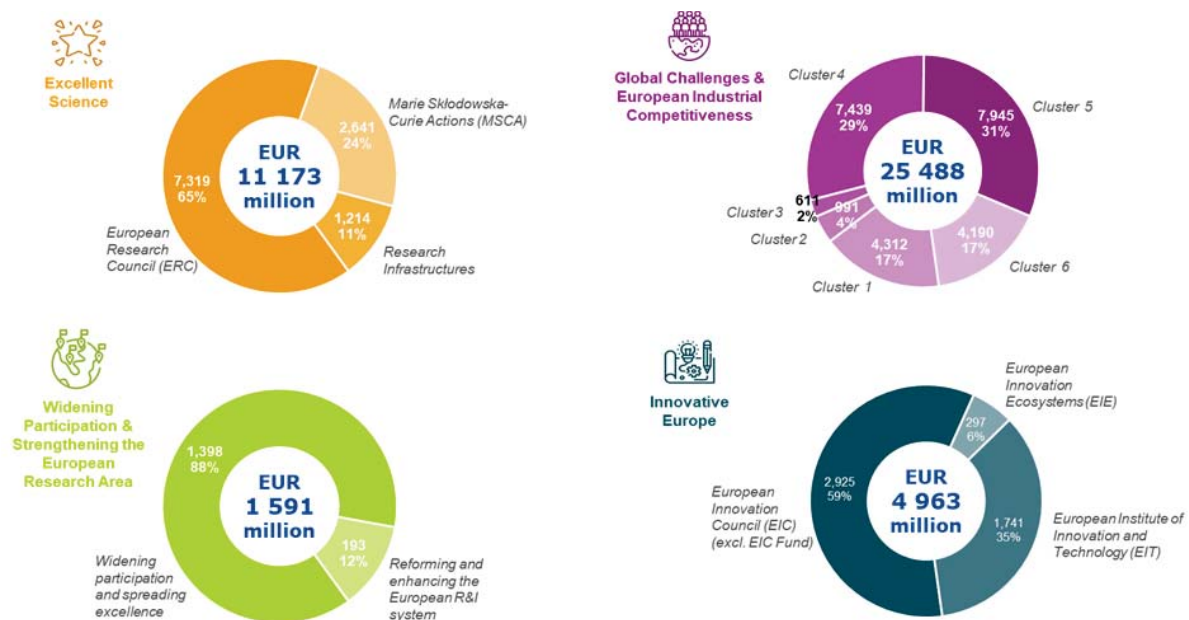
More collaborative projects and larger grants

More than eight out of every 10 euro went to **collaborative projects**, primarily in Pillar II – representing an increase from 78% in Horizon 2020. The average size of consortia increased from 12 partners in Horizon 2020³⁷ – to 16 partners in Horizon Europe Pillar II to date.

The average grant size is around **EUR 2.9 million** under Horizon Europe (compared to EUR 1.9 million under Horizon 2020, not adjusting for inflation). The major factors contributing to the larger average grant size are the discontinuation of the phase 1 of the SME instrument which used to award small grants (EUR 50 000 per project) to SMEs, and the introduction of larger grants under the EIC³⁸.

The largest share of funding was allocated to Pillar II – Global Challenges and European Industrial Competitiveness (59.0%), of which 60.4% was allocated to the climate and digital clusters of activities. The Excellent Science pillar accounts for 25.9% of the funding, allocated mainly through the European Research Council. The two other pillars share the remaining 15.2% of funding.

Figure 6: Distribution of Horizon Europe funding by pillar and programme part



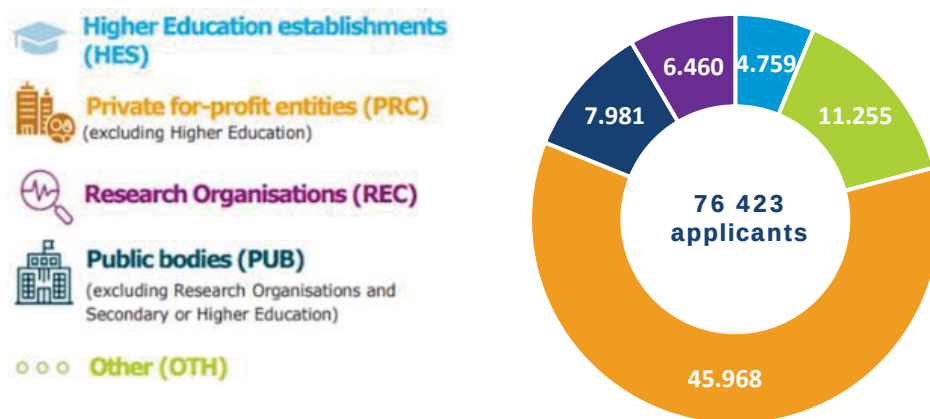
Horizon Europe has had a higher success rate than its predecessor, but nevertheless, 7 out of 10 high-quality proposals could not be funded due to the budgetary limitations.

The programme has been very sought after, receiving **88 803 eligible proposals** to 531 fully evaluated calls. On average, each call comprised 4 topics.

³⁷ Pillars II and III excluding the SME instrument in Horizon 2020.

³⁸ European Commission, DG for Research and Innovation, SME participation in Horizon Europe, Publications Office of the EU, 2024, p. 10. <https://data.europa.eu/doi/10.2777/576670>

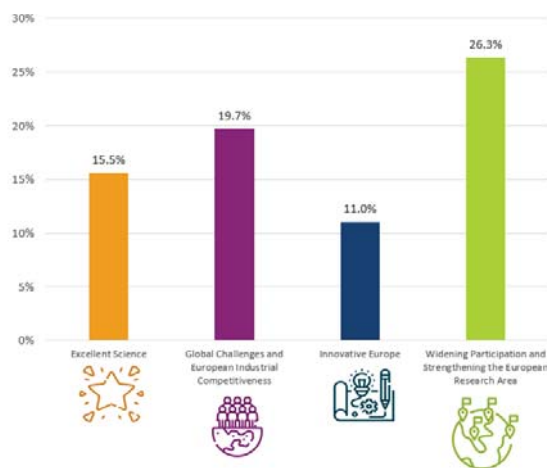
Figure 7: Distribution of Horizon Europe applications by type of organisation



A total of **76 423 applicants** had applied to the programme by 6 January 2025. Each was involved in 6.1 proposals on average. Most applicants were private for-profit entities (45 968) that had applied an average of three times. At the opposite end of the spectrum, 4 759 applicants were from higher education entities, each of which were involved in 37.5 proposals on average. Each research organisation applied an average of 14.4 times.

The **average success rate of proposals has increased** from 12% in Horizon 2020 to 16.4% in Horizon Europe. Success rates vary by pillar, but there are no major differences between country groups. The quality of the proposals has also improved compared to Horizon 2020, 54.6% of them being assessed as high quality by external experts, compared to 46% in Horizon 2020. Only 30.1% of the high-quality proposals could however be funded with the available budget. Even though this is an improvement on Horizon 2020 (25%), an **additional EUR 81.8 billion** (1.9 times the budget allocated to date) would have been needed to fund them all. To promote support through other means at national or regional level, 7 166 of the unfunded proposals have received a Seal of Excellence certificate.

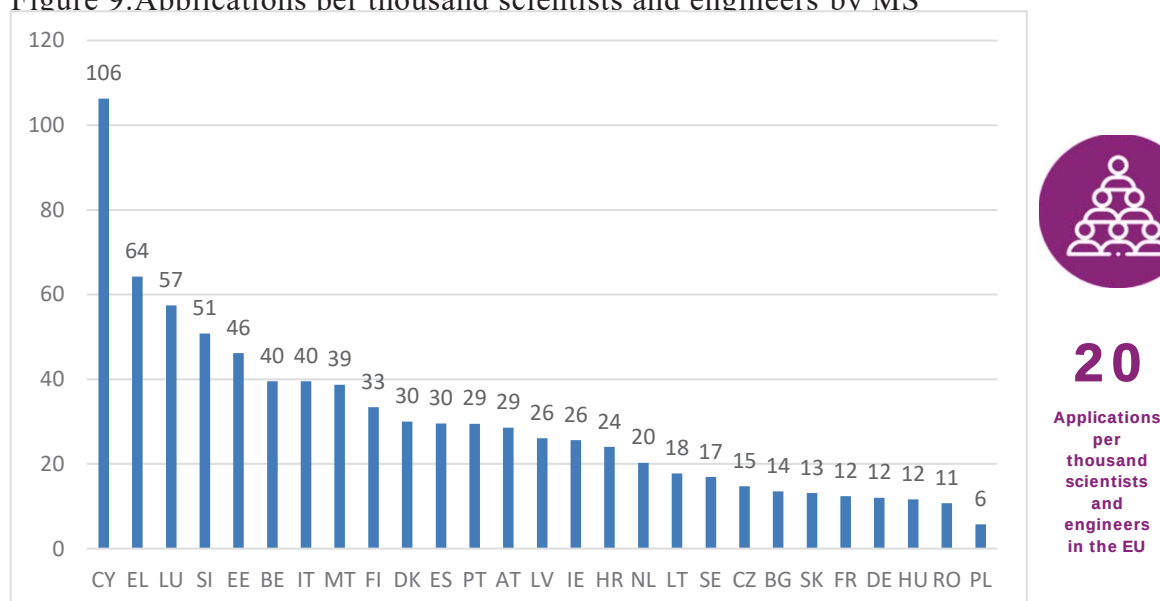
Figure 8: Horizon Europe success rates



A wider geographical coverage and higher success rates from the widening Member States than in Horizon 2020

The programme received applications with participants from **194 countries**³⁹.

Figure 9: Applications per thousand scientists and engineers by MS



Entities located in the 15 **widening Member States** submitted fewer applications than those in the other Member States and accounted for 19.8% of all applications. Some widening Member States (Estonia, Hungary, Lithuania, Slovakia, Slovenia) have an application success rate close to the programme average (20%). It should be noted that the 15 widening Member States are home to 26% of the EU population of scientists and engineers.

Associated countries account for 12.6% of applications (mostly the UK, Norway, Türkiye, Israel, and Serbia), while non-associated **third countries** represent 5.6% (mostly Switzerland, US and China). Most associated-country applications were from the United Kingdom (6.1% of total applications and 48.5% of associated-country applications). Although the UK became an Associated Country on 1 January 2024, it is treated as an Associated Country for all grants and proposals from the start of the Programme (2021) in this analysis.

Additional data, including for European Partnerships and EU Missions, is available in Annex 8.

4. Evaluation findings

4.1 To what extent has Horizon Europe been successful so far and why?

This section provides an evidence-based assessment of the successes and shortcomings of the Horizon Europe programme in terms of its effectiveness, efficiency and coherence. It begins by examining how effectively Horizon Europe has contributed so far to its scientific, societal and economic objectives, as well as the objectives of spreading excellence and widening participation. The section then considers the cost of pursuing these objectives. Finally, it provides evidence of the degree to which the programme has operated in a coherent way, both internally between its different instruments, and externally with other EU and national programmes.

³⁹ Including Member States (widening and not widening) and third countries (associated and non-associated), see lists in glossary.

4.1.1. Effectiveness: **Towards scientific impacts** – To what extent has Horizon Europe advanced scientific excellence (Key Impact Pathways 1-3)?

This section assesses Horizon Europe’s contribution to the three Key Impact Pathways focusing on ‘Creating high-quality new knowledge’; ‘Strengthening human capital in R&I’; and ‘Fostering diffusion of knowledge and Open Science’.

Figure 10: Scientific impacts of Horizon Europe – Key Impact Pathways 1-3



Source: Annex V to Regulation 2021/695

What messages emerged from the stakeholder consultation?

The majority of respondents either agreed or strongly agreed with the statement that **Horizon Europe helped to develop, promote and advance scientific excellence** (83%; 1 301). Disaggregating by category of respondent revealed that companies (84%; 225), academic and research institutions (84%; 673) and business associations (87%; 33) deem Horizon Europe to be successful in developing, promoting and advancing scientific excellence. Conversely, 4% (67) of all respondents either disagreed or strongly disagreed with the statement that Horizon Europe helped to develop, promote and advance scientific excellence (67). Among this small minority, respondents from academic / research institutions constitute the largest proportion, representing 69% (46).

Creating high-quality new knowledge (Key Impact Pathway 1)

As of 6 January 2025, Horizon Europe beneficiaries reported 6 922 peer-reviewed scientific publications that had been validated by the Commission departments. Excluding the publications reported by the Joint Research Centre, Horizon Europe projects reported 4 299 peer-reviewed publications. Under Horizon 2020, at a comparable stage of advancement⁴⁰ and excluding publications under the direct actions of the JRC, beneficiaries had reported 2 827 validated peer-reviewed publications.

In past framework programmes, publications were mainly reported once the projects had been closed. For example, under Horizon 2020, grantees reported approximately 245 000 peer-reviewed scientific publications⁴¹, 43% of which were reported in 2021 or later, when the implementation period of Horizon 2020 had ended.

The R&I framework programme continues to support excellent science – between 1985⁴² and 2023, it supported 35 Nobel Prize winners⁴³ - two more than were reported in the *ex post* evaluation of Horizon 2020.

What messages emerged from the stakeholder consultation?

Stakeholders share the view that **scientific publications** have the highest potential impact on disseminating and exploiting results vis-à-vis workshops, events, project websites, patents and Commission exploitation support services: 68% (1 056) of respondents indicated that scientific publications help to a great extent to disseminate

⁴⁰ 31 March 2017, i.e. 3 years and 3 months after the start of the programme.

⁴¹ Figure from Commission monitoring systems (CORDA), 2 December 2024.

In line with the Key Impact Pathways’ methodology, the figure only encompasses peer-reviewed publications that the Commission could match to an external database for verification (Scopus). This verification step was not carried out in the past, including at the time of the final evaluation of Horizon 2020. The figure for Horizon 2020 might still change in the future as the matching methodology is improved and more publications are matched.

⁴² 1985 is the second year of the existence of the Framework Programme for Research and Innovation.

⁴³ Programme Performance Statement, June 2024.

and exploit results. Research institutions and citizens deem scientific publications most useful (approximately 75% of each group: 596 and 160 respondents respectively). Conversely, business associations and companies saw less potential for scientific publications, with less than 10% indicating that they only helped a little or not at all to disseminate and exploit results (8% (3) and 7% (17) respectively).

Strengthening human capital in R&I (Key Impact Pathway 2)

A total of 95 156 researchers are benefiting from upskilling activities under Horizon Europe, of which 44.14% are women. In addition, MSCA have registered 8 307 researchers benefitting from mobility grants, while the ERC has registered 1 662 such researchers. The EIT KICs also contribute to this KIP through the upskilling/reskilling of the workforce within strategic value chains. More data is available in the EIT dedicated section below.

Fostering diffusion of knowledge and open science (Key Impact Pathway 3)

A total of 10 222 publications – including non-peer-reviewed scientific articles – have been reported so far under Horizon Europe, over 79% of which are reported by beneficiaries as available in open access (OA)⁴⁴. This is a moderate increase compared to Horizon 2020, which had 69.8% at the same stage of advancement.

Horizon Europe's mechanisms for driving the uptake of open science at national level include: 1) supporting the development of knowledge and tools on open science; 2) supporting the development of research and technology infrastructures, environments and platforms that enable open access practices; and 3) inspiring the uptake of open science practices through guidelines, the requirements of the FP and participation in Missions and consensus-building activities⁴⁵.

- Clusters 1, 2, 5 and 6 have promoted open access in the work programmes, but as many projects are still at an early stage it is premature to provide feedback on open-source matters⁴⁶.
- Cluster 3, and to a lesser extent Cluster 4, have more restrictions than other clusters, that apply to sensitive actions that use classified background information and/or produce security-sensitive results⁴⁷.

The main barrier to publishing in open access is accessing sufficient funds to pay for the fees required by some journals or data repositories⁴⁸. The Horizon Europe Regulation states that if the results are not exploited within a given period, the beneficiary shall use an online platform to find interested parties to exploit those results⁴⁹. In 2021, the European Commission created Open Research Europe⁵⁰, a free open access publishing platform for European Commission-funded researchers across all subject areas. As of October 2024, over 750 peer-reviewed publications and 1 500 peer-reviews are available on the platform. Over 1600 authors from nearly 1000 institutions have published in Open Research Europe.

What messages emerged from the stakeholder consultation?

Over a third (35%; 535) of respondents indicated that **open science activities** for early sharing of results help to disseminate, exploit and access research and innovation results to a great extent. This view is particularly prevalent among non-EU citizens (51%; 18), followed by EU citizens (39%; 73) and academia (38%; 299). Overall, 73% of all respondents (1 114) indicated that open science activities either helped either to a great extent, somewhat or a little. Only 4% (56) held the view that open science activities did not help to disseminate, exploit

⁴⁴ Verification of the self-reported data against external data sources was still in progress at the time of this evaluation. The share does not include all JRC publications, 81% of which are published in open access.

⁴⁵ Excellent Science evaluation study, 2024, section 4.1.1.4, <https://data.europa.eu/doi/10.2777/2295765>

⁴⁶ Resilient Europe evaluation study, section 7.6, <https://data.europa.eu/doi/10.2777/797281>. Green Transition evaluation study 3.6.1.2, p. 69, <https://data.europa.eu/doi/10.2777/67934>

⁴⁷ Ibid.

⁴⁸ Excellent Science evaluation study, 2024, Executive Summary, p. 2, <https://data.europa.eu/doi/10.2777/7542049>

⁴⁹ See Art. 39, Regulation (EU) 2021/695 establishing Horizon Europe.

⁵⁰ <https://open-research-europe.ec.europa.eu/>

and access R&I results at all. 23% of all respondents indicated that they either do not know or do not hold any views on the matter (355).

European Research Council (ERC)

According to statistics provided by ERCEA, Horizon Europe ERC grantees have published 2 181 peer reviewed scientific publications by the end of 2024⁵¹.

One of the objectives of Horizon Europe has been to attract talent to Europe. In the programme's first 4 years, around 2% of applicants to the ERC's schemes came from non-associated countries⁵² and they made up nearly 1.5% of successful ERC applicants taking up a grant⁵³. Almost half of these grantees came from the US, followed by Australia, India, South Africa, Cameroon and Uganda.

In addition, the survey and the interviews with ERC beneficiaries confirmed the impacts of obtaining an ERC grant on principal investigators (PIs) and their research teams⁵⁴. The main effects cited by interviewees include strengthening their reputation as a researcher, the capacity to conduct frontier research, and the possibility to establish and consolidate their own research group. In addition, according to the survey, ERC grants give PIs the opportunity to improve their skills, mostly in project and people management, as well as in scientific methods and/or techniques. Intersectoral mobility among ERC beneficiaries is very limited, but international mobility opportunities are highly appreciated⁵⁵.

Marie Skłodowska-Curie actions (MSCA)

A total of 65 000 researchers are expected to benefit from MSCA under Horizon Europe, including 25 000 PhD candidates⁵⁶. Of these, MSCA reports more than 8 300 researchers to have already been recruited under Horizon Europe. The MSCA also contribute to producing excellent science through peer reviewed scientific publications (361; 5% of all publications reported under KIP 1).

Postdoctoral fellows benefitting from the MSCA particularly value the freedom to pursue their specific research agendas (91%⁵⁷) and the opportunity to engage in fundamental research (86%)⁵⁸. Moreover, 95% of MSCA postdoctoral fellows affirm that the opportunities provided align with their need to improve their skills and competencies⁵⁹. Countries with the most advanced and attractive research systems continue to host the largest shares of researchers. As with Horizon 2020, the programme also continues to support fellows in returning to their home countries, particularly Greece, Italy, Cyprus and Spain.

⁵¹ The number follows a different methodology from the KIP 1 short-term indicator reported above and should not be counted as a percentage of the latter. Specifically, it is calculated based on the continuous reporting system of projects, which is in principle more up to date but may be subject to revisions when 'official' periodic reports are submitted.

⁵² Applicants from Switzerland and the UK have been excluded from this analysis as these were not associated countries in 2021-2023.

⁵³ Figure from Commission monitoring systems (CORDA), 6 January 2025.

⁵⁴ Excellent Science evaluation study, 2024, Annex 1 – executive summary – ERC, pp. 20-21. <https://data.europa.eu/doi/10.2777/9552959>

⁵⁵ Ibid, Annex 1 1.3, p. 55. 61% of responding beneficiaries (146 out of 241) stated that their ERC project responds to a 'very large' or 'large' extent to their needs for international mobility opportunities.

⁵⁶ Performance tables of the annual mid-term and annual activity reports, as well as the Horizon programme performance statement (PPS), https://commission.europa.eu/document/download/95839d74-fc50-4ea5-81c9-854efefb7eed_en?filename=eac_mp_2024.pdf, p. 35.

⁵⁷ Excellent Science evaluation study Annexes, p. 22. 804 survey respondents. For all MSCA PF applicants: 65%, 1820 survey respondents.

⁵⁸ 705 survey respondents. For all MSCA PF applicants: 60%, 1671 survey respondents.

⁵⁹ Ibid. 782 survey respondents. For all MSCA PF applicants: 74%, 2 047 survey respondents.

According to the survey, 75% of MSCA postdoctoral fellows are satisfied with the supervision provided and agree that the arrangements in place are clearly defined⁶⁰. Nine out of 10 surveyed researchers report that participating in the programme helped them obtain a research position with better career prospects (87%)⁶¹. A majority of respondents also expect their Horizon Europe project to improve the working conditions of researchers⁶² and the provision of career advice⁶³. For quality and transparency of recruitment practices, the trend is similar, although slightly lower among staff exchanges participants⁶⁴. Interviewees pointed to measures such as providing more stable job contracts and improving salary conditions as the MSCA benefits that improved the competitiveness of their organisations the most⁶⁵.

Overall, MSCA postdoctoral fellows consider host organisations to be highly committed to improving the stability of researchers' jobs (60%)⁶⁶ while noting challenges to keep the MSCA allowances competitive. Since the time of the survey, salaries have already been revised. The need for improved communication on fellowship and grant details before projects commence has also been noted by fellows⁶⁷.

Successful applicants regard MSCA projects as an effective means to create or enhance collaborations with leading research organisations. Notably, 89% of MSCA beneficiary organisations⁶⁸ believe that their participation in the programme significantly strengthens their relationship with leading research organisations in Europe and beyond. For MSCA postdoctoral fellows, the programme provides ample opportunities for interdisciplinary cooperation⁶⁹. The MSCA continues to successfully attract well-networked organisations with a long-standing tradition of scientific excellence, with the top 1% most networked entities accounting for 29.6% of total participations in the programme, surpassing the Horizon Europe average of 22.1%⁷⁰.

Research infrastructures

Research infrastructures (INFRA) supports the roadmap of the European Strategy Forum for Research Infrastructures (ESFRI), outlining the essential RIs needed in Europe for the next 10-20 years. INFRA funds various phases of ESFRI projects, including design studies, preparatory phases, and implementation phases. However, many interviewees and survey respondents consider the existing funding for RI development to be insufficient⁷¹. Problems with the lack of funding for the maintenance or sustainability of infrastructure reported in the final evaluation of Horizon 2020⁷² still persist.

⁶⁰ Ibid. 612 survey respondents.

⁶¹ Ibid. 719 survey respondents.

⁶² 51% of 326 DN respondents. 53% of the 112 staff exchange (SE) respondents. 100% of 8 COFUND respondents. Not applicable/unknown and blank responses excluded. Excellent Science evaluation study annexes, p. 310.

⁶³ 65% of 327 DN respondents. 60% of the 111 SE respondents. 88% of 8 COFUND respondents. Not applicable/unknown and blank responses excluded. Excellent Science evaluation study annexes, p. 310.

⁶⁴ 57% of the 333 DN respondents. 48% of the 103 SE respondents and 100% of the 8 COFUND respondents. Not applicable/unknown and blank responses excluded. Excellent Science evaluation study annexes, p. 310.

⁶⁵ Excellent Science evaluation study annexes, p. 312.

⁶⁶ Ibid, p. 22. 495 survey respondents.

⁶⁷ Excellent Science study Phase 2 (HE), Annexes, p. 108. The country correction coefficients, also mentioned by stakeholders, were revised in 2024: <https://data.europa.eu/doi/10.2766/344144>

⁶⁸ 432 survey respondents from MSCA DN, SE and COFUND actions. Excellent Science evaluation study annexes, p. 313.

⁶⁹ 77% of 628 survey respondents agree with this statement, Excellent Science evaluation study annexes p. 22. For all MSCA PF applicants: 60%, 1 656 survey respondents.

⁷⁰ Ibid, p. 24.

⁷¹ Ibid, p. 28.

⁷² SWD(2024) 29 final, pp. 77-78, https://eur-lex.europa.eu/resource.html?uri=cellar:b5a1da8b-be92-11ee-b164-01aa75ed71a1.0001.02/DOC_1&format=PDF

This programme part aims to foster collaboration among RIs and to ensure accessibility for researchers across Europe. Changes made under Horizon Europe include discontinuing integrating activities (INFRAIA) grants and introducing the more challenge oriented INFRASERV grants for the provision of access. INFRASERV topics bring together more heterogeneous RIs than INFRAIA and aim to better address societal challenges. Typically, INFRASERV grants integrate two or more past INFRAIA RI communities. For example, the canSERV project⁷³ integrates more than 130 access providers, including providers from 13 pan-European life sciences RIs to support cancer research. Another example is the AQUARIUS project⁷⁴, which supports Mission Ocean by providing free access to a diverse portfolio of European RIs, including research vessels, marine observation platforms, aircraft, drones, satellites and more. Interviewees expressed concerns about these changes, notably the complexity of project coordination, the fragmentation of funding and the sustainability of the services developed beyond the lifetimes of individual projects⁷⁵. Interviewees indicated the need for a longer-term vision for the integration of RIs. However, the full impact of these changes will need to be assessed over a longer period of time.

INFRA plays an important role in the development of the **European Open Science Cloud (EOSC)**. While advances are being made on FAIR data and the creation of new services, interviewees⁷⁶ expressed concerns about two issues which are already being addressed:

- The first is the lack of synchronisation between projects, potentially leading to a duplication of efforts and unexploited synergies. To address this, the INFRA work programme includes two topics (in 2021 and 2024) with dedicated activities for coordination among INFRAEOSC projects. The Commission also organises annual ‘concertation’ meetings of INFRAEOSC projects in order to further support coordination and the development of synergies.
- The second is the discontinuation of dedicated funding for the science clusters. Interviewees consider these clusters to be a key platform through which RIs of the same scientific discipline can collaborate, which in turn enables integration of RI services and data into the EOSC.

Pillar II contributions to Excellent Science

Scientific excellence is a primary evaluation criterion for Pillar II projects.

In addition to the main generators of peer reviewed publications (the ERC and JRC, both detailed above), Pillar II has generated 3 026 peer-reviewed publications. The largest share comes from Cluster 4 (Digital, industry, and space) with 1 453 publications. This is followed by Cluster 1 (Health) with 478 publications, and Cluster 5 (Climate, energy, and mobility) with 420 publications. Cluster 6 (Food, bioeconomy, natural resources, agriculture, and environment) has produced 430 publications. Cluster 2 (Culture, creativity, and inclusive society) and Cluster 3 (Civil security for society) contribute the fewest publications, 130 and 132 respectively. The lower number of publications for Cluster 2 and 3 is consistent with their lower funding expenditure, as together they contribute 5% of the pillar II budget.

Joint Research Centre’s direct research actions

According to a bibliometric study⁷⁷ that analysed the JRC’s publications indexed by Scopus between 2018 and 2022, JRC publications are cited 2.26 times the world average⁷⁸, similar to

⁷³ <https://cordis.europa.eu/project/id/101058620>

⁷⁴ <https://cordis.europa.eu/project/id/101130915>

⁷⁵ Excellent Science study annex, 2024, p. 26, <https://data.europa.eu/doi/10.2777/9552959>.

⁷⁶ Ibid, p. 26.

⁷⁷ Costa Dantas Faria, J., Hristova, M.A. and Lehto, S., Bibliometric analysis of JRCs research performance using Scopus-Scival tools 2018-2022, European Commission, 2024, JRC136476.

⁷⁸ 2014-2018: 2.34, 2016-2020: 2.27.

prestigious institutions such as the University of Oxford. The results were similar during the Horizon 2020 programming period. Moreover, the JRC publishes in top journals⁷⁹, with 45.4% in the top 10% most cited category and 6.6% in the top 1%, showing a significant increase from 37.1% and 2.1% respectively for the first 5 years of Horizon 2020.

Collaboration is a key aspect of the JRC's work, with 82% of publications involving authors from other organisations. Under Horizon Europe, the JRC joined as an associated partner for 32 collaborative projects under Pillars I and II. Of these, it joined 24 projects from Clusters 2, 4, 5 and 6, hosted three doctoral networks and three postdoctoral fellowships under MSCA, and provided research infrastructure in two pan-European research consortia⁸⁰.

In addition, a panel of independent experts⁸¹ provided a positive assessment of the JRC, acknowledging its relevance, high-quality work and agility in addressing new challenges. Examples of JRC's expertise in support of policy-making include:

- **The EU digital policies:** JRC studies on technological and organisational enablers for data sharing in the EU informed the Data Act⁸², while the estimation of benefits from interoperability informed the impact assessment of the Interoperable Europe Act⁸³.
- **Monitoring and measuring climate action:** In 2024, the Commission presented its recommendation for a 2040 climate target to reduce net greenhouse gas emissions by 90% relative to 1990 levels, with an impact assessment of possible pathways to reach climate neutrality by 2050⁸⁴. The impact assessment was underpinned by the JRC's quantitative scenario analysis on the policy options.
- **Green Deal industrial plan:** JRC studies on supply chains and recycling potential⁸⁵⁻⁸⁶ and its Raw Materials Information System⁸⁷ were used to track supply and demand for shaping the Critical Raw Materials Act⁸⁸. For the Net-Zero Industry Act, the JRC provided analysis and recommendations on strategic infrastructure investment needs, industrial development and clean tech policies for key strategic net-zero technologies (notably batteries, electrolyzers, solar energy, onshore wind and offshore renewables, sustainable biogas and biomethane, carbon capture and storage, heat pumps and geothermal, and grids)⁸⁹.

⁷⁹ Costa Dantas Faria, J., Hristova, M.A. and Lehto, S., European Commission, Bibliometric analysis of JRCs research performance using Scopus-Scival tools 2018-2022 4, p. 26.

⁸⁰ Based on Horizon Dashboard data, R&I organisation profiles

https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/dc5f6f40-c9de-4c40-8648-015d6ff21342/overview

⁸¹ Heuer, R.-D., et al., Interim evaluation of the activities of the Joint Research Centre under Horizon Europe and Euratom 2021-2025 - Final report of the evaluation panel, Publications Office of the European Union, 2023.

⁸² SWD/2022/34 final. Reference to JRC: pp. 23, 27, 43, 138.

⁸³ SWD/2022/721 final. Reference to JRC: pp. 12-13, 18, 21, 33-34, 48-49, 54, 62, 64, 85, 87, 90, 94, 96-98.

⁸⁴ SWD(2024) 63 final. Reference to JRC: Part 1, pp. 10, 52-54, 67-69, 87, 92-95, 122; Part 2, pp. 3-5, 7-12, 15-16, 30, 45-47, 83, 97-98, 100, 109, 120; Part 3, pp. 20, 30, 118-119, 122, 131, 143, 151-153, 193-198, 207-210, 214-216, 218, 232-233; Part 3, pp. 9, 11, 15, 23-24, 36, 52, 58; Part 5, pp. 6.

⁸⁵ Carrara, S. et al., Supply chain analysis and material demand forecast in strategic technologies and sectors in the EU – A foresight study, Publications Office of the European Union, 2023.

⁸⁶ Tazi, N. et al., Initial analysis of selected measures to improve the circularity of critical raw materials and other materials in vehicles, Publications Office of the European Union, 2023.

⁸⁷ <https://rmis.jrc.ec.europa.eu/>

⁸⁸ (i) Proposal for a Regulation COM(2023)160final, p.1; (ii) SWD/2023/161/FINAL, pp.116-117, 160, 173.

⁸⁹ (i) Proposal for a Regulation COM(2023) 161 final. Reference to JRC: p. 10; (ii) SWD(2023) 68 final. Reference to JRC: pp.27, 50-58, 74, 76, 103, 109; iii) SWD(2023) 219 final. Reference to JRC: pp. 13, 83, 84 and 94.

4.1.2. Effectiveness: **Towards ‘societal impacts’** – To what extent has Horizon Europe increased the R&I contribution to address global challenges (Key Impact Pathways 4-6)?

This section assesses Horizon Europe’s contribution to the Key Impact Pathways focusing on societal impact: ‘Addressing EU policy priorities & global challenges through R&I’; ‘Delivering benefits and impact via R&I missions’; and ‘Strengthening the uptake of R&I in society’.

Figure 11 - Societal impacts of Horizon Europe – Key Impact Pathways 4-6



Source: Annex V to Regulation 2021/695

Addressing EU policy priorities and global challenges through R&I (Key Impact Pathway 4)

By mid-2024, beneficiaries mobilised EUR 7.42 billion of their own funds to address SDGs, and EUR 6.08 billion of their own funds to support climate-relevant projects. A total of 9 463 publications were linked to SDGs and 8 827 are climate-relevant in that they support EU policy priorities and address global challenges through R&I. Regarding innovative outputs, 3 570 were linked to SDGs, and 2 893 were climate-related.

Of the projects supported under Horizon Europe, the biggest proportion focused on **SDG3 - Good health and well-being (44%)**, followed by **SDG7 - Affordable and clean energy (24.2%)**, **SDG9 - Industry, innovation and infrastructure (22.9%)**, and **SDG16 - Peace, justice and strong institutions (21%)**⁹⁰. Climate action (SDG13) is no longer in the top four, whereas the coverage of SDG3, SDG7 and SDG16 increased so far compared to Horizon 2020 (from 26% to 44%, from 12% to 24%, and from 6% to 21%, respectively)⁹¹.

Effectiveness in contributing to EU policy priorities:

- **Climate action:**
 - The climate contribution of Horizon Europe was 35% by the end of 2023⁹². By comparison, the contribution of the previous framework programme, Horizon 2020, was 32%, falling short of the 35% target⁹³.
 - 65% of Horizon Europe call topics on climate science in Cluster 5 between 2021 and 2024⁹⁴ should contribute to the Intergovernmental Panel on Climate Change (IPCC)’s work by improving climate, adaptation and mitigation knowledge and projections. The results of these projects are not yet available. The previous two framework programmes were identified as the second most frequently acknowledged funding source of the

⁹⁰ Innovative Europe external evaluation study, Annex 6.3 on ‘Sustainable Development Goals (SDG) Analysis’, forthcoming in 2024, p. 400. More detail can also be found in the dedicated section on SDGs in the PPS.

⁹¹ Ibid, p. 401 and 405. The comparison between Horizon Europe and Horizon 2020 is subject to methodological limitations (see Annex 2 of this SWD).

⁹² According to the DG BUDG Climate Dashboard data as of 27 January 2025. This is based partly on preliminary estimates and continuous monitoring of Horizon Europe’s climate mainstreaming efforts, therefore data is subject to yearly revisions as the programme evolves. The data is currently being revised and might be updated in future Programme performance statements.

⁹³ SWD(2024) 29 final, p. 22.

⁹⁴ https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-8-climate-energy-and-mobility_horizon-2021-2022_en.pdf, https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-8-climate-energy-and-mobility_horizon-2023-2024_en.pdf

research referenced in the IPCC's 6th Assessment Cycle reports, with over 4 500 publications cited, coming from over 1 200 projects⁹⁵.

- Spending on **biodiversity** increased from 7.9% in 2021 to 8.7% in 2023⁹⁶. According to Horizon Europe's legal basis, the programme should contribute to the overall ambition of directing 7.5% of annual spending under the MFF towards biodiversity objectives in 2024 and 10% in 2026 and 2027⁹⁷.
- Although there is no specific target determined for spending on **clean air objectives**, the Commission is obliged to report on Member States' uptake of EU funds to achieve the objectives of Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants. From 2021 to 2024, the committed contribution of Horizon Europe to clean air is estimated at EUR 3 762.9 million (4%)⁹⁸.
- Horizon Europe investments in the **digital transformation** for 2021-2023 are estimated at up to EUR 14 053.2 million, or 33% of the Horizon Europe budget for these years (compared to 32% under Horizon 2020)⁹⁹.
- Horizon Europe investments in **security** (Cluster 3) supported the EU's commitment to ensuring the EU's civil **security resilience** of citizens and critical infrastructure, and establishing a common culture for disaster preparedness¹⁰⁰.

What messages emerged from the stakeholder consultation?

Overall, 60% of respondents (928) agreed or strongly agreed that Horizon Europe supports access to and uptake of innovative solutions by European industry and society to address global challenges, including climate change and the SDGs. This view was held most strongly among business associations (79%; 30), followed by non-EU citizens (70%; 23) and companies (69%; 183). EU citizens agreed to a lesser extent: 55% (105) (strongly) agreed with the statement, corresponding to a 15-percentage point difference from non-EU respondents.

Delivering benefits and impact via R&I missions (Key Impact Pathway 5)

EU Missions, of which there are five, are a new feature of Horizon Europe. They aim to address societal challenges and boost the impact of the programme. Following the submission of reports¹⁰¹ from the five Mission Boards, they were launched in September 2021 in the form of a Commission Communication¹⁰². Since then, the Missions have developed activities funded through three Horizon Europe work programme parts (2021-2023), accounting for 10% of the Pillar II budget.

Projects related to EU Missions have led to 33 peer-reviewed scientific publications and 1 intellectual property rights (IPR) output. A total of 87 innovative products, processes, and methods have been developed under the projects. In addition, in 38 mission projects (representing 66.7% of the total), citizens or end-users were involved in the co-design of R&I content (compared to 48.7% programme-wide, reported below under KIP 6).

In January 2024, the Commission expert group supporting the monitoring of EU Missions found that 'faster and deeper integration of Missions with national systems and processes has occurred in cases where the Mission's objectives are closely aligned to pre-existing European and national policy strategies, and when the introduction of EU Missions has overlapped with national policy

⁹⁵ SWD (2024) 29 final on the *ex post* evaluation of Horizon 2020, p. 39.

⁹⁶ Horizon Europe programme statement, quoted in [COM\(2024\) 231 final](#)

⁹⁷ Regulation (EU) 2021/695, recital point 76.

⁹⁸ Clean air overview 2024, from June 2024, https://commission.europa.eu/document/download/52cb8a30-ab44-4973-8776-1b97f74bb503_en?filename=Budget%20contribution%20-%20clean%20air_0.pdf

⁹⁹ Ibid. Tracker based on the *intent* of the action.

¹⁰⁰ Resilient Europe evaluation study, 2024, p. 52. <https://data.europa.eu/doi/10.2777/797281>

¹⁰¹ https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/foresight-reports-missions-horizon-europe_en

¹⁰² COM(2021) 609 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0609>

planning cycles. In terms of concrete actions, most countries are at the early stages in their contributions to EU Missions'¹⁰³. For the evaluation at hand, the Mission secretariats provided data on progress towards their goals:

As of the end of 2024, the EU Mission **'Restore our ocean and waters by 2030'** is supporting 225 demonstration sites to prepare the ground for the uptake by national and regional actors of the proposed solutions:

- 122 demo sites in projects selected/running under Specific Objective 1 on marine protection and restoration, and restoration of inland waters.
- Another 55 demo sites in projects selected/running under Specific Objective 2 on preventing and eliminating pollution (microplastics, nutrients and chemicals).
- 29 demo sites in projects selected/running under Specific Objective 3 on greenhouse gas emissions from maritime economic activities in the EU, zero-carbon and low impact aquaculture, low-carbon multi-purpose use of marine and water space.
- 19 demonstrators in projects selected/running that contribute to the development of the 'digital twin ocean', a multi-dimensional and near real-time virtual representation of the ocean. The digital twin combines ocean observations, artificial intelligence, and advanced modelling operating on high-performance computers, and is accessible to all¹⁰⁴.

These results are available on the Mission Ocean and Waters Monitoring dashboard¹⁰⁵.

The Mission 'A Soil deal for Europe' (Mission Soil) aims to *'establish 100 living labs and lighthouses leading the transition towards healthy soils by 2030'*. The first 25 living labs have been set-up. The encompass around 250 real-life testing sites and involve 167 partners, 25% of which are from private sector, in 11 Member States. They take a bottom-up research approach that is place-based and collaborative, engaging stakeholders to address specific soil health needs and challenges in real-world settings. Although the list of living labs and lighthouses has not been published, numbers were provided by the Mission secretariat for this evaluation. Similar or higher numbers are expected under current and future annual work programmes. High-performing living labs sites will be designated as 'lighthouses' on a rolling basis, starting in 2025, based on criteria from the Mission implementation plan (undergoing refinement)¹⁰⁶.

Mission Soil has also contributed to key EU policies, including the proposal for a directive on soil monitoring and resilience. A key tool for such policy support is its Soil Health Dashboard¹⁰⁷, launched in March 2023, which provides an overview of soil health in the EU using 19 indicators. It covers the whole EU territory and covers some of those indicators for the first time (i.e. concentrations of heavy metals).

The Mission '100 Climate-Neutral and Smart Cities by 2030' has also made progress:

- In 2022, 100 cities¹⁰⁸ from 27 MS were *selected* to participate in the Cities Mission, as well as 12 cities from associated countries (out of a total of 377 interested cities)¹⁰⁹.

¹⁰³ Karo, E., Barajas, A., Sarvaranta, L. et al., Final report of the Commission expert group to support the monitoring of EU missions, Publications Office of the EU, 2024, p. 7. <https://data.europa.eu/doi/10.2777/076494>

¹⁰⁴ <https://digitaltwinocan.mercator-ocean.eu/>

¹⁰⁵ <https://projects.research-and-innovation.ec.europa.eu/en/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters/monitoring-dashboard>

¹⁰⁶ European Commission, Mission Soil implementation plan, pp. 31-32, and Annex D, p. 74. https://mission-soil-platform.ec.europa.eu/sites/default/files/2023-07/soil_mission_implementation_plan_final_for_publication.pdf

¹⁰⁷ <https://esdac.jrc.ec.europa.eu/esdacviewer/euso-dashboard/>

¹⁰⁸ EU missions, 100 climate-neutral and smart cities – Cities on a journey to climate neutrality, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/169604>

¹⁰⁹ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

- By October 2024, 53 of these cities¹¹⁰ had received the *Mission label*, meaning that their ‘climate city contracts’ were completed and assessed positively by the Commission.
- In addition to those with climate city contracts, 104 participating cities¹¹¹ are exploring innovative approaches to accelerate their climate transitions with funding from a pilot programme.
- As of November 2024, no cities have been designated by the Mission as climate neutral and smart. Cities with a Mission label have 5-6 years to work towards becoming climate neutral and smart¹¹² along the lines set out in their climate city contracts.

The Mission on adaptation to climate change is progressing towards its goal of ‘supporting 150 European regions and communities becoming climate resilient by 2030’:

- As of November 2024, the Mission is supporting 145 regions in accelerating their adaptation efforts. Of these, 32 regions are receiving financial support to assess their climate risk, 40 are receiving financial support to develop their pathways to climate resilience, 58 are receiving technical assistance to develop their adaptation plans, and 18 have already received the full range of support.
- 200 regions / local authorities are participating in projects funded by the Mission. Of these, 162 are participating in projects where they test and demonstrate innovative adaptation solutions. For example, the CLIMATEFIT project¹¹³ helps Mission participants to develop investment strategies and mobilise financial resources.

Although the list of regions and communities has not been published, the Mission secretariat provided the figures for this evaluation.

The Mission has produced guidance¹¹⁴, tools¹¹⁵, and data¹¹⁶, and has supported the implementation of innovative solutions^{117,118}. Much of the support is provided on the Climate ADAPT portal and through the Mission Adaptation Community¹¹⁹. For example, participating as a leading demonstration site in the ARCADIA project¹²⁰ enabled the region of Emilia-Romagna (Italy) to exchange information with other regions, raise awareness among local policymakers about climate adaptation, and explore improvements to its water network management¹²¹.

The EU Cancer Mission’s goal is to **‘improve the lives of more than 3 million people by 2030 through prevention, cure and for cancer patients, including their families, to live longer and better’**. While the number of people whose lives have been improved cannot yet be reported, progress towards the goal is as follows:

¹¹⁰ https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_23_4879/IP_23_4879_EN.pdf, https://managenergy.ec.europa.eu/managenergy-discover/news/23-cities-awarded-eu-mission-label-their-efforts-towards-climate-neutrality-2024-04-08_en and https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/commissioner-ivanova-hands-over-eu-mission-label-20-cities-2024-10-22_en

¹¹¹ <https://netzerocities.eu/pilot-cities-programme/>

¹¹² According to the JRC definition. https://research-and-innovation.ec.europa.eu/document/download/cb258381-77d5-435a-8b25-9a590795dc9e_en?filename=ec_rtd_eu-mission-climate-neutral-cities-infokit.pdf

¹¹³ <https://cordis.europa.eu/project/id/101112705>

¹¹⁴ E.g. with the Funding and Financing Guide. <https://climate-adapt.eea.europa.eu/en/mission/funding/guide>

¹¹⁵ E.g. [Stakeholder and Citizen Engagement in Climate Adaptation: A DIY Manual](#)

¹¹⁶ E.g. [Regional Adaptation Support Tool](#)

¹¹⁷ [Adaptation Stories and Mission Case Studies](#) showcase real-life examples of regional or local actions and good practices regarding the planning, funding, implementing and monitoring of climate adaptation solutions.

¹¹⁸ <https://climate-adapt.eea.europa.eu/en/mission/solutions/mission-stories/natural-playgrounds-and-schoolyards-story17>

¹¹⁹ <https://futurium.ec.europa.eu/en/eu-mission-adaptation-community>

¹²⁰ <https://cordis.europa.eu/project/id/101112737>

¹²¹ <https://climate-adapt.eea.europa.eu/en/mission/solutions/mission-success-stories?activeAccordion=b88b1f74-8e1e-4dad-853b-eeac4ddbda7>; More examples and details are available in the [Mission Stories](#)

- the ECHoS project¹²², which involves 60 partners from all EU Member States and three associated countries, is creating a network of national cancer Mission hubs through stakeholder engagement and cross-policy dialogue.
- The Mission supports the revised Council Recommendation on cancer screening¹²³ by helping develop innovative, less invasive and more accessible methods and technologies for cancer screening. It also supported a pilot roadshow in Lithuania, Poland and Romania to raise awareness about cancer prevention and screening, which had 16 804 visitors¹²⁴.
- A dialogue with young cancer survivors from all over Europe was organised, which resulted in a new research topic being added to the 2024 Cancer Mission work programme on ‘late-effects of treatment in adolescent and young adult (AYA) cancer patients and survivors’ (budget: EUR 36 million). A complimentary study on the provision of AYA care in Europe is being supported by the 2024 EU4Health programme¹²⁵.
- Support for 20 international clinical trials which use participative research to optimise affordable personalised diagnostic and therapeutic interventions. The trials involve over 3000 patients with difficult-to-treat cancers and aim to integrate successful interventions into national healthcare systems by 2030.

Mission Cancer is currently setting up its monitoring system so it can effectively measure progress towards its goal of improving the lives of more than 3 million people by 2030 through prevention, cure and solutions to live longer and better. However, it faces the challenge of defining ‘improving lives’ in the context of a disease that may return after treatment.

What messages emerged from the stakeholder consultation?

When asked about the **effectiveness of EU Missions compared to regular collaborative research**, 30% of respondents said they were ‘somewhat’ or ‘to a great extent’ more effective (491 out of 1663 respondents).

However, only **20% of respondents are (very) satisfied with the EU Missions’ progress towards their objectives so far** (325). The most satisfied stakeholder groups are public authorities (24%; 21) and academia (21%; 174). At the other end of the spectrum, 12% are (very) dissatisfied (196), with the most dissatisfied stakeholder groups being NGOs (18%; 13), public authorities (16%; 14) and academia (14%; 115).

EU Missions’ governance

The process for designing all five EU Missions was participatory, open and transparent, despite challenges with conducting consultations caused by the COVID-19 pandemic¹²⁶. The regulation establishing Horizon Europe called for Missions to ‘be bold and inspirational’, with ‘wide, scientific, technological, societal, economic, environmental or policy relevance and impact’¹²⁷. Their goals were further developed at the political level in diverse ways.¹²⁸

The Missions’ implementation plans include *possible* impact-level indicators¹²⁹ but their monitoring and evaluation framework has not been finalized, despite the fact that the regulation establishing Horizon Europe stipulated that “The missions, their objectives, budget, targets,

¹²² <https://cordis.europa.eu/project/id/101104587>

¹²³ <https://data.consilium.europa.eu/doc/document/ST-14770-2022-INIT/en/pdf>

¹²⁴ Details are available on the [Cancer Mission implementation page](#)

¹²⁵ For further information please consult https://hadea.ec.europa.eu/news/eu4health-prior-information-notice-exploratory-study-provision-care-adolescent-and-young-adult-aya-2024-07-16_en

¹²⁶ SWD(2023) 260 final on the assessment of EU Missions, p. 11 for Mission Climate Change Adaptation, p. 34 for Mission Cancer, pp. 59-60 for Mission Ocean and Waters, p. 87 for Mission Cities, pp. 108-109 for Mission Soil, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52023SC0260>

¹²⁷ Regulation (EU) 2021/695, Art. 8. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R0695>

¹²⁸ Goals were further specified after they were laid out in the Horizon Europe regulation.

¹²⁹ Table 1 in the implementation of the Mission on Climate Change Adaptation, p. 36 in the Mission Cancer implementation plan, p. 51 of the Mission Ocean and Water implementation plan, illustrative examples on p. 43 in the Mission Cities implementation plan, proposed indicators on p. 69 of the Mission Soil implementation plan.

scope, indicators and milestones shall be identified in strategic R&I plans or the work programmes”¹³⁰.

In the 2023 assessment of Missions, many stakeholders reported that their **governance process is ‘cumbersome, complex and lacking transparency’**¹³¹. While acknowledging the differences between the Missions’ governance, the Commission committed to make the EU Missions more effective for example by:

- intensifying discussion with political actors, notably Member States, on how to streamline their governance to make it more efficient, inclusive, and effective;
- mobilising a broader portfolio of instruments to secure greater participation of the private sector, including public-private partnerships and the public procurement of innovation;
- carrying out targeted actions to support local and national communication efforts to boost citizen engagement and raise awareness about EU Missions.

Since the 2023 assessment, the relevant Commission departments have strengthened the governance processes by reinforcing the horizontal steer and coordination of the EU Missions. More specifically, they engaged with Member States through the [mutual learning exercise \(MLE\)](#) of the Policy Support Facility. In addition, the Mission Boards’ terms of reference (ToR) were updated in 2024 to improve coordination mechanisms and ensure strategic alignment with EU-wide and local objectives.

Governance issues were also flagged in the evaluation of Focus Areas – a pilot initiative under the predecessor programme, Horizon 2020. The evaluation remarked that Focus Areas were added as an extra layer of cooperation, within a policy mix already suffering from ‘increasing complexity and fragmentation’¹³².

What messages emerged from the stakeholder consultation?

More than half of respondents to the consultation consider that the **creation of EU Missions** contributes **somewhat or to a great extent** to strengthening the impact of European R&I (52%; 813).

Public authorities feel the most favourably about the EU Missions, with 56% (49) agreeing with the statement that the creation of the EU Mission contributes somewhat or to a great extent to strengthening the impact of EU R&I, followed by EU citizens (52%; 105) and companies (50%; 138). Non-EU citizens were less favourable, with 42% (105) agreeing or strongly agreeing that the EU Missions help strengthen impact. Only business associations were less favourable (37%; 18).

Only 6% (95) of the respondents consider that the creation of the EU Missions does **not at all** contribute to strengthening the impact of European R&I.

Strengthening the uptake of R&I in society (Key Impact Pathway 6)

A total of 1 636 projects (or 49% of the projects that provided such information by 6 January 2025) have EU citizens or end users involved. This is a new indicator in Horizon Europe: comparable figures for Horizon 2020 are only available for civil society engagement, reported in just 2.9% of projects as of 31 March 2017.

The inclusion of citizens and stakeholders and co-design aspects are emphasised in EU Mission projects (67% of their projects report this type of engagement, compared to 49% programme-wide). Some examples include:

¹³⁰ Regulation (EU) 2021/695, Art. 8. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R0695>

¹³¹ COM(2023) 457 final, p. 9, <https://mission-soil-platform.ec.europa.eu/resource-library/communication-commission-eu-missions-two-years-assessment-progress-and-way-forward>

¹³² SWD(2024) 29, p. 76. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52024SC0029>

- The first European Mission Soil Week in 2023 brought together over 300 in-person and 600 online participants, including key stakeholders, researchers, and policymakers, to discuss the importance of soil health. Launched in April 2023, the Mission Soil manifesto now has 3400 signatories, including more than 600 legal entities and a growing number of local and regional authorities.
- The EU Mission on adaptation to climate change organised 27 community-level events in the regions and local authorities involved in the Mission, and 21 regions / local authorities have received technical assistance to engage citizens and stakeholders.
- the EU Cancer Mission held a dialogue with over 100 young cancer survivors from across Europe, to better understand the challenges they face during and after cancer treatment. It has brought young cancer patients and survivors on board to co-create initiatives¹³³ that will help address their physical and mental well-being, follow-up care, continuity in education etc.

Horizon Europe clusters

This section provides a few, illustrative examples of Pillar II projects per cluster, but is not exhaustive¹³⁴. The work programmes did not provide indicators or targets to assess progress towards the expected outcomes and impacts. Given the early stage of programme implementation (only 6.6% of projects were closed on 6 January), the evaluation can only present examples of outputs.

Under the health cluster (Cluster 1), the CLIMOS project¹³⁵ involved collaboration on an indicator for climatic suitability conditions for leishmaniasis¹³⁶ (a parasitic tropical disease caused by sandflies, deadly in around 8% of the 700 000 to 1 million new cases each year). This cross-project effort resulted in a machine learning modelling approach that has been applied to predict the climatic suitability for this disease across several regions. Several countries can therefore prepare for the climate change-related arrival of a devastating disease.

Horizon Europe also funds **digital health solutions**, as demonstrated by XpanDH¹³⁷ - a project that aims to speed up the adoption of the European electronic health record exchange format (EEHRxF) across the EU by mobilising and building capacity in individuals and organisations, enabling citizens to easily access and share their health data with healthcare professionals. Another project, MELISSA¹³⁸, which brings together experts in diabetes, AI, behavioural sciences, and clinical trials, among others, – is developing an AI-based digital diabetes management solution that provides personalised treatment and care recommendations. AI approaches are used to adjust daily insulin treatment in line with real-time glucose fluctuations.

Cluster 2 – **Culture, creativity and inclusive societies** supports research aimed at strengthening European democratic values, including rule of law and fundamental rights. For example, ITHACA¹³⁹ is developing and testing a human-centric AI and ethics-by-design online discussion platform for civic participation in local governance, integrating human and social interpretations

¹³³ [2024 EU Cancer Mission call, topic 05: Improving the understanding and management of late-effects in adolescents and young adults \(AYA\) with cancer \(RIA\) - European Commission \(europa.eu\)](#)

¹³⁴ The highlighted projects stem from the ‘feedback to policy’ mechanism and were identified in January-March 2024 through the network of coordinators and contact points. Feedback to policy bridges policy work and research stemming from Horizon Europe via collaborative channels and work between policy DGs and executive agencies.

¹³⁵ <https://climos-project.eu/>; <https://cordis.europa.eu/project/id/101057690>

¹³⁶ The indicator is expected to be part of the [Lancet Countdown Europe Report for 2024](#) (due in May 2025) and will be made available to public health professionals and decision-makers as part of the [European Climate and Health Observatory](#).

¹³⁷ <https://cordis.europa.eu/project/id/101095594>

¹³⁸ <https://cordis.europa.eu/project/id/101057730>

¹³⁹ <https://cordis.europa.eu/project/id/101094364>

into the design, to ensure that AI decision-making processes are explainable, transparent and fair and consider the needs of vulnerable groups.

Cluster 3 initiatives address security threats, disaster management, and crisis response. They enable the development of security solutions in real environments by involving security practitioners and citizens¹⁴⁰. Horizon Europe contributes to **border security** through projects such as MELCHIOR¹⁴¹ and ODYSSEUS¹⁴² aimed at making border control checks more efficient and ethical thanks to advanced, non-intrusive technologies. MELCHIOR, which builds on the success of the Horizon 2020 project MESMERISE¹⁴³, is further developing and demonstrating a novel technology based on infrasound waves for detecting drugs, explosives, weapons, and illicit goods concealed on individuals and in body cavities. ODYSSEUS uses a combination of portable unobtrusive screening technology, drone-assisted image processing, and AI-based data analytics to enable border authorities to remotely validate identities and check vehicles, luggage or cargo, while enhancing the travel experience for EU and non-EU citizens.

Horizon Europe also supports **disaster resilience** in Cluster 3 through initiatives such as DIREKTION¹⁴⁴, which follows up on the Horizon 2020 project Fire-IN¹⁴⁵. The project promotes an EU-wide network of fire and rescue practitioners, evaluating emerging technologies, and fostering collaboration between various stakeholders to address challenges related to climate change, ageing infrastructure, and geopolitical instability. Under Cluster 3, Horizon Europe also funds efforts to improve **cybersecurity**, e.g. the CS-AWARE-NEXT¹⁴⁶ project, which focuses on improving cybersecurity management for organisations and local supply networks by providing advanced AI-based threat intelligence integration, supporting compliance with European legislation, and enhancing internal and external cooperation.

Through its targeted investments, **Cluster 4** has not only contributed to immediate research advances but has also laid the **groundwork for an EU positioning in key technology areas** contributing to the digital and industrial transition, such as quantum computing, space and advanced materials. However, and even though the patent profiles of Cluster 4 researchers show the appropriate specialisation in all KETs, patent filing trends from EU-27 countries have remained stable since FP7, while the EU global patent shares in most KETs¹⁴⁷ have been declining¹⁴⁸.

Through projects like IRISS¹⁴⁹, the programme supports the development and implementation of **sustainable and safe materials**. With a specific focus on SMEs, IRISS aims to help industries utilise safe and sustainable-by-design materials (SSbDs) via a state-of-the-art ecosystem. Cluster 4 also funds the development of **advanced materials** such as high-performance composites (HPCs) whose applications are currently hindered by long processing times, high costs, and low recyclability. The r-LightBioCom project¹⁵⁰ proposes a paradigm shift in the way HPCs are manufactured and recycled, unlocking sustainable-by-design production of lightweight HPCs.

¹⁴⁰ Resilient Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/797281>, p. 46

¹⁴¹ <https://cordis.europa.eu/project/id/101073899>

¹⁴² <https://cordis.europa.eu/project/id/101073910>

¹⁴³ <https://cordis.europa.eu/project/id/700399>

¹⁴⁴ <https://cordis.europa.eu/project/id/101121249>

¹⁴⁵ <https://cordis.europa.eu/project/id/740575>

¹⁴⁶ <https://cordis.europa.eu/project/id/101069543>

¹⁴⁷ Including advanced manufacturing, advanced materials, life-science technologies, micro/nano-electronics and photonics, artificial intelligence, security and connectivity, https://research-and-innovation.ec.europa.eu/key-enabling-technologies_en

¹⁴⁸ Digital & industrial transition evaluation study – Conclusions, 2024, <https://data.europa.eu/doi/10.2777/845650>.

¹⁴⁹ <https://cordis.europa.eu/project/id/101058245>

¹⁵⁰ <https://cordis.europa.eu/project/id/101091691>

The project seeks to enable new circular value chains by reducing HPC waste generation and reliance on non-sustainable energy sources.

To respond to Europe's need for a new generation of batteries that are durable, safer and sustainably manufactured, the framework programme invests in projects such as TEMPEST¹⁵¹. Supported **under Cluster 5**, the project aims to develop high-performance, lightweight, and recyclable batteries for various transportation applications. Its approach involves advanced chemistry and AI with the aim of optimising battery systems with integrated health monitoring and thermal management.

In addition, the European Green Deal relies on continuous input from the scientific research community to ensure it is implemented effectively and based on the latest evidence. By providing better understanding on how the climate system works and how it will change over time, climate science is fundamental for making informed and wise decisions about reducing emissions and adapting to a changing climate¹⁵². For example, the Cluster 5 projects TipESM¹⁵³ and ClimTip¹⁵⁴ bring together scientists from a range of disciplines boost our understanding of climate tipping points on our planet - including their impact on ecosystems and society and to develop a set of early warning indicators and safe future emission pathways that minimise the risk of exceeding these dangerous thresholds and increase societal preparedness.

Cluster 6 supports the development of innovative circular solutions that will be crucial to halting environmental degradation and accelerating the transition to a competitive circular economy in Europe. For example, **the CISUTAC project**¹⁵⁵ is increasing circularity and sustainability in the textiles and clothing sector. It does so by demonstrating the feasibility and value of repair and disassembly, as well as sorting for reuse and recycling, and the creation of circular garments through 'fibre-to-fibre' recycling and design for circularity regarding two material groups of textiles fibre materials (polyester and cotton).

Innovation in aquaculture is also funded under Cluster 6. For example, the **Aquaponics from Wastewater REclamation (AWARE)** project¹⁵⁶ is investigating to grow fish in recycled water. The project hereby aims to farm fish for human consumption in any city, with no impact on natural habitats and no dependence on natural freshwater availability.

EU-funded research is a key contributor to the **Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES)**¹⁵⁷. For example, EU-funded projects have provided knowledge on pollinators that was taken up in the IPBES reports and in turn sparked policy action that addresses knowledge gaps on pollinators¹⁵⁸. Pollinators such as bees and butterflies are a key group of animals that plays a crucial role in maintaining global food security and ecosystems health and that is essential for biodiversity and human well-being. A key Horizon Europe-funded projects in this area is RestPoll¹⁵⁹, that proposes a holistic approach to pollinators habitat restoration through an innovative network of demonstration cases and living labs that engage not only experts but also others stakeholders to achieve solutions combining cutting-edge research, participatory planning and new business models.

¹⁵¹ <https://cordis.europa.eu/project/id/101103681>

¹⁵² European Commission: DG for Research and Innovation, EU research & innovation – Top funder of leading climate science, Publications Office of the European Union, 2023. <https://data.europa.eu/doi/10.2777/40193>

¹⁵³ <https://cordis.europa.eu/project/id/101137673>

¹⁵⁴ <https://cordis.europa.eu/project/id/101137601>

¹⁵⁵ <https://cordis.europa.eu/project/id/101060375>

¹⁵⁶ <https://cordis.europa.eu/project/id/101084245>

¹⁵⁷ <https://op.europa.eu/en/publication-detail/-/publication/4cff1a99-42fd-11ee-a8b8-01aa75ed71a1/language-en>

¹⁵⁸ <https://op.europa.eu/en/publication-detail/-/publication/4846a018-cd83-11eb-ac72-01aa75ed71a1>

¹⁵⁹ <https://cordis.europa.eu/project/id/101082102>

Impacts of institutionalised European partnerships

The legal base for joint undertakings sets out various possible impacts¹⁶⁰ and each JU contributes to one or more of these pathways:

- According to each of their evaluations, all JUs (see annexes) have helped to create and diffuse high-quality new knowledge and skills, through publications, patents, technological solutions, cooperation and knowledge transfer. They have also helped to harmonise regulations and standards across Member States and between other actors.
- All JUs also reported some contribution to the EU's global leadership and value chain resilience in key technologies. Some had more tangible effects than others. For example, the Chips JU (previously ECSEL/KDT) strengthened the European electronic components and systems (ECS) industry by driving innovation and advances in semiconductor manufacturing, and improving the resilience of its technology value chains, particularly in strategic sectors like mobility, health, and environmental technologies¹⁶¹. The Clean Hydrogen JU was instrumental in advancing electrolyser technology and scaling up capacity from 100 kW in 2011 to 10 MW by 2017 and 30 MW in 2023. This JU has ensured that Europe remains a leader in hydrogen fuel cell buses and refuelling infrastructure. Projects like JIVE and JIVE 2 made it possible for fuel cell electric buses to be running in 22 European cities¹⁶².
- Several JUs contributed to developing and accelerating the uptake of innovative solutions. For example, IMI2/IHI JU projects made a practical contribution to the fight against COVID-19, supported an approved vaccine for Ebola virus disease¹⁶³ and a new antibiotic for difficult-to-treat infections¹⁶⁴, provided insights into the genetics of Alzheimer's disease, and identified biomarkers associated with diabetes development¹⁶⁵. The world's second malaria vaccine (R21) was developed through clinical studies supported by the Global Health EDCTP JU, receiving the WHO recommendation for global use in 2023¹⁶⁶.
- Moreover, the EMPIR (institutional) partnership¹⁶⁷ supported research that contributed to the revision process of for of the seven base units for the International System of Units in 2019, linking them to fundamental constants of the universe, addressing the related measuring challenges¹⁶⁸.

Data on the EIT KICs is presented below in the section on that specific topic.

¹⁶⁰ Objectives in Art. 4 of the Council Regulation (EU) 2021/2085. Art. 171 stipulate that the evaluation 'shall examine how each JU fulfils its mission and objectives, cover all activities of the JU and evaluate the JU's European added value, effectiveness, efficiency, including its openness and transparency, relevance of the activities pursued and their coherence and complementarity with relevant regional, national and Union policies, including synergies with other parts of Horizon Europe, such as missions, clusters or thematic or specific programmes. The evaluations shall take into account the views of stakeholders, at both European and national level and shall, where relevant, also include an assessment of the long-term scientific, societal, economic and technological impacts of the JUs'.

¹⁶¹ Annex on the evaluation of ECSEL / KDT / Chips JU.

¹⁶² Annex on the evaluation of Clean Hydrogen / FCH JU.

¹⁶³ EBOVAC, <https://cordis.europa.eu/project/id/115854>

¹⁶⁴ <https://ec.europa.eu/newsroom/sante/newsletter-archives/52538>

¹⁶⁵ Annex on the evaluation of IMI2 / IHI, pp.1-2.

¹⁶⁶ Annex on the evaluation of Global Health EDCTP.

¹⁶⁷ Decision (EU) 2021/2084

¹⁶⁸ Annex on the evaluation of EMPIR / EPM, p. 2.

Visibility, transparency and phasing-out of European Partnerships

Horizon Europe introduced new criteria for evaluating partnerships¹⁶⁹. This section focuses on their (a) international positioning and visibility as global ambassadors for European research and innovation, (b) openness to new participants and transparency of stakeholder involvement, and (c) phasing out preparedness. In addition, an analysis of the partnerships' directionality is presented under the chapter on relevance below, while the partnerships' additionality is assessed under EU added value.

On international positioning and visibility, the European Partnerships' approaches have varied depending on their strategic objectives. According to the Biennial Monitoring Report survey, 23 Partnerships have allocated a budget to establish collaborations with partners outside the EU. However, their approaches vary significantly:

- European-centred partnerships, which focus primarily on European initiatives (e.g. EIT Urban Mobility, Circular Bio-based Europe, Single European Sky Partnership, Driving Urban Transition, InnoEnergy, European Partnership for an Industrial Battery Value Chain, People-centric sustainable built environment - Built4People), either have no international exposure or involve limited efforts to connect with stakeholders outside the EU. Any connection with non-EU stakeholders has mostly been made during international conferences.
- Global-oriented partnerships, which require the involvement of international partners to achieve their objectives (e.g. Global Health EDCTP3, Biodiversa +, Innovative Health Initiative, Water4All), focus on international collaboration aligned with the SDGs and EU policy priorities, such as the AU-EU Innovation Agenda, and are active in the relevant global fora.

Despite their efforts, partnerships' external evaluations identified the following obstacles: lack of sufficient financial resources to engage effectively with international partners¹⁷⁰, concerns about the competitiveness of European industry¹⁷¹, geopolitical issues and demands for technological sovereignty¹⁷², and the absence of a well-defined strategy for international collaboration¹⁷³.

SESAR 2020 and SESAR 3 acting as ambassadors for European air traffic management practices globally

SESAR 3 engages in bilateral cooperation with international partners such as the US Federal Aviation Administration under the EU-US Memorandum of Cooperation, focusing on the modernization and global interoperability of air traffic management (ATM). SESAR 3 has also established cooperation with Singapore, Qatar and the UAE, highlighting strategic aviation partnerships. By cooperating with Japan and supporting the EU Aviation Safety Agency (EASA), SESAR 3 plays a major role in advancing global ATM modernisation and aligning with International Civil Aviation Organisation (ICAO) standards.

Europe's success in the aviation and ATM industry is bolstered by its contribution to global standards through ICAO, aligning the European ATM Master Plan with ICAO's Global Air Navigation Plan (GANP).

¹⁶⁹ Art. 171 (point 4) of the [Council Regulation \(EU\) 2021/2085](#) establishing the joint undertakings under Horizon Europe, as well as Art. 50 and point 4 in Annex III to the Regulation 2021/695 establishing Horizon Europe.

¹⁷⁰ Co-programmed partnership external evaluation report Processes4Planet CP (P4P), Section 4.4.

¹⁷¹ Co-programmed partnership external evaluation report Made in Europe (MiE), Section 4.4.

¹⁷² Smart network and services (SNS) external evaluation report, Section 4.8, 2024. <https://data.europa.eu/doi/10.2777/7895247>.

¹⁷³ ECSEL & Key Digital Technologies JU external evaluation report, Section 4.8, 2024. <https://data.europa.eu/doi/10.2777/71518>.

On **transparency and openness**, according to the data collected by the BMR survey¹⁷⁴, the number of new organisations involved in the partnerships increased slightly between 2022 and 2024. Most of the 308 new organisations are associated with the EIT KICs¹⁷⁵, while the other institutionalised partnerships have attracted fewer newcomers¹⁷⁶. In addition, the partnerships extended to 55 countries in 2022 to 54 in 2024, demonstrating their significant reach beyond European borders. Several new countries have joined, including Australia, Brazil, Egypt and Georgia. Participation from widening countries has increased from 840 to 1 070 members, with some countries experiencing a significant rise of around 30% in the number of participating institutions¹⁷⁷.

However, challenges with attracting participants persist, especially due to the co-funding requirements¹⁷⁸ and membership fees¹⁷⁹. In particular, some partnerships such as the Circular Bio-based Europe, Made in Europe and BATT4EU struggle to attract organisations from Central and Eastern Europe¹⁸⁰. The share of SME members increased more than that of universities and private organisations between 2022 and 2024, primarily because of their participation in the EIT KICs. Only three JUs reported SME as members (SNS, Clean Aviation, Single European Sky)¹⁸¹.

On **phasing-out preparedness**, all EIT KICs have in place a phasing-out strategy to become financially sustainable after 15 years of operation. Only three other institutionalised partnerships have adopted a phasing-out plan which was required by the end of 2023¹⁸² (Single European Sky ATM Research 3, Global Health EDCTP3 and Europe's Rail). EIT InnoEnergy¹⁸³, EIT Digital¹⁸⁴, and EIT Climate-KIC¹⁸⁵ reached the end of their partnership status in December 2024, and continue their activities without structural EIT funding. The EIT has signed a Memorandum of Cooperation offering these three KICs targeted, project-based funding through calls for proposals for education and training activities, that are more difficult to self-finance. In 2023-2024, the EIT grants represent 25% of the EIT InnoEnergy budget, 25% of the EIT Climate budget and 27% of the EIT Digital budget. Data for 2025 is not yet available.

What messages emerged from the stakeholder consultation?

49% of the 435 respondents either “agreed” or “strongly agreed” that the exercise to rationalise European Partnerships led to them producing more solutions for the benefit of society, the environment and the economy – this point of view was held most by business associations (39%; 15), companies (34%; 89) and academia (30%; 243). On the other hand, 9% of respondents (146) either “disagreed” or “strongly disagreed” with this statement, with the highest levels of disagreement among NGOs (17%; 12), EU citizens and respondents from academia (10%; 21 and 80 respectively).

¹⁷⁴ European Commission, Biennial monitoring report (BMR) on partnerships in Horizon Europe, 2024, p. 34. <https://data.europa.eu/doi/10.2777/991766>.

¹⁷⁵ Ibid, p.34.

¹⁷⁶ Digital & Industrial Transition evaluation study, 2024, Annex I, p. 45. <https://data.europa.eu/doi/10.2777/489648>

¹⁷⁷ European Commission, BMR, 2024, p. 35. <https://data.europa.eu/doi/10.2777/991766>.

¹⁷⁸ For example, in PARC, the lower funding rate requires more national co-financing. European Commission, Evaluation support study on Horizon Europe's contribution to a Resilient Europe – Final Report Phase 2, Publication Office of the European Commission, 2024, Annexes-case study 15, section on EU added value.

¹⁷⁹ In EIT Digital, the membership fee increased by 30% between 2022 and 2024. Institutionalised partnership evaluation report EIT Digital. <https://data.europa.eu/doi/10.2777/431739>

¹⁸⁰ Evaluations of the Circular Bio-Based Europe JU, Section 5.9. <https://data.europa.eu/doi/10.2777/636121>, co-programmed partnership Made in Europe, Section 4.5, and the partnership for Batteries (BATT4EU), Section 4.8.

¹⁸¹ European Commission, Biennial monitoring report (BMR), 2024, p. 34. <https://data.europa.eu/doi/10.2777/991766>

¹⁸² Article 17, Council Regulation 2021-2085 (Single Basic Act). Co-funded Partnerships, whose financing depends on a grant agreement of limited duration, are not required to produce a phasing-out strategy.

¹⁸³ Evaluation of the EIT InnoEnergy Partnership, Section 6.10, 2024. <https://data.europa.eu/doi/10.2777/5626827>.

¹⁸⁴ Digital & Industrial Transition study. Annex I, 2024, Section 3.10. <https://data.europa.eu/doi/10.2777/489648>

¹⁸⁵ Evaluation of the EIT Climate-KIC, Section 3.10, 2024. <https://data.europa.eu/doi/10.2777/1601692>

Overall, the responses on European Partnerships (co-programmed, co-funded and institutionalised) show that a majority of respondents (53%; 825) are either “very satisfied” or “satisfied” with this type of support.

When probed about the level of satisfaction for the various types of support, excluding respondents who selected “I do not know / I have not used it”, of all types of support, **co-funding**¹⁸⁶ yielded the most responses of “dissatisfied” or “very dissatisfied” (22%; 204). Dissatisfaction rates were higher among public authorities (32%), NGOs (29%) and academic and research organisations (24%) than among companies and business organisations (9%) or business associations (12%).

Notably, when breaking down stakeholder responses by Cluster¹⁸⁷, we see that 73% of Cluster 4 respondents (417), 72% of Cluster 5 respondents (454) and 68% of Cluster 3 respondents (220) deem European Partnerships effective compared to regular collaborative research projects in achieving Horizon Europe’s objectives.

In view of the change from Horizon 2020 to Horizon Europe, 53% of all stakeholders (825) maintained that the **new approach to partnerships** (co-programmed, co-funded and institutionalised) contributed to strengthening the impact of European research and innovation. Most supportive of the new approach to partnerships are business associations (74%; 29), non-EU citizens (60%; 21) and companies (58%; 154)¹⁸⁸.

Social sciences and humanities (SSH)

Under Horizon Europe, SSH¹⁸⁹ activities are implemented by: (1) mobilising multidisciplinary SSH expertise in Cluster 2, focusing on democracy, governance, cultural heritage and socio-economic transitions; and (2) making SSH a cross-cutting priority in order to boost the Programme’s economic and societal impacts – a commitment now set in its legal base, building on the systematic integration first initiated under Horizon 2020¹⁹⁰. In 2025, the first SSH integration monitoring report for Horizon Europe will provide an analysis of the funding attributed in 2021-2024 to SSH-flagged topics and the level of SSH integration achieved through the programme so far. As of August 2024, SSH-flagged topics account for 27.3% (665 out of 2 432 topics), while SSH projects account for 9.5% (1 363 out of 14 423 total funded projects).

Although progress has been made on the integration of SSH and funding of related research, position papers submitted to the Horizon Europe public consultation by stakeholders flagged concerns such as insufficient early engagement of SSH researchers in the preparation of the work programme and call across all clusters, difficulties in identifying funding opportunities due to overly prescriptive work programmes, and the use of the TRL scale in certain topics.

In the same consultation, certain respondents expressed that, although social science specialists are involved in the consortia, SSH methodologies are not always integrated into the project overall. Moreover, over 40% (889) of the respondents believed that SSH disciplines should be further developed for the 2025-2027 strategic plan¹⁹¹.

Respondents were asked for their views on potential untapped complementarities between the different Horizon Europe Clusters. They flagged untapped complementarities between Cluster 2

¹⁸⁶ Without specifically inquiring for co-programmed, co-funded and institutionalised.

¹⁸⁷ Included options: ‘to a great extent’ and ‘somewhat’, excluding ‘I don’t know/no opinion’.

¹⁸⁸ Included options: ‘to a great extent’ and ‘somewhat’.

¹⁸⁹ Social sciences and humanities encompass various disciplines such as social sciences, education, business, law, and humanities and the arts, notably including economics, sociology, demography, anthropology, psychology, geography, human rights, journalism, library and museum science, religion and theology, foreign languages and cultures, history, philosophy, fine arts, performing arts, graphic and audio-visual arts, and design. Please see glossary for comprehensive list of SSH disciplines as per the Horizon Europe programme guide.

¹⁹⁰ European Commission, G for Research and Innovation, Integration of social sciences and humanities in Horizon 2020 – Participants, budgets and disciplines 2014 - 2020 – Final monitoring report, Publications Office of the European Union, 2023. <https://data.europa.eu/doi/10.2777/075642>, p. 58.

¹⁹¹ Directorate-General for Research and Innovation. (2023). Synopsis report: Looking into the R&I future priorities 2025-2027, p. 37, <https://data.europa.eu/doi/10.2777/93927>.

projects and Cluster 3 in particular (44%, 320), followed by Clusters 4 and 1 (39%, 284 and 281 respectively)¹⁹².

Specific findings were observed for Clusters under Pillar II. For example, interviewed Cluster 2 project coordinators acknowledged that the integration of the SSH aspect throughout Pillar II Clusters has facilitated greater interdisciplinary collaboration, enabling SSH participants to engage more extensively in scientific domains beyond SSH, and positioning SSH as a critical driver of project impacts across all Clusters¹⁹³. Cluster 4 interviewees however reported that the effective incorporation of SSH into its funded projects could be better targeted at specific actions, while the cluster placed increasing importance on the integration of skills and the human dimension in the various topics¹⁹⁴.

In Clusters 5 and 6, the broader consideration of societal needs and processes received limited attention, although destinations focusing on climate science, food and communities dedicate over half of their funding to projects with contributions from SSH¹⁹⁵.

Promotion of gender equality

Between 2021 and 2023, Horizon Europe allocated **EUR 215.3 million to actions focused on improving gender equality (i.e. where it was a principal objective)**. Another EUR 4 841.4 million was allocated to actions with gender equality as an important and deliberate objective but not as the main reason for intervention. In total, **EUR 5 056.7 million can be directly linked with gender equality-advancing efforts**, corresponding to 11% of Horizon Europe commitments¹⁹⁶. Examples of such contributions include funding for gender-related research under Horizon Europe Pillar I (e.g. Marie-Sklódowska-Curie Actions and the ERC), under Pillar II (e.g. gender biases in AI, radicalisation and violence against women, women's health, backlash against women in politics, women in rail), and under Pillar III (the [Women Leadership Programme](#) (EIC), the [EU Prize for Women Innovators](#) (EIC/EIT), the [Supernovas](#) (EIT), [Girls Go Circular](#) (EIT) and WIDERA (e.g. implementation of inclusive gender equality plans).

The figures above are ex-ante budgetary estimates: project-level estimates on gender equality relevance of funded activities are not yet available to this evaluation. It is likely that the share of Horizon Europe activities with *some* relevance for gender equality is higher than 11%: as of January 2025, only 19.5% of all research topics under the Horizon Europe main work programme¹⁹⁷ explicitly indicated that gender equality is not at all relevant.¹⁹⁸

¹⁹² Ibid p. 45

¹⁹³ Resilient Europe Case Study 7: Research on democracy in practice, in annexes to the evaluation study. <https://data.europa.eu/doi/10.2777/22355>, p. 366.

¹⁹⁴ Green Transition evaluation report, 2024; in Section 3.1.1.3. <https://data.europa.eu/doi/10.2777/67934> Digital and Industrial Transition study, 2024; Section 6.2.3. <https://data.europa.eu/doi/10.2777/845650>

¹⁹⁵ Green Transition evaluation report, 2024; in Section 3.1.1.3. <https://data.europa.eu/doi/10.2777/67934>

¹⁹⁶ The total contribution that can be directly linked with gender equality-advancing efforts was divided by the total programme funding committed at the end of 2023 (EUR 44 039.9 million), as reported in the Horizon Europe Performance Statement, retrieved on 01/12/24 from [Horizon Europe - Performance - European Commission \(europa.eu\)](#). The **estimated total contribution** - including indirect contributions - **is expected to be higher**, amounting to EUR 36 067.8 million. Funding allocation from score 0 and score 0* integrated in total.

¹⁹⁷ This definition encompasses R&I actions, Innovation actions, and Cofund actions. It does not include non-research Coordination and support actions, procurement, prizes, Framework Programme agreements, as well as any actions for which this flagging system does not exist (e.g. joint undertakings and all bottom-up actions)

¹⁹⁸ Figure from CORDA as of 2 December 2024. In Horizon 2020 specific topics were flagged as “relevant for gender mainstreaming” whereas Horizon Europe rolled out the requirement of integrating the gender dimension as a default for all RIAs, IAs and COFUND, unless it is expressly specified otherwise. See factsheet on gender equality provision under Horizon Europe <https://op.europa.eu/en/publication-detail/-/publication/51704c8d-ca5f-11eb-84ce-01aa75ed71a1>.

As a benchmark, an estimated 23% of Horizon 2020 projects took the gender dimension into account¹⁹⁹.

Table 1: Gender balance in Horizon Europe²⁰⁰

Indicators	Horizon 2020	Horizon Europe	Horizon Europe target
Percentage of women expert evaluators	42%	45%	50%
Percentage of women participating in Horizon 2020 / Horizon Europe advisory groups and expert groups*	43%	51%	50%
Percentage of women coordinators in FP projects	24%	31%	n/a
Percentage of women researchers in FP projects	37%	38%	n/a

Source: Commission monitoring data (cut-off date: 6 January 2025). For Horizon 2020 advisory groups: Horizon 2020 ex-post evaluation, section ‘Promotion of gender equality in Horizon 2020’ (p. 45)

The percentage of women in Commission expert evaluation panels and in Horizon Europe advisory and expert groups has increased compared to Horizon 2020. Women now sign 45% of expert evaluation contracts, against 42% at the end of Horizon 2020. Moreover, as of 2025, women make up 51% of Horizon Europe advisory and expert groups (against a 50% target): a considerable increase since Horizon 2020 (43%) and FP7 (33%). The share of women-led consortia has also substantially increased, from 24% under Horizon 2020 to 31% under Horizon Europe. Although the percentage varies significantly from one programme part to another²⁰¹, the positive trend is also observed in the programme parts where women’s participation is lower²⁰².

Conversely, the share of women participating in projects as researchers is similar to that of Horizon 2020 (38% of all researchers), with a notable exception of the MSCA where the share of women among recruited researchers (fellows) is 45.1%²⁰³. **This is higher than the average share of women researchers in the EU in 2021 - 33.7%**²⁰⁴. While this under-representation occurs at all career stages, the imbalance is more pronounced in later stages: women represent only 26% of senior researchers/associate professors and full professors/directors of research participating in the programme²⁰⁵. This figure is lower than the EU average (e.g. 29.7% for grade A researchers).

In private sector-oriented parts of the programme, the participation rate of women is lower:

- The share of women-led companies and of companies with women CEOs accounted for 19% and 17% of EIC Accelerator companies respectively²⁰⁶.
- 24% of start-ups created through EIT innovation projects in 2021-2022 are led by women²⁰⁷.

¹⁹⁹ SWD on the ex post evaluation of Horizon 2020, SWD(2024) 29 final, p. 46

²⁰⁰ These and other monitoring figures on gender equality in Horizon Europe have been first released in the following report: Commission: Directorate-General for Research and Innovation, Neehus, S. and Volpe, R., *Fostering gender equality – Key figures from Horizon Europe – R&I monitoring flash*, Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/2941871>

²⁰¹ The share of women coordinators in Horizon Europe projects ranges from 81% in European innovation ecosystems and 55% for reforming and enhancing the European R&I system, to as low as 21% for Cluster 3 – “Civil Security for Society”.

²⁰² For example, the percentage of women-led consortia in digital, industry and space topics (current Cluster 4 ‘Digital, Industry and Space’) increased about 5 percentage points between 2014 and 2022, Digital and Industrial Transition, Final Report, p. 81.

²⁰³ 2 890 out of 6 403, as of 1 July 2024. Data provided by DG EAC.

²⁰⁴ She Figures 2024 – Gender in R&I, p. 138, <https://data.europa.eu/doi/10.2777/592260>

²⁰⁵ While women represent 48.1% of first stage researchers (Category D), women are significantly less represented among top grade researchers (26%). Commission administrative & monitoring data, cut-off date: 31 May 2024.

²⁰⁶ Women in Innovation Actions data extraction, March 2024. Women-led companies figure encompasses successful CEOs, CTOs and CSOs.

²⁰⁷ Innovative Europe evaluation study, 2024, p. 78. <https://data.europa.eu/doi/10.2777/499132>

- **The share of women participants in the partnerships' activities is below 30%**²⁰⁸. This is well below the proportion of women employed in science and technology in the EU in 2022 (52%), the overall proportion of women among scientists and engineers (41%)²⁰⁹, as well as the share of women researchers in Horizon Europe (38%).

These results are consistent with the broader start-up and scale-up landscape. In the EU, women reportedly represent only 2% of the founders of 'unicorn' companies²¹⁰, and there is an estimated USD 1.7 trillion financing gap for women-owned SMEs²¹¹. The share of investment attracted by women-led start-ups also remains comparably low, with only 8.7% of investments going to women-led companies²¹². The discrepancy is particularly pronounced for venture capital funding, as in 2023, all-men founded companies secured 75% of capital raised whereas all-women founded companies secured a mere 7% (the remaining 18% was secured by mixed companies)²¹³. A significant funding imbalance persists for all-women teams, who receive 2 to 6 times less investment than all-men teams, despite securing a similar number of deals²¹⁴. Closing this considerable gender gap is crucial for the EU if it is to harness the full potential of women entrepreneurs, which would increase economic output and innovation²¹⁵.

In 2022, **gender equality plans (GEPs)** became an eligibility criterion for public bodies, research organisations and higher education establishments. The objective was to increase awareness about and action on gender equality and inclusiveness²¹⁶. Data updated in January 2025 shows that 81% of Horizon Europe applications in these categories declared to have a gender equality plan at proposal stage²¹⁷ – a considerable improvement given that most research performing organisations in EU countries did not yet have a GEP in 2021²¹⁸.

At the end of 2023, the European Commission conducted a pilot compliance check on a randomly selected set of beneficiaries and affiliated entities of projects funded under Horizon Europe calls with deadlines in 2022. The findings of the pilot check revealed deficiencies in GEPs in 59% of the checked entities, resulting in the launching of grant termination procedures for three entities²¹⁹. The effectiveness of gender equality plans (GEPs) could be further supported by

²⁰⁸ The only partnership where women account for more than 30% of participants is the Circular Bio-based Europe JU (39% of participants). See figure in BATT4EU partnership external evaluation report, p. 36, Digital and Industrial Transition evaluation support study - Annex 1: Cross-partnership Analysis, p. 49, and figures in the EIT Gender Equality Plan 2023 Implementation Report. https://eit.europa.eu/sites/default/files/2024-02/EIT%20GEP%202023%20Implementation%20Report_ADOPTED.pdf.

²⁰⁹ Eurostat. <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230602-1>.

²¹⁰ The JRC Technical Report 'In search of EU unicorns - What do we know about them?' examines the gender of founders and finds a pronounced gender equality gap in the creation of innovative start-ups. Notably among the founding teams of unicorn companies in the EU, there are 3 founders per company (N=94) 2% of which are women based on an analysis of Crunchbase data. Innovative Europe, Final Report, p. 78.

²¹¹ Financial Alliance for Women (2022), retrieved 5/12/24 at: <https://financialallianceforwomen.org/the-opportunity/#growthpotential>, data based on World Bank findings. Innovative Europe, Final Report p.78.

²¹² Financial Alliance for Women (2022). <https://financialallianceforwomen.org/the-opportunity/#growthpotential>. Retrieved 5 December 2023, data based on World Bank findings.

²¹³ Atomico (2023), The State of European Tech 2023.

²¹⁴ Atomico (2022), The State of European Tech 2022.

²¹⁵ European Commission, Science, Research and Innovation Performance of the EU, 2024, p. 344.

²¹⁶ See factsheet on gender equality provision under Horizon Europe, retrieved 05/07/24 at <https://op.europa.eu/en/publication-detail/-/publication/51704c8d-ca5f-11eb-84ce-01aa75ed71a1>.

²¹⁷ Commission monitoring systems (CORDA), data at 13 January 2025.

²¹⁸ Information available in the Gender Equality in Academia and Research (GEAR) tool and reported in a report from the ERAC Standing Working Group on Gender in Research and Innovation (ERAC SWG GRI). Available at: <https://data.consilium.europa.eu/doc/document/ST-1202-2021-INIT/en/pdf> Excellent Science, Annex 2.12, p. 550.

²¹⁹ Results reported by Commission services on 13 December 2024.

facilitating development of compliant plans, and by strengthening enforcement by means of *ex ante* verification and regular *ex post* compliance checks²²⁰.

What messages emerged from the stakeholder consultation?

Overall, 36% (575) of respondents agreed and 15% (229) strongly agreed that strengthened gender equality provisions have the potential to promote gender equality across R&I organisations and activities. Citizens were the most positive across the various stakeholder groups, closely followed by public authorities (61%; 51)²²¹.

The least positive stakeholder group, i.e. those that (strongly) disagreed that these provisions have the potential to promote gender equality across R&I organisations and activities – were companies (15%; 40), academia (14%; 111) and EU citizens (13%; 25).

International cooperation, including association of third countries

Stakeholders consulted in interviews and during workshops stressed that the Horizon Europe internationalisation strategy should follow a ‘win-win’ principle, ensuring reciprocity and a level playing field with international partners (e.g., exploitation rules, IPR, etc.) and strengthening ties with ‘like-minded’ countries²²². In the first two 2-year work programmes, 21% of collaborative research topics encouraged international cooperation.

Horizon Europe extended the association policy to like-minded third countries – countries with a strong R&I basis, located in the EU neighbourhood and beyond. It offered them the possibility of a partial association²²³ and reciprocal access to national R&I programmes of associated countries seen as equivalent to Horizon Europe. Under Horizon 2020, reciprocity clauses were introduced only in the association agreements with Switzerland and the Faroe Islands (similar provisions existed in the FP7 Association Agreement with Israel). In line with the regulation establishing Horizon Europe, such reciprocity clauses have been introduced in all new association agreements.²²⁴ As of October 2024, through the reciprocity clause, the association of third countries has provided access to EU-based entities in 64 national programmes of the 19 associated countries²²⁵.

The association of third countries also implies a substantial financial input. The combined annual financial contribution of the associated countries is close to EUR 3 billion, resulting in a substantial increase in the funding for R&I activities under Horizon Europe (Horizon Europe budget and the financial contribution of associated countries constituting external assigned revenue of the Union budget).

For high-income countries, association has increased access to excellence and globally-ranked research performing organisations and infrastructures. In the targeted evaluation survey, 73% of responding beneficiaries agreed to a (very) large extent that Horizon Europe has achieved or is likely to achieve increased international visibility through collaboration with leading global partners (3 208 respondents).

Partners from associated countries supplement scientific areas in which Member States may be lacking: the *ex post* evaluation of Horizon 2020 found that peer-reviewed publications, involving

²²⁰ European Commission: Directorate-General for Research and Innovation, Pépin, A., Andriescu, M., Buckingham, S., Moungou, A. et al., *Impact of gender equality plans across the European Research Area – Policy briefs*, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/655676>

²²¹ Either “agreed” or “strongly agreed” with the statement.

²²² Viscido, S., Lotito, A. and Boekholt, P., *Horizon Europe and the digital & industrial transition – Interim evaluation support study*, Publications Office of the EU, 2024, p. 113. <https://data.europa.eu/doi/10.2777/845650>.

²²³ In all cases so far, in relation to Pillar II, which addresses global societal challenges such as climate change.

²²⁴ In line with Article 16 (4) Horizon Europe Regulation.

²²⁵ As examples, EU-based entities now have access to programmes in Associated Countries such as the Israeli National Quantum Initiative, the Turkish Industrial R&D Supports Programme and the calls from Canada’s Natural Sciences and Engineering Research Council (Alliance grants, Alliance International grants, Alliance International Quantum grants; Collaborative Research and Training Experience (CREATE) Quantum Call).

a contributor from at least one associated or other non-EU country, have a higher scientific impact²²⁶.

Association also contributes to broader geopolitical goals: the reform of national R&I systems in the enlargement countries and support to R&I capacity building²²⁷, their alignment with the ERA and the EU objectives in the area of ‘Science and Research’ (EU acquis, Chapter 25)²²⁸. All nine states recognized as candidates for EU membership are associated to Horizon Europe: Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, Türkiye and Ukraine. Kosovo, which formally submitted its application for EU membership in 2022 and is considered a potential candidate, also became associated to Horizon Europe for the first time in 2021. These countries are collaborating in projects such as Montevitis²²⁹, which has developed infrastructure for the systematic collection of data on the viticulture sector, enabling an analysis of climate change effects²³⁰. In addition, as the majority of the associated countries belong to the widening group, Horizon Europe is helping to narrow the gap in R&I excellence across the continent²³¹.

The list of associated countries has changed between Horizon 2020 and Horizon Europe. The United Kingdom, considered a Member State throughout Horizon 2020, became a third country and then became associated since 1 January 2024²³². Switzerland was associated in Horizon 2020 and negotiations were concluded in December 2024 for its association to Horizon Europe. Both countries have historically had high participation in Framework Programmes. According to Commission analysis, participation of UK entities in particular has considerably declined compared to Horizon 2020²³³.

The change in status of the UK and Switzerland affects participation statistics. Across the programme, the EU contribution to associated countries shows a relative decrease, from 8.6% to 7.5% compared to Horizon 2020. At the same time, associated countries have a high share of newcomer participants among all country groups (54%, although lower than the 63% in Horizon 2020)²³⁴. Non-associated third countries also have high newcomer participation: 55% of all participants and 26% of all funding.

As a group, non-associated third countries have had a small surge in shares of distinct applicants (up from 7% to 10.1%), total applications (from 4% to 5.6%) and requested EU contribution (from 1% to 2.3%) compared to Horizon 2020. Horizon Europe pillar I stands out for its international dimension, with 10.7% of participants coming from non-associated third countries, followed by Pillar II (5.4%), Pillar III (2.9%) and WIDERA (2.8%).

More specifically, the share of participation of associated and third countries in collaborative projects has increased compared to Horizon 2020. 62% of Horizon Europe Pillar II projects include at least a participant from an Associated Country, compared to 44% under Horizon 2020. The change in status of the UK is an important driver, but the involvement of associated countries in collaborative projects is higher than in Horizon 2020 even without the UK, see Table 2). An

²²⁶ Cited more than MS-only publications and three times more than the world average, SWD(2024) 29 final, p. 47.

²²⁷ International cooperation case study, Excellent Science, pp. 15, 44. <https://data.europa.eu/doi/10.2777/9552959>

²²⁸ Ibid, pp. 15-16, 44.

²²⁹ <https://cordis.europa.eu/project/id/101059461>

²³⁰ <https://montevitis.eu/introducing-the-montevitis-phenology-app-revolutionizing-viticulture-data-collection/>

²³¹ Case study on international cooperation, Excellent Science study, pp. 16, 44, 46.

²³² In this and all other state of play figures, the UK is treated as an Associated Country for all grants and proposals since the start of the Programme (2021), even though it only became an Associated Country on 1 January 2024. The same applies to the other countries that became Associated Countries during the implementation of Horizon Europe (Canada, New Zealand).

²³³ European Commission, Country participation in the EU R&I framework programmes (2021-2023), p. 12 and 17.

²³⁴ Ibid, Figure 16.

analysis²³⁵ of the Commission shows that even before it became associated, UK entities were participating in three out of ten Horizon Europe collaborative projects.

Table 2: Collaborations, participations, and funding by type of country (international cooperation)

Indicators on international participation in collaborative projects	Associated countries		Other third countries	
	Horizon Europe	Horizon 2020	Horizon Europe	Horizon 2020
Share of participation in collaborative projects	10%	7%	6%	5%
<i>Pillar II only (II-III for Horizon 2020)</i>	10%	7%	5%	4%
Share of EU contribution in collaborative projects	6%	7%	1%	1%
<i>Pillar II only (II-III for Horizon 2020)</i>	6%	7%	2%	1%
Share of collaborative projects involving country group	48%	37%	33%	22%
<i>Pillar II only (II-III for Horizon 2020)</i>	62%	44%	37%	15%

Sources: CORDA as of 6 December 2025

International cooperation is not limited to participation of associated and non-associated teams in projects, it also takes with the form of programme-level cooperation, partnerships that are international by design, such as EDCTP3 or through global consortia involving funding agencies from third countries pooling their resources and defining a common strategic research agenda (such as the International Rare Diseases Research Consortium or Water4All on water security).

What messages emerged from the stakeholder consultation?

When asked about for the benefits of Horizon Europe, a large majority of respondents (74%; 1 184) agreed that **participating in Horizon Europe “improved cooperation with partners from other countries - within the EU and beyond”**. Results were similar for all country groups. Public authorities (88%), NGOs (77%) and academia (74%) were the most likely to select this option. Non-EU citizens were also likely to select this option (67%), as were EU citizens (65%).

70% of respondents (1 367) highlighted the need to improve international cooperation. Most position papers that addressed this issue highlighted the relevance of international R&I activities to the programme. Some also provided the following suggestions for improvement: 1) association of the UK and Switzerland; 2) addressing practical issues that arise as a result of the variation in statuses of third countries (e.g. countries with transitional arrangements, countries in negotiations), including budgetary and administrative consequences when the country’s status changes; 3) complexities in building synergies with international initiatives (e.g. the Belmont Forum) under Horizon Europe compared with Horizon 2020; and 4) the late communication of the work programmes as an obstacle to the better integration of non-EU partners²³⁶.

Horizon Europe’s openness to international cooperation is balanced with safeguarding EU interests in strategic areas. Its Regulation sets out new provisions²³⁷ **for actions related to EU strategic assets, interests, autonomy and security**. The table below provides an overview of **Article 22(5)** application - the topics open to specified third countries primarily relate to quantum research, artificial intelligence, and critical raw materials.

Table 3: Overview of the application of Article 22(5) in the main Horizon Europe work programmes (WP) 2021-2022 and 2023-2024 and instruments

Overview	WP 2021-2022	WP 2023-2024 (main WP)	WP 2023-2024 (after amendment)
Total HE budget per WP	€ 27,433,798,406	27,416,624,390 €	27,416,624,390 €
Total budget per main WP	€ 15,978,811,926	13,519,989,622 €	14,887,909,796 €
Topics applying Art. 22(5) (*topics open to specified third countries)	49 topics (*19 topics)	31 topics	33 topics (*14 topics)

²³⁵ European Commission, Country participation in the EU R&I framework programmes (2021-2023), p. 19

²³⁶ Ibid, figure 14.

²³⁷ Articles 22.5 and 22.6 of Regulation (EU) 2021/695 set the foundation for the protection of information.

Total Budget subject to Art.22(5)	€ 786,120,000	475,500,000 €	540,000,000 €
Share of main WP budget subject to Art.22(5)	4.92%	3.52%	3.63%
Share of total Horizon Europe budget subject to Art.22(5)	2.87%	1.73%	1.97%

Source: DG RTD, reflecting the amendment of 17 April 2024 to the 2023-2024 work programme.

In addition, the EuroHPC JU has made use of Article 22(5) in six calls in its first three work programmes. The EIC work programme for 2024 also provides for specific economic security measures such as specific eligibility criteria and investment safeguards.

Cooperation with entities based in China has been excluded from all innovation actions in the Horizon Europe 2023-2024 work programme²³⁸, due to concerns linked to unwanted IP transfer and the stalling of negotiations on the joint roadmap for the future of EU-China cooperation in science, technology, and innovation. Covering 243 actions, this provision does not apply to EU-based entities controlled by China.

In the amendment to that work programme, entities assessed as being “high risk suppliers”²³⁹ of mobile network communication equipment are excluded from taking part in 35 actions.

Security scrutiny²⁴⁰ addresses potential misuse of project results of sensitive or classified nature (e.g. results that could be channelled into crime or terrorism). In 2023, the security appraisal involved screening 118 proposals (68 in 2022), of which 20 underwent the security scrutiny procedure in cooperation with national security experts²⁴¹. Examples of security-sensitive topics include explosives and CBRN, infrastructure and utilities, border security, intelligent surveillance, terrorism & organised crime, digital security, and space.

Applying these safeguards can be cumbersome for Member States, associated countries and the Commission departments (e.g. the assessment of control necessary for applying Art. 22.5 requires a complex process involving many entities at Member State and EU level). Nevertheless, the safeguards incorporated into Horizon Europe feed into the European economic security strategy, which identified four categories of risk²⁴², and its implementation²⁴³.

What messages emerged from the stakeholder consultation?

The majority of respondents (56%; 650) stated that their project was **not “impacted by the exceptional limitations on participation in Horizon Europe by non-EU legal entities”** or was impacted a little, while 13% (151) indicated that their project was impacted to a great extent. Academic and research institutions seem to have been affected more than any other stakeholder group (around half of responses submitted indicated that their project was affected “to a great extent”).

²³⁸ Under Art. 22.6 which allows, where appropriate and duly justified, to insert additional eligibility criteria in the work programme, taking account specific policy requirements or the nature and objectives of a given action.

²³⁹ Set out in the second report on Member States’ progress in implementing the EU toolbox on 5G cybersecurity of 2023 and the related Communication on the implementation of the 5G cybersecurity toolbox of 2023.

²⁴⁰ Art. 20 of Regulation (EU) 2021/695 sets the foundations for the protection of information in the programme.

²⁴¹ European Commission, DG for Research and Innovation, Annual report on research and technological development activities of the EU and monitoring of Horizon Europe and Horizon 2020 in 2023, published in 2024, COM(2024)231 final, p. 2. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52024DC0231>

²⁴² The strategy identified broad, non-exhaustive categories of risk to economic security, related to: 1) resilience of supply chains; 2) physical and cyber security of critical infrastructure; 3) technology security and leakage; and 4) weaponisation of economic dependencies or economic coercion. They can occur along the value chain, from basic research to commercialisation and manufacturing. JOIN(2023)20final, <https://op.europa.eu/s/zW9M>.

²⁴³ The Commission’s economic security package includes a white paper on enhancing R&D support involving technologies with dual-use potential and a proposal for a Council Recommendation on research security.

4.1.3. Effectiveness: **Towards economic impacts** – To what extent has Horizon Europe fostered innovation-based growth, created jobs and leveraged investments in R&I (Key Impact Pathways 7-9)?

This section assesses Horizon Europe’s contribution to the three key impact pathways focusing on the desired economic impacts: ‘Generating innovation-based growth’; ‘Creating more and better jobs’; and ‘Leveraging investments in R&I’.

Figure 12: Economic impacts of Horizon Europe – Key Impact Pathways 7-9



Source: Annex V to Regulation 2021/695.

Generating innovation-based growth (Key Impact Pathway 7)

As of 6 January 2025, Horizon Europe beneficiaries reported 124 *validated* outputs concerning intellectual property rights (IPR). These include patent applications, trademarks, and utility designs²⁴⁴. By comparison, at the same stage of Horizon 2020, only five valid IPR applications had been reported. So far under Horizon Europe, 3 703 innovative products, processes or methods have been produced and reported by the projects. The process for research IPR application and ultimately award of IPR is lengthy: for FP7, IPR applications almost tripled within 7 years of its *ex post* evaluation²⁴⁵.

Pillar II projects have reported 24 IPR applications, but 1 900 innovative outputs (particularly new methods and product innovations). Most IPR applications recorded up until now are under Pillar III, particularly the EIC Accelerator (76).

Since 2011, the European Research Council (ERC) ‘proof of concept’ grants have been helping researchers bring their ideas from the laboratory and academia to the realm of business, marking a crucial phase in the innovation lifecycle. In other words, they help the beneficiaries to bridge the gap between the results of their pioneering research and the early phases of its commercialisation. Notable projects funded in the 2023 include²⁴⁶:

- Istituto Italiano di Tecnologia’s project STORE-LIGHT, which focuses on advancing solar energy storage by combining solar energy conversion and storage into one system.
- In the field of medical technology, the FitSleep project is set to revolutionise the treatment of obstructive sleep apnoea, a condition causing disruption in breathing during sleep,

²⁴⁴ While it is expected that the number of IPR applications reported by projects at this stage is low and unrepresentative, there is evidence that the number available in Commission monitoring systems is an underestimate of the current IPR activity of participants. IPR applications reported under cascading actions, such as the EIT and co-funded partnerships, are only very partially reflected in the system at the reference date (see Section 4.2.5). This may be particularly impactful for the EIT KICs, which have reported over 300 IPR applications in the 2021-2023: however, the data was not yet validated in central monitoring systems at the reference date.

Moreover, the continuous reporting tools of the programme allow beneficiaries to encode aggregate data about the *confidential* IPR applications they submitted. The tool suggest that participants have submitted already at least 700 IPR applications, of which more than 600 for patents only; the vast majority (over 400) are for EIC projects. However, the data structure of this reporting does not allow to verify the validity of these applications, and in particular to check whether these have been lodged before the start of the projects concerned – as observed in the Horizon 2020 final evaluation, these “background” IPR outputs are commonly reported by beneficiaries in continuous reporting tools.

²⁴⁵ SWD(2024) 29 final, p. 62.

²⁴⁶ https://erc.europa.eu/sites/default/files/2024-01/erc-2023-poc-3-dl3-results_list.pdf

affecting over a billion people worldwide. This pioneering device uses non-invasive electrical stimulation to activate tongue muscles, preventing airway collapse during sleep.

More detail on this bridging mechanism between Pillars I and III is provided in chapter 4.3.1.

As noted in chapter 3, Horizon Europe has provided support to around 16 220 companies through grants, out of which 2 571 in pillar III (excluding the EIC Fund). This includes large companies: more specifically, in the period of 2018-2024, the EIC and EIC pilot supported over 70 companies that achieved ‘centaur’ status (valuation above of EUR 100 million) – of these, six are valued at over EUR 500 million²⁴⁷. In the Horizon Europe period alone, the programme supported 30 centaurs²⁴⁸.

In 2021-2023, according to EIT data, the EIT KICs reported to have launched 956 innovations on the market²⁴⁹, created 436 start-ups and provided support to 5 806 start-ups and scale-ups.²⁵⁰

Creating more and better jobs (Key Impact Pathway 8)

With the support of Horizon Europe, 39 543 full time equivalent (FTE) jobs were created or maintained by organisations participating in the programme, based on data declared by 21% of funded projects before 6 January 2025. By comparison, at the same stage of Horizon 2020, projects were maintaining 17 365 FTE employees.

The NEMESIS macroeconomic model estimates an increase in the number of persons employed in the research sector of up to 60 000 jobs by 2023-2024, which is similar to the estimations performed for the impact assessment of Horizon Europe^{251 252}. In the long-term, the total Horizon Europe is estimated to create a total of 1 490 jobs in 2021, 20 400 jobs in 2023, and to reach a maximum of 63 000 jobs in 2033-2034²⁵³. The 63 000 jobs created in 2033-2034 include 2 000 in research and 61 000 in production activities. They also include 41 000 low qualified jobs and 20 000 high qualified jobs²⁵⁴. The current calculations are based on data up to June 2023 encompassing EUR 22.8 billion in EU contribution to projects, and are consistent with the *ex ante* estimation presented in the impact assessment up to that date²⁵⁵.

Moreover, according to RHOMOLO macroeconomic model analysis (see Annex 2, data as of 2 July 2024), Horizon Europe has led to an increase in employment, its impact peaking at +0.06% in 2023, amounting to about 128 000 persons (the total number of persons employed in the EU and UK in the base year of the model is almost 232 million).

Leveraging investments in R&I (Key Impact Pathway 9)

Programme participants have already mobilised EUR 10.2 billion in co-investment to implement the projects, in complement to the initial investment of the programme. This is a considerable

²⁴⁷ EISMEA, Scaling Deep Tech in Europe – the European Innovation Council Impact Report 2025, p. 9, https://eic.ec.europa.eu/document/download/7b947b36-66cb-4471-a2d0-158d5ae6770f_en?filename=EIC-Impact-Report-2025.pdf.

²⁴⁸ DG RTD monitoring.

²⁴⁹ Figures of innovations reported by the EIT KICs are not yet fully reflected in the Commission’s central monitoring system.

²⁵⁰ Annexes 21-27; Chapter 1 on Effectiveness, summary of tables on EIT KICs data on KPIs.

²⁵¹ SWD(2018) 307 final, Part 2/3, p. 36. Estimating a gain of up to 100 000 jobs in R&I activities in the investment phase (2021-2027).

²⁵² The discrepancy between the macroeconomic model and the KIP8 indicator can be attributed to 1) the lag in project reporting, 2) the fact that the latter includes jobs maintained by participants, not only created, and 3) by macroeconomic models estimating economy-wide employment in research sectors, not restricted to projects funded by the programme.

²⁵³ Innovative Europe study, 2024, p. 60. <https://data.europa.eu/doi/10.2777/499132>.

²⁵⁴ Based on the ‘medium’ case.

²⁵⁵ Estimating a gain of 200 000 jobs over 2027-2036, 40% high skilled. See SWD(2018) 307 final, Part 2/3, p. 36.

increase compared to the same stage in Horizon 2020, when just over EUR 5 billion in co-investment had been provided by project participants.

Leverage factors of different Horizon Europe programme parts (the ratio between co-investment from participants and financial contribution from the EU) vary widely. Under Pillar II only, they range between 0.01 in civil society and academia-oriented Cluster 2 to around 0.35 in more industry-oriented Cluster 4 and Cluster 5. The co-investment rate is primarily a function of the funding rate of each action, which is defined *ex ante* by the Commission; moreover, in general, costs for private for-profit entities are covered to a lesser extent than those of universities or non-profit organisations. Annex 7 presents a more detailed analysis.

In the short-term, one of the added value aspects of the European partnerships and EU Missions was the aim to leverage external funds towards Research and Innovation. Their progress is discussed below in section 4.4.1 on EU added value.

Programme-wide macroeconomic effects on GDP

For estimating long-term economic effects, this evaluation uses three macro-economic models²⁵⁶, providing a GDP multiplier in the range of 4 and 11, by 2045:

NEMESIS macroeconomic modelling²⁵⁷ estimates that expected GDP gains for the EU-27 induced by Horizon Europe increase progressively, from EUR 0.2 billion in 2021, to EUR 3.3 billion in 2023 and EUR 14 billion by 2032-2034, making up 0.0012%, 0.023%, and 0.085% of GDP, respectively (see table 4 below). This is on track compared to estimates in the impact assessment²⁵⁸, considering that the current estimation accounts for only a fraction of the overall budget of the programme (EUR 22.8 billion in signed grants by 10 June 2023). The GDP effect is thus limited to the budget allocated so far. The GDP multiplier shows that each Euro invested through Horizon Europe is expected to return up to EUR 11 in GDP gains by 2045, the same 25-year period reported on in the impact assessment.

The estimations of the RHOMOLO macroeconomic model, which build upon Horizon Europe funding data allocated by 2 July 2024, show that GDP impact increases steadily over the implementation period, peaking at +0.10% in 2024. It then gradually declines as the simulated monetary injection ends, the increased private and public capital stocks depreciate and the temporary increase in total factor productivity (TFP) fades. The GDP multiplier exceeds 6.5 by 2045. A comparison of these results with those of the ex-ante impact assessment carried out with an earlier version of the RHOMOLO model suggests that the impact of the policy is in line with, and even exceeds, the expected impact²⁵⁹.

The FIDELIO macroeconomic model is also based on Horizon Europe projects data from July 2024, and shows similar results to RHOMOLO in terms of GDP impact over years. EU GDP increases swiftly during the implementation period, with a peak of +0.10% in 2023, then declines slowly as the financial injection (modelled over 2021-2024) ends. The GDP multiplier keeps rising after the end of the programme due to the supply-side effects of the policy, and reaches 4.4 in 2045, 25 years after the start of the financial injection. In 2023, within the EU, most (69%) of the impact is directed towards the private sector (BERD), followed by higher education

²⁵⁶ See Annex 2 for detailed methodology and results.

²⁵⁷ NEMESIS model results are reported for the Horizon Europe (2021-2023)-only scenario.

²⁵⁸ SWD(2018) 307 final, Part 1/3, p. 40.

²⁵⁹ The continuation scenario in the ex-ante impact assessment estimated the cumulative impact on GDP up to 2030 to be +0.63% compared to a no-policy scenario. The cumulative impact of the funds analysed is expected to be +0.73% by 2030, with a volume of investment around half of that simulated in the ex-ante analysis. This is due to the different assumptions on the funds' geographical distribution, their composition and alternative hypotheses on crowding in of private investment and additional returns from European funds.

institutions (HERD), while the impact on the public sector (GOVERD) is relatively small²⁶⁰. The BERD impact is particularly directed towards the manufacturing sector, with the top benefiting industries being machinery and equipment, computer and electronic products, motor vehicles and fabricated metal products.

Table 4: Results of macro-economic modelling for Horizon Europe funding (Nemesis, RHOMOLO, FIDELIO)

Model	2021	2023	2025	2027	2030	2034	2040	2045
Nemesis								
GDP gain (in bn EUR 2020/y w.r.t. reference scenario)	0.2	3.3	4.8	6.6	12.2	13.8	9.3	6.6
GDP gain (% w.r.t. reference scenario)	0.00%	0.02%	0.03%	0.04%	0.08%	0.08%	0.05%	0.03%
RHOMOLO								
GDP gain (in bn EUR 2020/y w.r.t. baseline scenario)	0.3	11.1	13.3	11.6	9.9	8.1	6.1	4.8
GDP gain (% w.r.t. baseline scenario)	0.00%	0.08%	0.1%	0.09%	0.07%	0.06%	0.05%	0.04%
FIDELIO								
GDP gain (in bn EUR 2020/y w.r.t. baseline scenario)	0.2	10.6	9.8	7.0	6.6	5.6	3.5	2.5
GDP gain (% w.r.t. baseline scenario)	0.00%	0.08%	0.07%	0.05%	0.04%	0.03%	0.02%	0.01%

Pillar II economic effects

Most reported innovations come from Pillar II, which has produced 1 900. The majority of IPR applications come from Pillar III, with 91 recorded, while Pillar II has generated 24 IPR outputs and Pillar I has produced 6.

In Pillar II, Cluster 4 (Digital, Industry, and Space) leads with 763 innovations, followed by Cluster 6 (Food, bioeconomy, natural Resources, agriculture, and environment) with 411 and Cluster 5 (Climate, energy, and mobility) with 405. Cluster 1 (Health) contributed 153 innovations, while Cluster 2 (Culture, creativity, and inclusive society) and Cluster 3 (Civil security for society) have the fewest outputs, with 96 and 73 innovations respectively.

Among the main types of actions, joint undertakings from Pillar II have the highest direct leverage factor (0.8). In the average JU project, 55% of total eligible costs are covered by the EU, and the remaining 45% by project participants. For more information on this, see the analysis below under the EU added value.

European Innovation Council (EIC)

The Horizon Europe budget for Pillar III doubles the support that was available for equivalent programmes under Horizon 2020²⁶¹, with much of this increase (including a top-up from NextGenerationEU) supporting the full implementation of the EIC. Under Horizon 2020, there

²⁶⁰ The distribution of impact between institutional sectors is related to the modelling of R&I spending in FIDELIO. It is assumed that 30% of the funding is dedicated to basic research, specifically in the NACE M72 category from the BERD sector, 30% to the HERD sector, 3% to the GOVERD sector, and the remaining 37% is allocated to applied research, covering the remaining BERD sector categories.

²⁶¹ Under Horizon 2020, the EIC Pilot had a budget of EUR 3 billion, and the collective budget of Innovation in SMEs was over EUR 1.5 billion. In contrast, the Horizon Europe budget for the EIC and EIE is EUR 10.6 billion (up to EUR 527 million for the EIE). The EIT budget increased by EUR 0.6 billion (EUR 3 billion in HE).

was a gap during the EIC Pilot stage for technology readiness level (TRL) 3-6 support, as the EIC Launchpad Pilot offered only relatively small grants for bridging what is known as the ‘valley of death’ for organisations looking to commercialise the outputs of their research. The Transition instrument filled this gap and allowed the EIC to cover the entire TRL scale. Only the EIC (Accelerator) offers direct equity investment into companies with options for grant, blended finance (grant and equity) or equity-only support - this is where EIC is unique in the framework programme and wider EU programme landscape. As of 6 January 2025, the EIC Pathfinder supported 363 projects, while the EIC Transition supported 137 projects. The EIC Accelerator selected for funding over 700 start-ups and SMEs across 30 countries.²⁶² An analysis conducted one year prior found²⁶³ that 50% of EIC Accelerator beneficiary companies were incorporated for less than 5 years at the date of grant signature. For the EIC Fund, from 2020 up until February 2025, 272 companies pertain to the portfolio, among which 17 have been declared bankrupt.

While predominantly open, more targeted Challenge calls are an integral part of the Pathfinder and Accelerator schemes. The Challenges are developed based on policy priorities and the insights of EIC programme managers. Their purpose is to identify opportunities in new and emerging technology fields and to build project portfolios, with the ultimate goal of strengthening Europe’s position in these fields. As of September 2024, there have been 22 Pathfinder Challenges and 14 Accelerator Challenges, along with 8 Transition Challenges which were discontinued after the 2023 work programme.

European innovation ecosystems (EIE)

The European innovation ecosystems (EIE) is a new component of the programme in Pillar III that aims to support the scaling up of companies and to spur innovation to address important challenges in a responsible way, as set out in the New European Innovation Agenda (NEIA)²⁶⁴.

Since its launch, the EIE part of the Horizon Europe work programme has covered 782 unique participants, including 67 research organisations, 287 SMEs and 105 public bodies distributed across all the Member States²⁶⁵. As of June 2023, 53% of the researchers involved in EIE funded projects were women²⁶⁶.

In addition, as of November 2024, the Innovative SMEs Partnership funded under the EIE has supported 1 420 SMEs (of which 1335 are receiving public funding and 85 are self-funding their activities, 328 from widening countries). However, between 12% and 19% of applications to the last three calls for proposals were not funded due to the lack of national funding.

The EIE work programme also addresses the innovation divide through the creation of Regional Innovation Valleys (RIVs). In June 2024, the Commission identified 149 regions²⁶⁷ as RIVs in order to strengthen regional innovation ecosystems, bridge the innovation gap in Europe and improve Europe's overall innovation performance. While 51% of the selected regions are innovation leaders and strong innovators, 49% are moderate and emergent innovators.

²⁶² EISMEA, Scaling Deep Tech in Europe – the European Innovation Council Impact Report 2025, https://eic.ec.europa.eu/document/download/7b947b36-66cb-4471-a2d0-158d5ae6770f_en?filename=EIC-Impact-Report-2025.pdf

²⁶³ European Commission, DG Research and Innovation, SME participation in Horizon Europe, data from 1 January 2024, <https://data.europa.eu/doi/10.2777/576670>.

²⁶⁴ The New European Innovation Agenda. https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/shaping-eu-research-and-innovation-policy/new-european-innovation-agenda_en.

²⁶⁵ Data extracted from CORDA on 26 September 2024. This data excludes the SMEs funded via FSTP under the InnovSMEs partnership.

²⁶⁶ Innovative Europe Study, p. 103. <https://data.europa.eu/doi/10.2777/499132>

²⁶⁷ List as of July 2024 available at: https://research-and-innovation.ec.europa.eu/document/download/12476e45-0413-4487-bdd6-668d7457f1cc_en

In line with the remit of the EIE part of the Horizon Europe work programme's legal basis, the Commission has organised an EIC Forum of public authorities and bodies in charge of innovation policies and programmes covering all Member States, to promote coordination and dialogue on the development of the EU's innovation ecosystem. In the EIC Forum, more than 200 initiatives to support the NEIA at national level with legislative actions, policy initiatives or funding schemes have been announced²⁶⁸.

European Institute of Innovation and Technology (EIT)

The EIT, with its KICs and regional innovation hubs, is present 'on the ground' in all Member States including modest and moderate innovation countries and regions, as well as some associated countries²⁶⁹. This allows it to operate in local languages, which is crucial for education and training, and for providing business support and advice. Thanks to these capacities, the EIT plays a role in preventing brain drain in those regions and promotes innovation through a geographically balanced approach²⁷⁰.

The EIT and its EIT KICs are in charge of the management of several EU Skills Academies in strategic sectors for EU competitiveness, in particular those covered by the Net-Zero Industry Act, i.e. batteries, raw materials, solar, wind and hydrogen²⁷¹. The objective of these Skills Academies is to accelerate training as well as up- and re-skilling in order to equip people with highly competitive skills that are in demand across Europe. Selected EIT KICs have been mandated by the Commission to lead those academies:

- The European Battery Alliance Academy (created by EIT InnoEnergy) is helping to ensure that Europe has enough skilled workers in the battery industry. The EBA Academy achieved its main target of 100 000 learners completing training by the end of 2024, ahead of the 2025 goal. According to the battery industry's estimates, 800 000 workers will need to learn new or additional skills by 2025 to bridge the skills gap²⁷².
- The EIT InnoEnergy has also been appointed as the Secretariat of the European Solar Photovoltaic Industry Alliance (ESIA), whose aims include creating 400 000 new direct and indirect jobs and 30 GW of annual solar PV manufacturing capacity^{273,274}.
- Venture Centre of Excellence – EIT Health, in partnership with the European Investment Fund, operates this public-private co-investment programme to empower finance for European health SMEs.
- EIT KICs also work together as EIT Community on activities such as the Deep Tech Talent Initiative (DTTI), one of the flagship initiatives of the new European Innovation Agenda. The target to train 1 million talents in deep tech fields by 2025 has been almost reached²⁷⁵. Also, the EIT Higher Education Initiative supports projects that aim to make universities more innovative and entrepreneurial.

²⁶⁸ European Commission, DG for Research and Innovation, Report on the state of play of the new European innovation agenda, Publications Office of the EU, 2024, p.3. <https://data.europa.eu/doi/10.2777/097305>.

²⁶⁹ Bulgaria, Cyprus, Czech Republic, Estonia, Spain, Greece, Croatia, Hungary, Italy, Lithuania, Latvia, Montenegro, Malta, Poland, Portugal, Romania, Serbia, Slovenia, Slovakia, Türkiye, and Ukraine.

²⁷⁰ See Innovative Europe Case Study 12 and Case Study 13 in Annex 4, <https://data.europa.eu/doi/10.2777/354>.

²⁷¹ [Annex 2 to the Commission Implementing Decision C\(2024\)8194 on the financing of the Programme and the adoption of the work programme for 2025-2027](#).

²⁷² European Commission (2022) Questions and Answers: The European Battery Alliance. https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_1257 Accessed 4 July 2023.

²⁷³ European Commission (2023) Commissioner Breton hosts ministerial meeting on European Solar PV Industry Alliance. https://energy.ec.europa.eu/news/commissioner-breton-hosts-ministerial-meeting-european-solar-pv-industry-alliance-2023-12-01_en.

²⁷⁴ EIT InnoEnergy (n.d.) European Solar PV Industry Alliance. <https://www.innoenergy.com/about/about-eit-innoenergy/industrial-value-chains/solaralliance/>.

²⁷⁵ <https://www.eitdeeptechtalent.eu/>

This unique support for skills building and learning does not exist in other Innovative Europe programme parts²⁷⁶. Since the beginning of Horizon Europe, the EIT Community has delivered the following results:

Table 5: Progress on EIT key monitoring indicators

Indicator	Time period: 2021-2023 (results reported by EIT KICs and validated by EIT)		Values from Horizon 2020's ex post evaluation (SWD Table 12)
	Target	End of 2023	
Number of people who graduated from the EIT-labelled master's and doctoral programmes	3 378	2 757	Not reported
Number of start-ups created by students from EIT programmes	143	90	36 in 2017-2020
Number of start-ups as a result of EIT innovation projects	289	346	99 in 2017-2020
Number of start-ups that received support from EIT KICs	3 093	5 806	3 862
Number of innovative products or services put on the market by the EIT KICs	872	956	1 501
Participants in (non-degree) education and training	192 669	287 163	Not reported
Other indicators, on training and skills development ²⁷⁷ :	Target:	As of March 2025:	
Deep Tech Talent initiative	100 pledging partners	378 pledging partners	Not reported
	1 million people trained by end of 2025	over 900 000 trained talent	Not reported
The European Battery Alliance Academy	100 000 learners by 2025	112 000 learners	Not reported

Source: EIT administrative data based on the KICs' monitoring. Targets based on the KIC's Strategic Agendas and approved by EIT.

4.1.4. Towards the objective to widen participation and strengthen the European Research Area

Widening participation and strengthening the ERA is part of the Horizon Europe's general objective and is supported by WIDERA - a dedicated programme part. It has two components: widening participation and spreading excellence (widening) and reforming and enhancing the European R&I System (ERA). The ERA component is aligned with the Pact for Research and Innovation²⁷⁸ and the ERA Policy Agenda²⁷⁹, and aims to strengthen capacities of R&I actors in areas such as open access and gender equality (see dedicated sections above).

The widening Member States have a higher share of participations in collaborative projects under Horizon Europe than previously under Horizon 2020 (accompanied by a higher EU contribution). There is also a significant rise in the share of collaborative projects involving widening Member States – from 47% under Horizon 2020 to 58% under Horizon Europe.

Table 6: Collaborations, participations and funding by type of country (widening)

	Widening MS	Non-widening MS

²⁷⁶ Innovative Europe study, 2024, chapter on internal coherence. <https://data.europa.eu/doi/10.2777/499132>.

²⁷⁷ If one individual has been trained through two different courses (i.e. in two different deep tech fields), he/she is counted twice.

²⁷⁸ https://european-research-area.ec.europa.eu/sites/default/files/2023-11/2021-11-26_council%20recommendations_pact%20for%20r%26i%20in%20europe.pdf

²⁷⁹ https://commission.europa.eu/system/files/2021-11/ec_rtd_era-policy-agenda-2021.pdf

	Horizon Europe	Horizon 2020	Horizon Europe	Horizon 2020
Share of participations in collaborative projects	18%	15%	65%	73%
Share of EU contribution in collaborative projects	15%	11%	77%	82%
Share of collaborative projects involving country group	58%	47%	97%	96%

Source: CORDA as of 6 January 2025

Several widening actions continue from the previous framework programme: Teaming, Twinning, ERA chairs, and the grant provided to the European Cooperation in Science & Technology programme (COST)²⁸⁰. While funded under the WIDERA budget, some stakeholders noted that COST actions are not aimed at supporting a given group of countries, and therefore not ideally positioned under the widening objective²⁸¹.

One new initiative includes the Hop-on Facility, which allows research institutions from widening countries to join ongoing RIA under Horizon Europe Pillar II and EIC Pathfinder. As of January 2025, 140 research institutions from widening countries were selected for the Hop-on facility, joining collaborative projects with only non-Widening country participants. Approximately two-thirds joined Pillar II projects, the remaining ones being selected for the EIC Pathfinder. Stakeholders expressed appreciation for the concept, but lamented the strict eligibility criteria and difficulty in finding consortia that would include them in running projects, due to lack of contacts and possibly low awareness in non-widening countries²⁸².

What messages emerged from the stakeholder consultation?

67% of respondents (1 035) (strongly) agreed that Horizon Europe is **on track to strengthen the impact and attractiveness of the European Research Area**. This view is more widespread among respondents who are not EU citizens (85%; 28), than among those whose are (68%; 85). 70% of respondents from academia (557) and NGOs (44) also support the statement. 5% of respondents from academia (strongly) disagreed.

Widening actions are among the few collaborative research actions still funded by the programme that can be focused on low-TRL discovery research²⁸³, often in the field of natural sciences, machine learning and artificial intelligence²⁸⁴.

The European Court of Auditors has highlighted the difficulties faced by entities in widening countries in recruiting international staff due, for example, to the low attractiveness of a research career (and salary) in certain widening countries.²⁸⁵ Under Horizon Europe, widening actions have increased their focus on fostering brain circulation across the ERA by facilitating the mobility of researchers, both across countries and across sectors. The ERA Fellowships provide a chance for unsuccessful applicants to the MSCA Postdoctoral Fellowships to carry out their research in a widening country. As of 2 December 2024, 267 researchers benefitted from the scheme. Local stakeholders appreciate these actions as they encourage mobility to widening countries²⁸⁶.

Encouraging mobility and new collaborations is particularly important, as researchers in Widening countries are still less connected than those in non-widening countries, as evidenced by them seldom taking a central role in collaboration networks²⁸⁷. Almost 90% of beneficiaries

²⁸⁰ <https://www.cost.eu/>. As of 2 December 2024, COST received EUR 273 million from the Horizon Europe budget.

²⁸¹ Excellent Science evaluation study, Annex I, p. 221. A list of ‘inclusive target countries’, not fully overlapping with widening countries, exists in COST: <https://www.cost.eu/uploads/2022/06/COST-Action-Booklet-220607.pdf>

²⁸² Excellent Science evaluation support study, Annex I, p. 218. <https://data.europa.eu/doi/10.2777/9552959>

²⁸³ Excellent Science evaluation support study, p. 58. <https://data.europa.eu/doi/10.2777/2295765>

²⁸⁴ Ibid, p. 61.

²⁸⁵ ECA, Special Report 15/2022, par. 63-64. <https://www.eca.europa.eu/en/publications?did=61346>

²⁸⁶ Excellent Science evaluation support study, p. 29. <https://data.europa.eu/doi/10.2777/2295765>

²⁸⁷ Excellent Science evaluation support study, p. 32. Statement based on Horizon 2020 data, due to the very limited number of publications reported at this stage of Horizon Europe. <https://data.europa.eu/doi/10.2777/2295765>

of widening actions who responded to the evaluation survey found that their project creates or strengthens collaborations with leading research organisations²⁸⁸. Case study evidence also highlights the added value of Horizon Europe support to cross-border collaborations and networking, as there are no comparable grants available in widening countries²⁸⁹.

Widening actions are not designed to have a significant direct effect on commercialisation of research results. Most widening actions focus on coordination and support, and are not expected to result in innovation outputs. Private for-profit entities (including SMEs) are underrepresented in these actions compared to most other parts of the FP²⁹⁰. Widening actions therefore have a relatively few programme newcomers (17.2% of all participants), as most new participants in R&I programmes come from the private sector. However, compared to Horizon 2020, efforts were made under Horizon Europe to include the private sector in actions such as the new Excellence Hubs, and in the first call dedicated to dissemination and exploitation launched in 2023²⁹¹. As of 6 January 2025, 12.9% of participants in widening actions are from private for-profit entities compared with 2% at the end of Horizon 2020.

The European Court of Auditors highlighted that a sustainable improvement in FP participation in widening countries can only be achieved through higher national R&I investment levels and structural reforms. In 2022, of the 15 EU widening countries, only Slovenia and Czechia spent over 2% of GDP on R&D²⁹². Widening actions aim to spur structural changes in the institutions, regions and countries involved, but the absence of a clear definition of structural changes in the context of the widening actions makes it difficult to monitor and evaluate their effects²⁹³.

What messages emerged from the stakeholder consultation?

Stakeholders expressed their level of agreement on whether Horizon Europe is on track to **foster excellence-based participation from all Member States, including low R&I performing countries**. Among the 1 547 respondents, 67% (strongly) agreed (1 060) that this is the case. Respondents from academic or research institutions were the most positive (50%; 535), followed by companies (18%; 193) and EU citizens (11%; 120). Only 5% of respondents (73) indicated that they (strongly) disagree.

Horizon 2020's *ex post* evaluation found that national implementation plans were often not updated in response to the periodic feedback of the Policy Support Facility (PSF)²⁹⁴. Under Horizon Europe, PSF was strengthened thanks to a new service, PSF Open, aimed at providing support for the implementation of previous PSF country reviews. In 2023, the first two PSF Open exercises (for Romania and Greece) were carried out.

Under Horizon Europe the PSF has so far supported 32 Member States and associated countries, with Belgium, Austria and Romania being the most active participants. The 11 mutual learning exercises (MLEs) covered a range of topics such as the decarbonisation of industries, national policies for knowledge valorisation and the implementation of EU Missions.

A network analysis²⁹⁵ shows that over one third of countries are connected through **researchers participating in Horizon Europe-funded projects**, and that **Pillar I is the Horizon Europe Pillar with the most globally connection**. Nevertheless, some flagship topics in Pillar II are key for the international positioning of the EU (e.g. those contributing to globally coordinated assessments such as the ones produced by the IPCC and IPBES). The most central countries (i.e. those with the highest population density) in the European research ecosystem under Horizon

²⁸⁸ Excellent Science evaluation support study, p. 37. <https://data.europa.eu/doi/10.2777/2295765>

²⁸⁹ Ibid, p. 57

²⁹⁰ Source: Corda data on 2 December 2024.

²⁹¹ Excellent Science evaluation support study, Annex I, p. 219. <https://data.europa.eu/doi/10.2777/9552959>

²⁹² Eurostat, Source dataset: [rd_e_gerdtot](#) (2022 is the latest available year).

²⁹³ Excellent Science evaluation support study, p. 34. <https://data.europa.eu/doi/10.2777/2295765>

²⁹⁴ SWD (2024) 29, p. 88. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52024SC0029>

²⁹⁵ Excellent Science evaluation support study, 2024, Annex 6 'Quantitative research track findings'.

Europe are Germany, France, Italy and Spain. **Non-widening countries are generally more connected than widening countries.** Nevertheless, among widening countries, researchers from Greece, Portugal, Poland and Czechia are found to be **central to the European research ecosystem**²⁹⁶.

The ERC plays an important role in making the EU research system more attractive to both European and non-European researchers. Interviews and stakeholders' position papers praise the size of the funding, the flexibility for ground-breaking research and the length of projects²⁹⁷. However, participation by the private for-profit sector remains limited.

The EIT Regional Innovation Scheme (EIT RIS) addresses the innovation divide in Europe through capacity building support which reached over 87 000 participants²⁹⁸, created and supported over 2 500 ventures and launched 360 innovations on the market. A network of EIT hubs/offices and 887 partners has been created. Through this place-based approach to innovation, the EIT bridges also towards relevant regional Smart Specialisation Strategies²⁹⁹.

What messages emerged from the stakeholder consultation?

67% of respondents (1 035) (strongly) agreed that Horizon Europe is on track to strengthen and **increase the impact and attractiveness of the European Research Area**. Non-EU citizens were the most likely to agree or strongly agree with the statement (85%; 28) than EU citizens (68%; 85), and 70% of respondents from academia (557) and NGOs (44) supported the statement.

4.1.5. Exploitation and dissemination of results

In Horizon Europe, **focus is put on: (i) beneficiaries' best efforts** to exploit the results they own and to disseminate their results as soon as feasible; **and (ii) and the responsibility of the project consortium to disseminate and exploit results**³⁰⁰. Projects are requested to: (i) identify and to declare ownership of projects results in the reporting template; (ii) list their key exploitable results and (iii) prepare a plan for dissemination and exploitation during the project and after it ends. Previously, Horizon 2020 was found to fail reaching satisfactory levels of dissemination of scientific results within the scientific community and to policymakers³⁰¹. Concerns were raised about the resources and skills required for dissemination and the need for continued knowledge management after the end of projects. Shortcomings in dissemination may contribute to a limited uptake of Horizon 2020 results³⁰².

The Commission provides the tools and services described below to address Horizon Europe beneficiaries' needs.

- The **Horizon Results Platform**, set up in 2019, provides a space for beneficiaries to raise the visibility of project results of Horizon Europe, its predecessors and other EU-funded

²⁹⁶ In terms of the degree of centrality (how many connections each network node has), closeness centrality (how close each node is to others in the network), and betweenness centrality (how important a node is to the network information flow).

²⁹⁷ Excellent Science evaluation study, Annex 1, p. 21, <https://data.europa.eu/doi/10.2777/9552959>

²⁹⁸ By 2022, from the modest and moderate innovator countries according to European Innovation Scoreboard.

²⁹⁹ Innovative Europe evaluation study, 2024, Annex 4, Case study 12, p. 272-280

³⁰⁰ As per the Article 39 of the Horizon Europe regulation, each beneficiary that has received Union funding shall use its best efforts to exploit the results it owns, or to have them exploited by another legal entity. Exploitation may be direct by the beneficiaries or indirect through the transfer and licensing of results in accordance with Article 40. If, despite a beneficiary's best efforts to exploit its results directly or indirectly, the results are not exploited within a given period as established in the grant agreement, the beneficiary shall use an appropriate online platform as identified in the grant agreement to find interested parties to exploit those results. The beneficiaries are best placed to maximise the impact of their own research by communicating, disseminating, exploiting during the project's lifetime and after the project's completion.

³⁰¹ Green Transition evaluation study supporting the final evaluation of Horizon 2020 (2023), Section 3.1.5.2.

³⁰² Resilient Europe evaluation study supporting the final evaluation of Horizon 2020 (2023), pp. 41, 129. Annex V.

programmes. Beneficiaries who, despite their best efforts, have not succeeded in exploiting their results are required to disseminate their key exploitable results via the Platform.

From 2020 to 2022, the Horizon Results Platform saw an increase in visitors from 21 283 to 37 650 and showcased a total of 3200 key exploitable results, 65 coming from Horizon Europe³⁰³. The platform also supports networking and pitching events in collaboration with organisations representing early-stage investors. However, there is a difficulty in enforcing the requirement to disseminate results on the Platform as this step is taken at the end of the grant agreement.³⁰⁴

- The **Horizon Results Booster-I** (2020-2024) and the improved Horizon Results Booster-II (from 2024) also provide free support and guidance services to beneficiaries for disseminating and exploiting their results. Between September 2020 and September 2024, the Horizon Results Booster-I delivered 1 521 services: 938 on the portfolio dissemination & exploitation strategy (PDES), 285 on business plan development (BPD) and 298 go-to-market services (G2M - innovation management, pitching, intellectual property support, feasibility studies, start-up support)³⁰⁵. There were 78 requests for IPR services, which provide support to beneficiaries in clarifying intellectual property and non-disclosure agreements, especially for collaborative ventures and spin-offs. Feedback from interviews about these services was positive, but there is scope for more beneficiaries to use these services³⁰⁶.
- The EIC's **Business Acceleration Services** provided non-financial support to over 4 000 companies and innovators to connect with procurers and investors, helping to increase their likelihood of market entry and up-scale EIC-funded innovation. They facilitated 440 introductions to corporates, public and private procurers resulting in follow-ups (with over a quarter resulting in a commercial contract including for example the deployment or integration of a product).
- **CORDIS** (Community Research and Development Information Service) is the European Commission's primary source of results from EU-funded research projects, spanning FP1 to Horizon Europe. Having attracted over 6.5 million visitors in 2024, it offers a structured public repository with project factsheets, participants, reports, Intellectual Property Rights, and links to open-access publications, along with articles, videos and podcasts in six languages. Projects are classified by scientific fields using the European Science Vocabulary Taxonomy (**EuroSciVoc**).

The evaluation also found a variety of project activities that were carried out to engage the public and end users in projects – a summary is provided in Annex 9.

What messages emerged from the stakeholder consultation and beneficiaries survey?

The beneficiaries' survey, which was carried out between May and July 2023, highlighted an improvement compared with the results of the previous stakeholder consultations. Approximately 63% of respondents report that the Commission platforms and measures (e.g. Horizon Results Booster, Horizon Results Platform, IPR Helpdesk) help facilitate the uptake of projects' research findings to a (very) large extent.

According to stakeholders, the most helpful Commission-related exploitation services in view of dissemination, exploitation and access to research and innovation results are CORDIS (75%; 1 524), the Horizon Dashboard (59%; 1 517), the Horizon Results Platform (55%; 1 514) and the Horizon Results Booster (48%; 1 520).

³⁰³ Typically, Key Exploitable Results become available towards the end of a project's lifecycle, with many Horizon Europe projects still ongoing, particularly RIA and IA, results will not become available until more projects conclude.

³⁰⁴ Green Transition evaluation study, 2024, section 14.4.2. <https://data.europa.eu/doi/10.2777/67934>.

³⁰⁵ HRB services are available to beneficiaries of Horizon Europe and its predecessors (Horizon 2020 and FP7). The figures represent all services provided. For Horizon Europe specifically, data estimates are 192 for PDES, 44 for PD, and 85 for G2M, including 29 for IPR services.

³⁰⁶ Green Transition evaluation study, 2024, Section 14.4.2. <https://data.europa.eu/doi/10.2777/67934>.

Excluding 'I do not know / no opinion' replies, the Horizon Results Platform is appreciated the most by NGOs (97%; 34), public authorities (92%; 44) and companies (91%; 139)³⁰⁷. Similarly, the Horizon Results Booster is best received by business associations (100%; 20), followed by NGOs (97%; 32) and companies (88%; 118)³⁰⁸.

Besides Commission platforms, 55% (832) of respondents to the public consultation indicated that they (strongly) agree that **patents** helped to disseminate, exploit and give access to research and innovation results. 41% of respondents from business associations (15) and 32% of companies (82) indicated that patent filing fosters dissemination and exploitation of results 'to a great extent'.

4.2 Efficiency

The first part of this section assesses the costs of Horizon Europe by stakeholder group, complementing the benefits presented in the previous section. It then reports on the administrative targets set, assesses the programme's value for money, looks at how simplification measures (aimed at efficiency savings) have performed so far and discusses the areas for further simplification.

A public sector evaluation considers costs to society, including those incurred by programme participants. As a centrally managed programme, Horizon Europe is in the exceptional situation of not only recording its current administrative and operational expenditure but also being in direct contact with its participants. Through a particular emphasis on the detailed quantitative assessment of the costs for applicants and beneficiaries, this interim evaluation hopes to contribute to a better understanding of large EU funding programmes' cost characteristics³⁰⁹.

4.2.1 Costs of Horizon Europe by stakeholder group

1. The cost of investment in R&I at EU level is covered by Horizon Europe's **operational expenditure** budget of **EUR 88 322 million**³¹⁰. It is the programme's main input cost, incurred by EU society and funded mainly through the Union's budget. Until the end of 2024, **EUR 56 561 million**³¹¹ have been **committed** and **EUR 30 883 million**³¹² have been **paid out to beneficiaries**³¹³.

2. Horizon Europe's administrative expenditure budget of **EUR 5 623 million** is the **EU Public Sector's administrative costs** and is funded mainly through the EU budget. Until the end of 2024, **EUR 3 317 million**³¹⁴ have been **committed** and **EUR 3 174 million**³¹⁵ have been paid out³¹⁶.

3. Beneficiaries incur **administrative costs** to fulfil specific requirements to manage their projects, set out in their grant agreements, that they would otherwise not have spent. While beneficiaries are compensated for all administrative costs through grant payments, any avoidable

³⁰⁷ The Horizon Results Platform helped: (1) to a great extent, (2) somewhat, (3) a little.

³⁰⁸ The Horizon Results Booster helped: (1) to a great extent, (2) somewhat, (3) a little.

³⁰⁹ The findings reported in this part of the evaluation are based on the analysis in annex 4 (Efficiency).

³¹⁰ Horizon Europe's budget (2021-2027), including different sources of the budget is discussed in section 2.1.

³¹¹ This includes EUR 52 251 million, or 59.2%, of the voted budget including NGEU funds, plus EUR 4 310 million in internal and external assigned revenues.

³¹² This includes EUR 29 574 million, or 33.5%, of the voted budget including NGEU, plus EUR 1 308 million in internal and external assigned revenues.

³¹³ Direct point for comparison not available for Horizon 2020 and FP7 not available. Close point of comparison: 38% of the total Horizon 2020 budget committed in the first three years of the programme.

³¹⁴ This includes EUR 2 978 million, or 53.0%, of the voted budget including NGEU funds, plus EUR 339 million in internal and external assigned revenues.

³¹⁵ This includes EUR 2 875 million, or 51.1%, of the voted budget including NGEU funds, plus EUR 299 million in internal and external assigned revenues.

³¹⁶ Comparable figures for the first three years of Horizon 2020 and FP7 are not available. The committed total Horizon 2020 budget share of the first three years is dominated by the operational expenditure.

part of the effort generated by the framework programme's requirements reduces its overall efficiency.

About half of the beneficiaries agreed to some extent that 'project reporting requires reasonable effort and costs', while 14% disagreed³¹⁷. Around 40% of the beneficiaries experienced project management and implementation in Horizon Europe as neither simpler nor less simple than in Horizon 2020, while 28% found it at least somewhat simpler and 9% less simple than before³¹⁸.

The evaluation collected robust quantitative evidence on **beneficiaries' administrative costs as share of their total project costs**³¹⁹. These costs cannot be interpreted as pure 'administrative burden' as they are likely to cover tasks that would have been associated with running the projects in any case. For almost all programme parts, the median and the most common responses indicated that **6% to 10% of the project budget is allocated to administrative tasks**³²⁰. This result also holds for the median consortium-run project, while median coordinators, when considered separately, reported a higher range of 11% to 15%. Mono-beneficiaries (Pillar I and III, as well as SME respondents) also typically face administrative costs equal to between 6% and 10% of the project budget.

At the level of programme parts³²¹ in total, for **all projects signed under Horizon Europe so far, beneficiaries are expected to spend between EUR 4.75 billion and EUR 6.47 billion in administrative costs** over their entire project lifetime. This is equivalent to 9% - 12% of the total project cost signed so far. This estimated total cost is already an order of magnitude higher than the estimate of the final Horizon 2020 evaluation (EUR 135 million to EUR 215 million over the entire framework programme). The differences are likely driven by improvements in data quality and a change in the design of the survey questions rather than actual underlying changes in beneficiaries' administrative costs^{322,323}.

4. Successful and unsuccessful applicants, the largest stakeholder group of Horizon Europe, incur **application costs** when preparing and submitting their proposals. Application costs are one of the programme's costs on EU Society and have an effect on its value for money. They are partially unavoidable as quality proposals require effort up front to allow for the most promising projects to be identified, which in turn maximises the chances of generating higher benefits for society. However, the application costs have the potential to introduce inefficiencies into the programme³²⁴.

For around 40% of applicants, the overall effort to prepare a proposal is 'acceptable', while a quarter disagreed³²⁵. Applicants also suggest there has been no substantial shift in the

³¹⁷ 'Project reporting requirements require reasonable effort and costs' 12% (727) strongly agree, 40% (2455) rather agree, 22% (1378) neither agree nor disagree, 11% (668) rather disagree, 3% (187) strongly disagree, 13% (793) do not know / not applicable.

³¹⁸ 'Project management and implementation (...) is simpler in Horizon Europe than in HH2020. (n = 3286); 5% (150) strongly agree, 23% (760) rather agree, 41% (1350) neither agree nor disagree, 7% (245) rather disagree, 2% (59) strongly disagree, 22% (722) do not now/ not applicable.

³¹⁹ 5 161 responses (excl. 'do not know'), targeted survey. Further discussion and questions, in Annex 4.1.1.

³²⁰ For programme parts deviating from this pattern, and additional details on administrative costs, see Annex 4.1.1.1.

³²¹ Using the shares of respondents (who selected each administrative cost range) as a weight, the ranges themselves, and the aggregated total project cost by programme part, excluding EIT. See also Annex 4.1.1.

³²² The Horizon 2020 estimate was less robust but was also based on a more granular question. See Annex 4.1.1.

³²³ Beneficiaries' administrative costs are targeted by simplification measures, discussed in section 4.2.3, with potential for further simplification covered in section 4.2.4

³²⁴ As the total number of applicants is very high and the vast share of applicants is unsuccessful, a small avoidable burden in the application process has the potential to introduce a sizeable inefficiency into the programme.

³²⁵ to a 'large extent' (32%, 5 443), 'very large extent' 10% (1733), while 32% are moderately supportive and 24% (4254) effectively did not find it acceptable. (See Annex 4.1.2.1)

proposal preparation effort required to apply for Horizon Europe funding compared with Horizon 2020^{326,327}

Relative to the **complexity of the proposed projects**, **60% of applicants³²⁸ find the overall application effort proportionate**. Just over half of the applicants consider their effort proportionate to the **number of consortium partners involved³²⁹** and to **the size of the grant^{330,331}**. However, when comparing the proposal preparation effort to **the chances of success**, **44% of applicants consider their application costs disproportionate** and only a third of applicants still rate the effort as proportionate³³². A further breakdown of the responses by programme part reveals some variation, with EIC and ERC applicants being most affected³³³. Additional feedback submitted to the survey's open questions and the public consultation similarly raise strong concerns about the absolute level of effort required in light of the chance of success³³⁴. **Taken together, despite the increased success rates and budget of Horizon Europe, there is strong qualitative evidence that for a substantial share of applicants the application cost is not proportionate to their chances of securing Horizon Europe funding.**

The evaluation substantially improved the available quantitative evidence on proposal preparation costs of R&I framework programmes³³⁵. Proposal preparation costs of consortia (multi-beneficiary grants) combine the costs of coordinators, shouldering most of the effort, with those of contributing partners. Overall, the **median consortium coordinator spends between 36 to 45 person-days per proposal**. The effort for contributing **consortium partners** is typically lower, spending **16 to 25 person-days³³⁶**.

The median effort required by **mono-beneficiaries** (ERC and MSCA PF, as well as for EIC Accelerator³³⁷) **is comparable to that of coordinators, at 36 to 45 person-days³³⁸**. Although mono-beneficiaries do not have to coordinate partners during the proposal preparation phase, they are required to fulfil most of the same steps as coordinators. However, mono-beneficiaries are diverse. In the case of the EIC Accelerator, proposals apply for substantial grants and equity budgets through pitching decks and full business plans, which can be used for investment commercialisation purposes beyond the EIC. This is also reflected in the comparatively high share (26%) of EIC Accelerator applicants, particularly successful ones (43%), who reported very high application costs of over 65 person-days.

The time spent on proposals is influenced by metrics that relate to the size of the project. More than the size of the grant, **the consortium size is a dominant factor influencing the time cost of coordinators**. According to the survey, the effort increases in steps, by about **10 person-days for every additional 15 partners**, pointing to the key role of coordination costs already at the application stage. Proposals for **projects of a longer duration** also take coordinators **more time**

³²⁶ This finding is supported by the targeted consultation, as well as responses to the public consultation. For details, see Annex 4.1.2.1 (costs of applicants - qualitative evidence), Figure 11.

³²⁷ Ineligible proposal rates, at 3.5%, are higher than in Horizon 2020, which could be linked to complexity.

³²⁸ 45% 'to a large' (7 801 respondents) and 15% 'to a very large' extent (2 596 respondents)

³²⁹ 44% 'to a large' (5 337 respondents) and 12% 'to a very large' (1 495 respondents)

³³⁰ 13% 'to a large extent' (2 200 respondents) and 40% 'to a very large extent' (6 885 respondents).

³³¹ In all three cases a minority consider the costs disproportionate. Complexity: 13% (2283), consortium partners: 12% (1479), size of grant: 17% (2872) (See Annex 4.1.2.1 Figure 12)

³³² (6761 respondents); 34%: 24% 'to a large extent' (4 051) and 10% 'to a very large extent' (1759).

³³³ See Figure 13, Annex 4.1.2.1

³³⁴ See Annex 4.1.2.1 and Section 4.2.4.

³³⁵ Based on 17 254 responses of unsuccessful and successful applicants to a targeted survey question, sent to the population of applicants, matched to data on applicants. For further discussion and question, see Annex 4.1.2.3.

³³⁶ Co-ordinators' mode at 'above 65 person-days'. Partners' result: median and mode; Finding holds across most characteristics, but not for consortia of > 30 partners, where partners spend 6 - 15 person-days (median and mode).

³³⁷ For a further split by action, please refer to Annex 4.1.2.2.

³³⁸ Mode ERC applicants (20%), equally reported very high application costs of 'more than 65 person days'.

to prepare. Projects of **up to two years** see coordinators typically investing **26-35 person-days**, whereas those of two to four years typically take **36-45 person days**. Costs vary by the type of funding instrument, with higher costs associated with those instruments with the higher grant amounts, larger consortia and longer projects.

Proposal preparation costs vary based on the applicants' experience and their skill sets. **Experienced applicants spent more time** on their proposals than first-time applicants. Applicants who **used consultancies** (but were not consultancies themselves) typically took **about 10 person-days more**. This increase was not observed for consultancies acting as coordinators, whereas consultancies who contributed as consortium partners even typically reported spending about 10 person-days less than the average. **Coordinators that prepared proposals that ended up securing funding typically had spent more time** than those whose proposals were unsuccessful. For further details and analysis of the results, see Annex 4.1.2.2.

Analysing the median number of days dedicated to the application process, breaking down the data by applicant role and the size of their consortium, **it is estimated that the total application cost for Horizon Europe so far reaches between EUR 1.92 billion and EUR 2.82 billion**³³⁹. This corresponds to an **average cost per proposal of EUR 21 000 to EUR 32 000**, or EUR 34 000 to EUR 50 000 per EUR 1 million of committed operational expenditure. Our level of confidence in the order of magnitude of these new estimates is high, due to the improved source of evidence and a more robust and granular estimation approach.

These estimates are based on Horizon Europe's committed operational expenditures up to 2024, therefore not covering the entire programme. When projected to the total expenditure of the programme, the estimated total application cost of Horizon Europe is expected at the end to amount to EUR 3.1 to 4.5 billion. In comparison, the Horizon 2020 final evaluation estimated that the average cost of a proposal fell between EUR 18 000 and EUR 37 000, which corresponds to EUR 79 000 to 158 000 per EUR 1 million of operational expenditure. The estimate of the Horizon 2020 final evaluation was not robust. **Differences between the estimated application cost for Horizon 2020 and Horizon Europe should not be interpreted as a change in the actual underlying costs.** It will be possible to assess a change in the costs of applicants in the interim evaluation of the next framework programme.

While around **30% of Horizon Europe applicants prepared their proposals without any support**, around **50%** received help from a **dedicated department in their organisation**, around **20%** received support from a **National Contact Point (NCP)** and **17%** commissioned support from a **consultancy or expert** (inside or outside the consortium)³⁴⁰. Comparatively high shares of applicants used **consultancies** in **Pillar III** (46%), particularly the **EIC Accelerator** (67%), and to some extent also in **Pillar II Cluster 1** (28%). **Innovation Action** applicants had the highest shares using external consultancies (24-36%)³⁴¹. Quantitative survey evidence³⁴² suggests that the **median consultancy fee** is **EUR 7 500** for **consortia** proposals, **EUR 2 000** for **mono-beneficiaries** and **EUR 12 000** for **EIC Accelerator** proposals.

The use of external or internal consultancies or an internal department in the proposal preparation process, does not necessarily indicate programme inefficiencies. Applicants make their choices based on their skill set, value of time and available resources. Concerns can arise where participation effectively depends on the use of costly support. Given the figures above and that

³³⁹ Excluding EIC Accelerator applications, due to low quality monitoring data. For the detailed methodology and findings, see Annex 4.1.2.

³⁴⁰ Survey responses: 'No support': 29% (2 141 responses), internal department: 51% (3688), NCPs: 19% (1397), consultancies: 17% (1252). Multiple selection possible. For the survey question and further details in Annex 4.1.2.3.

³⁴¹ Resilient Europe study Annex 1.3.3. Estimate based on survey responses matched with monitoring data.

³⁴² 658 survey respondents. Fees paid to external consultancies for proposal preparation and related advice can be understood as a monetisation of parts of the application costs, reducing the number of person-days that applicants would otherwise have spent. For the survey question and a further breakdown, see Annex 4.1.2.3.

the overwhelming majority (**74-80%**) of **Horizon Europe proposals above the quality threshold are written without the involvement of external consultancies**³⁴³, this does not seem to be generally the case, although it may apply to specific programme parts.

4.2.2 Performance against administrative targets & value-for-money of Horizon Europe

Administrative efficiency of the EU public sector

Two types of quantitative performance targets³⁴⁴ set out expectations about the administrative efficiency of the EU public sector managing Horizon Europe: (i) the administrative time performance targets; and (ii) the share of administrative expenditure overall.

(i) The evaluation assessed Horizon Europe's performance in meeting time-based targets³⁴⁵. According to the **time-to-grant (TTG) target**³⁴⁶, each grant agreement (except for ERC calls)³⁴⁷, has to be signed **eight months** (245 days) after the proposal submission deadline. Under Horizon Europe, this target has been met so far, even though as of January 2025, with an **average time-to-grant period of 240 days**, Horizon Europe lags behind Horizon 2020's average overall performance (187 days). **77% of grants have been signed on time**, compared to 90% under Horizon 2020 and 41% under FP7. Across programme parts, times-to-grant vary between **Widening and ERA (230 days, 88%) and Pillar II (244 days, 87%)**.

Horizon Europe without the EIC reaches a TTG of 241 days (240 days when excluding EIC Accelerator only), staying behind the performance of Horizon 2020 without SMEI (209 days) but still on the target³⁴⁸. Horizon Europe's TTG performance fluctuates month by month. The above values report the average values on 6 January 2025.

(ii) Horizon Europe's **administrative expenditure** has been set a **maximum ceiling of 5%** of overall expenditure³⁴⁹. The ceiling definition only considers expenditure drawing on certain budget sources (only the budget in the legal base) and the expenditure linked to indirect research, which excludes the JRC. Based on this definition, Horizon Europe's administrative expenditure meets the 5% ceiling: to date it reaches **4.01%**³⁵⁰.

Value for money of Horizon Europe

The costs and benefits reported in the evaluation are used to assess Horizon Europe's societal value-for-money by calculating an approximate **public sector benefit cost ratio (BCR)**. Conceptually, this metric relates the total welfare benefits of the programme to the total cost associated with it³⁵¹. The closest available proxy for a total welfare benefit of Horizon Europe are the macro-economic forecasts of its long-term GDP impact (Section 4.1.3). Quantified benefits other than GDP (e.g. number of patents, effects on employment) are not added again to avoid double-counting. The EU public sector's (already committed) expenditure and the

³⁴³ Resilient Europe study, Annex 1.3.3. Estimate based on survey responses matched with monitoring data.

³⁴⁴ It is too early in the programme to assess the error rate of the framework programme.

³⁴⁵ Time to inform, time to sign, time to pay data, as well as breakdowns of time to grant in Annex 4.2.

³⁴⁶ TTG is set out in Article 31 of the Horizon Europe Regulation, by derogation from Article 197 (2), the time to grant is 8 months from the deadline for submission of the proposals.

³⁴⁷ ERC: TTG may exceed the target if justified (e.g. complex actions, many proposals, and request by applicants).

³⁴⁸ The evaluation did not find international benchmarks for TTG, with available targets focussing mainly on the proposal evaluation phase (time-to-inform). See Annex 4.2

³⁴⁹ Regulation (EU)2021/695, Article12(6).

³⁵⁰ Expenditure data extracted on 21 November 2024.

³⁵¹ The difference between a (public sector) benefit cost ratio of a programme and a (private sector) return-on-investment is that the BCR takes the wider perspective of EU society and should include all costs and benefits that affect welfare. A BCR of 1 (break-even) indicates that each euro of costs that the programme generated welfare benefits equivalent to one euro.

estimated incurred total cost of applicants (both Section 4.2.1) make up the total cost. Beneficiaries' administrative costs are compensated by grants and therefore not added again.

While the costs associated with Horizon Europe are incurred early on, its benefits only emerge over a long period of time. A meaningful assessment of the overall benefit-cost relationship at this point thus has to involve forecast benefits that have not yet materialised. To anchor the forecast to evidence on the programme's performance at interim stage, the evaluation only considers the GDP effect that is expected from R&I activities, for which grants have already been signed. Two macro-economic forecasts are used, leading to two very similar ratios.

Based on the above, the **benefit cost ratio** (dividing total benefit by total cost) reaches a value between 5 and 6, consistent with a high value for money that reflects the potential of R&I support to generate substantial benefits over a longer time horizon. This suggests that **one euro of costs to EU society associated with the programme (programme costs and costs to applicants) is estimated to bring about 5 to 6 euro of benefits for EU citizens (measured through GDP impact) in the period up to 2045 (25 years)**³⁵².

4.2.3 Performance of Horizon Europe's simplification measures

Rationalisation of the European Partnership landscape

The interim evaluation of Horizon 2020 found that the partnership landscape had become excessively complex over time, failing to adequately align with policy objectives at EU and national level³⁵³. Under Horizon Europe, the number of partnerships was therefore initially reduced to 49 from 120 under Horizon 2020. This number later increased to 50 after extension of the Partnership on Research and Innovation in the Mediterranean Area (PRIMA)³⁵⁴. Furthermore, during the 2025-2027 period, 10 new partnerships will be launched^{355,356}, bringing the total number to 60. The types of partnership were limited from 7 to 3, namely co-funded, co-programmed and institutionalised partnerships. The selection process of co-programmed and co-funded partnerships was integrated into the strategic planning process of Horizon Europe³⁵⁷ with the expectation that this would support the reorientation towards EU priorities and enable an impact-driven approach. The number of partnerships is increasing again in Horizon Europe: the strategic plan for 2025-2027 announced nine new co-funded and co-programmed partnerships³⁵⁸. While the rationalisation primarily affected public-private partnerships, new additions involve the private sector.

The closer integration of partnerships into the programme has had some effects: evidence from two evaluation support studies³⁵⁹ suggests that some **areas covered by partnerships are now better coordinated**. This has in turn led to a substantial increase in public funding from EU Member States and a stronger collaboration at programme level. Respondents to the public consultation provided positive feedback on the streamlining of partnerships. Overall, 53% (472) of respondents 'agreed' or 'strongly agreed' that 'the rationalisation of European Partnerships

³⁵² The Impact Assessment of Horizon Europe did not include a benefit cost ratio as point for comparison.

³⁵³ Council Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe, Recital (4).

³⁵⁴ https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/european-partnership-research-and-innovation-mediterranean-area-prima-has-been-successfully-extended-2024-04-19_en

³⁵⁵ <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/6abcc8e7-e685-11ee-8b2b-01aa75ed71a1>

³⁵⁶ <https://education.ec.europa.eu/news/new-eit-knowledge-and-innovation-community-will-focus-on-water-marine-and-maritime-sectors-and-ecosystems>

³⁵⁷ SWD(2018)307final, 2/3 - p. 111. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018SC0307>

³⁵⁸ Strategic plan for 2025-2027, p. 33.

³⁵⁹ Digital and Industrial Transition evaluation study, 2024, Section 9, <https://data.europa.eu/doi/10.2777/845650> and Green Transition evaluation study, 2024, Section 12.3, <https://data.europa.eu/doi/10.2777/797281>.

had allowed additional public and private investments in R&I to be leveraged'³⁶⁰. In addition, 49% (435) of respondents 'agreed' or 'strongly agreed' that 'the rationalisation of European Partnerships has led to delivering more solutions for the benefits of society, the environment, and the economy'³⁶¹.

The integration of different communities from the previous partnerships has, however, not yet been completed³⁶², and the **monitoring of partnership results faces challenges**, not least as far as additional activities are concerned (private investments outside the programme but contributing to the objectives of the partnership)³⁶³. Some partnerships have just recently been set up and are still drawing up their KPIs. Others find it difficult to identify suitably flexible KPIs, which would enable them to incorporate new innovation approaches. They also have difficulties in coordinating their monitoring frameworks with that of Horizon Europe and with the reporting standards of projects³⁶⁴. In addition, four partnerships reported that monitoring arrangements have given rise to disproportionate administrative costs for partners and project participants³⁶⁵. The fragmented monitoring of partnerships, and in some cases reliance on ad hoc reporting exercises, has had a negative effect on the extent to which partnership performance could be evaluated³⁶⁶. An assessment of the administrative costs (running costs) of institutionalised partnerships can be found in Annex 4.4.1.

Lump sum funding

Lump sum funding is a simplification measure that removes financial reporting requirements, which reduce the reporting burden on beneficiaries (and saves them administrative costs). Lump sum grants also help to avoid financial errors and contribute to a shift of focus during the grant implementation stage away from financial controls and back to a project's content.

Under Horizon Europe, the use of lump sum grants has been gradually extended, building on previous, generally positive assessments³⁶⁷. As of 1 January 2025, a total of **1 582 lump sum grants have been signed for a total value of EUR 3.03 billion**, of which 706 ERC Proof of Concept (PoC) grants (EUR 106 million) and 876 lump sum grants (EUR 2.93 billion) in other programme parts³⁶⁸.

Lump sum funding has prompted stakeholder reactions. Positive feedback welcomes the reduction in reporting burden and stresses the simplification for new beneficiaries. Concerns, particularly from some larger beneficiary organisations, centre on the topics of application costs,

³⁶⁰ Percentage after excluding responses of 'I do not know'. In comparison, 31% 'neither agreed or disagreed', and 17% 'disagreed' or 'strongly disagreed'.

³⁶¹ 16% 'disagreed' or 'strongly disagreed' and around a third of respondents (34%) 'neither agreed or disagreed'. See section 'Effectiveness of the EU Missions and European Partnerships' in Annex 5 Stakeholder consultation.

³⁶² Digital and Industrial Transition evaluation study, 2024, Section 9, <https://data.europa.eu/doi/10.2777/845650>

³⁶³ Based on 18 out of the 39 partnership evaluation reports.

³⁶⁴ Evaluation of the EIT Climate-KIC, Section 8; European Partnership – Towards zero-emission road transport (2ZERO), Section 4.7; European Partnership on Connected and Automated Driving (CCAM), Section 4.10.

³⁶⁵ Evaluation of EIT Health, Section 4.5, 2024, <https://data.europa.eu/doi/10.2777/049770>; Evaluation of the Partnership 'People Centric Sustainable Built Environment', Section 3.3; Evaluation of the European Partnership Clean Aviation Joint Undertaking, Section 4.3, 2024, <https://data.europa.eu/doi/10.2777/403632>; Evaluation of the European Partnership on the Assessment of Risks from Chemicals, 2024, directionality section, <https://data.europa.eu/doi/10.2777/001851>.

³⁶⁶ Annex 7 highlights several monitoring limitations across different types of partnerships, in particular data discrepancies across several resources and limitations of internal reporting for institutionalised partnerships, uncertainty of pledged funding by Member States and their source for co-funded and reporting confidentiality and validation of additional activities for co-programmed partnerships.

³⁶⁷ See Section 4.2.3 and Annex 4 of the [Final Evaluation of Horizon 2020](#) (2023), [Assessment of the Lump Sum Pilot \(2018-2020\)](#), October 2021.

³⁶⁸ A detailed description of the state-of-play of lump sum funding, covering the entire lifecycle of grants as of early 2024 can be found in: [Assessment of lump sum funding in Horizon 2020 and Horizon Europe](#), September 2024.

financial risk and amendments to grant agreements³⁶⁹. Extensive quantitative and qualitative evidence, allow to estimate the benefits from removing financial reporting costs achieved so far, analyse changes in application costs and to the EU public administration processes, as well as assess the existence of potential unintended side-effects.

A 2024 assessment³⁷⁰ of targeted survey responses suggests that a large majority of beneficiaries of lump sum funding, across programme parts, perceived a **reduction in administrative burden** and an **improved focus on project content**³⁷¹. Lump sum grants are **particularly welcomed by beneficiaries of grants of up to EUR 10 million and with a consortium size of up to 20 participants**³⁷².

Implementation data suggest that lump sum grants **do not interfere with the proper functioning of R&I projects**. The rate of grant reduction in closed lump sum grants has stayed under 1%, irrespective of the budget size of the grant, indicating that **a beneficiary's risk of not completing a lump sum project remains low**.

The evaluation **quantified the simplification benefits of lump sum grants** from removing all financial reporting requirements. Two targeted surveys³⁷³ returned very similar **median financial reporting cost savings of lump sum grant beneficiaries of between 6 and 8 person-days per reporting period and consortium member**³⁷⁴.

Given the characteristics of the lump sum grants signed so far, beneficiaries (excl. ERC PoC) are expected to **reduce the time spent on reporting** by between **96 and 128 person-days per grant over the project lifetime** (median saving). This corresponds to a typical simplification benefit of around **EUR 33 200 to EUR 44 200**³⁷⁵ **per grant**, equivalent to around **1.4% to 1.8% of the grant value**, or between **12% to 27% of the beneficiaries' administrative cost**³⁷⁶.

The burden reduction per ERC **PoC mono-beneficiary** is estimated to amount to between **6 - 8 person-days**, or between **EUR 1 800 to EUR 2 500** (1.2%-1.6% of grant value; 12%-20% of administrative cost) over the project lifetime.

In addition, lump sum grant beneficiaries save the costs of a **certificate on the financial statements (CFS)** for EU contributions above EUR 430 000, which typically costs **EUR 4 500**, equivalent to around 0.3% of the grant value³⁷⁷.

At interim evaluation stage, adding up administrative time savings (reporting burden reduction) and avoided CFS certificates, and **only considering the grants (including ERC PoCs) that have been signed to date**, lump sum funding is estimated to so far have secured savings for

³⁶⁹ Concerns about unintended side-effects so far are not confirmed by implementation data. For assessment see Annex 4.4.2 (Costs and side-effects of lump sum funding).

³⁷⁰ Assessment of lump sum funding in Horizon 2020 and Horizon Europe, September 2024. This assessment also addresses recommendation 5.1.a from the European Court of Auditors (ECA Annual Report 2022) to evaluate the use of lump sums, which the Commission committed to cover in the mid-term evaluation of Horizon Europe.

³⁷¹ See Annex 4.4.2, Figure 20: Overall satisfaction with lump sum funding.

³⁷² See Annex 4.4.2 for more findings and additional detail.

³⁷³ Targeted surveys summer 2024. Please refer to Annex 4.4.2 for detailed reporting on surveys and results.

³⁷⁴ 1 529 actual cost grant beneficiaries reported median financial reporting costs of 6 person-days per reporting period and consortium member. 210 lump sum grant beneficiaries, with past experience of actual cost grants, reported a median administrative cost saving of 8 person-days per reporting period and consortium member. The assessment uses the range of the two median values. Additional information in Annex 4.4.2.

³⁷⁵ Monetisation uses a median personnel cost value, which is a sector-specific cost of labour of Horizon Europe beneficiaries, reflecting the opportunity cost of the project team's time that would have been spent on preparing financial reporting. For more information see Annex 4.4.2 (Quantitative assessment of lump sum benefits).

³⁷⁶ Including Proof of Concept lump sum grants does not change the range of 12% - 27%.

³⁷⁷ Based on 634 (non-zero) responses of actual cost grant beneficiaries. Percentage calculated based on the total grant value of all lump sum grants signed so far.

beneficiaries of between **EUR 49.8 million and EUR 63.4 million**³⁷⁸ over their project lifetime. This sum is **equivalent to between 1.6% and 2.1% of the total grant value of lump sum grants so far and to between 14% and 30% of beneficiaries' total administrative costs**. These values do not yet include the savings of lump sum grants to be signed during the remaining years of Horizon Europe, which are discussed in Section 4.2.4.

Beneficiaries' survey responses suggest the overwhelming majority³⁷⁹ of lump sum beneficiaries has discontinued at least some of the tasks, which means that that lump sum funding already contributes to a reduced administrative burden in practice. The full savings potential might take some time to materialise. Organisations may choose not to (fully) adapt their financial management practices, particularly in the short-term. However, regardless of the extent of their adaptation, the removal of the financial reporting requirements themselves is already a reduction of the administrative burden on beneficiaries generated by the programme as beneficiaries are no longer constrained and are free to organise themselves in the most efficient way.

All Horizon Europe applicants, regardless of funding model, must base their proposals on detailed cost estimates, which they are required to keep on file. Applicants for lump sum grants (excluding ERC PoC) must submit an **additional 'budget table'**. Compiling the budget information for the table is not an additional task but included in the baseline cost of applicants. What changes for lump sum proposals is that **applicants must enter and submit their figures into a specific template**, currently in the form of an excel spreadsheet, instead of keeping the information at hand in a format of their choice under actual cost grants. Survey responses of lump sum beneficiaries suggest that, so far, the additional application costs do not raise any concerns or are negligible. **The available quantitative and qualitative evidence**³⁸⁰ **on lump sum applicants' proposal preparation costs so far gives no cause for concern about the size of this additional cost**.

The use of lump sum funding requires an adaptation of internal administrative processes in implementing bodies, such as executive agencies and joint undertakings, which alters the public sector's administrative costs, particularly in the short run. Financial reporting documents no longer have to be processed, which generates cost savings from simplification. At the same time, a greater emphasis is placed on the content of the supported projects, the additional 'budget tables' have to be assessed, some workflows of the implementing bodies have to be adjusted, and staff have to become familiar with changes to the implementation practices³⁸¹.

Blind evaluation of proposals

A 'blind evaluation' of proposals has the potential to improve the evaluation process by safeguarding it against the possible biases of the evaluating expert. As the evaluator does not receive information from which they can infer the identity of the applicants it supports an assessment, which is fair and based solely on the quality of the proposed project. While not a 'simplification' measure as such, the measure can contribute to a better functioning of the framework programme.

Following a request by Member States, blind evaluations were piloted in the evaluation process of proposals submitted in the first stage of 16 of the 17 two-stage calls of the 2023-2024 Horizon Europe work programme (with the exception of one 'widening' call). Extensive feedback

³⁷⁸ Of which administrative cost savings of EUR 1.3-1.7 million stem from PoC and EUR 33.8 million to EUR 45.0 million from other programme parts. The total saving from CFS amounts to around EUR 7.56 million, based on 1680 (1.12.2024) lump sum participations above EUR 430 000, who would have had to submit a CFS.

³⁷⁹ Based on 89% (267) of LS respondents to a corresponding survey question, see Annex 4.4.2 for further detail.

³⁸⁰ For more details on application cost see Annex 4.4.2 (Costs and side-effects of lump sum funding) and the [Assessment of lump sum funding in Horizon 2020 and Horizon Europe](#) (2024).

³⁸¹ See also Annex 4.4.2

collected as part of the pilot suggests that evaluators perceived no additional effort. Applicants spent some extra effort to anonymise their proposals³⁸² but viewed the measure as a general improvement. In particular, National Contact Points of widening and third countries welcomed the measure. The call coordinators, part of the EU public administration, reported an increase in the time they spent on ‘admissibility checks’³⁸³ to make sure that applicants could not be identified in the proposals and voiced concerns about the additional workload³⁸⁴.

The pilot confirmed that the **blind evaluation of proposals is feasible within the legal framework and the operational context of the R&I framework programme**³⁸⁵. Although not set up as a policy experiment³⁸⁶, the pilot monitored indicators on geographical coverage and gender, before and after the first stage evaluation. It observed that the share of participations from ‘widening’ countries that passed the first stage evaluation decreased less in blind evaluations, namely by 3.3%, compared to a decline of 9.4% in standard, non-blind evaluations³⁸⁷. Differences between the gender composition of project coordinators (contact person) were also noted.

Ethics appraisal

Horizon Europe adopted a reformed approach to the **ethics appraisal process**. The objective of the simplification is to substantially reduce the workload for the great majority of applicants and beneficiaries, whose projects involve neither serious nor complex ethics questions, while upholding compliance with fundamental ethics principles in research and innovation, which is a prerequisite for achieving excellence³⁸⁸.

The ethics appraisal process typically includes a self-assessment at the proposal stage by the applicants, followed by an ethics review procedure. There are then ethics checks, reviews and audits during implementation. Together these steps can generate a considerable workload³⁸⁹ for the applicants and beneficiaries concerned, which is why they should only apply where the benefits of the process are likely to outweigh the burden. **The reformed ethics process therefore focuses the effort on projects involving serious or complex ethics issues**³⁹⁰. If any such issues are identified at an early screening stage, the proposal will be subject to a full ethics assessment. The assessment will then likely set out the ethics requirements for the project implementation phase. Monitoring data suggests that the measure has already had an effect³⁹¹.

³⁸² Depending on the cluster, between 50% and 60% of respondents reported ‘under 10% extra effort’ or ‘no extra effort’, with 30% to 40% indicating ‘10% - 50% extra effort’, and 10% to 15% experiencing ‘over 50% extra effort’ or ‘double the workload’. The survey question did not clarify the point of comparison (‘extra’ to what).

³⁸³ Some of the responding call coordinators reported in 2024, spending ‘roughly three times longer’ on ‘admissibility checks’.

³⁸⁴ The pilot did not collect quantitative evidence on the workload or timing of the public administration. Targets (time-to-inform, time-to-grant), as for all two-stages calls, remained applicable.

³⁸⁵ The pilot did not assess whether the blind evaluation affected subsequent funding decisions.

³⁸⁶ For legal reasons it was not possible to partially (incl. randomly) allocate the use of blind evaluations to applicants within the same call topic. The observed differences in characteristics, between blind and non-blind evaluations, may therefore not have been caused by the use of blind evaluations. See also Annex 4.4.3.

³⁸⁷ Blind evaluation: from 21.2% to 20.5%; Non-blind evaluation from 19.1% to 17.3%.

³⁸⁸ COM(2021) 407 final. Proposal for a Council Recommendation on a Pact for Research and Innovation in Europe.

³⁸⁹ An estimate of the burden is not available due to lack of quantitative evidence.

³⁹⁰ For a detailed description of the new elements involved, see Annex 4.4.4

³⁹¹ Attribution to the simplification measure cannot be demonstrated but is considered likely. No other changes to the programme could be identified that would have substantially altered the composition of proposals with respect to their relevance for the ethics assessment during the relevant period.

Of the projects that received Horizon Europe funding so far 90% and that underwent an ethics assessment³⁹²(14 969), 90.6% have been cleared without any further conditions or requirements linked to ethics, compared with 44% under Horizon 2020. Conversely, 9.4% (1 406) have been given specific ethics conditions, while this applied to 55% of proposals under Horizon 2020. Under the assumption that the ethical complexity of the proposed projects has stayed constant between the programmes, the new approach has led to simplification for 46% of the submitted proposals.

Beneficiaries are generally satisfied with the new ethics self-assessment, with over 60% (419) reporting that their experience with it was positive ‘at least to a moderate extent’³⁹³. Ethics and integrity were considered important topics by public consultation respondents³⁹⁴.

The ethics process relies on institutional, local and national/regional mechanisms for oversight of research, in line with Article 19³⁹⁵. However, it is not possible to assess the quality of the ethics appraisals as they are not monitored. No increase of relevant incidents has come to the attention of the Commission.

4.2.4 Potential areas for further simplification

Qualitative evidence and feedback collected from stakeholders³⁹⁶ suggests there has been no substantial change in the level of the administrative burden at project implementation stage between Horizon 2020 and Horizon Europe. The **project implementation phase** remains an area of focus for **simplification measures**, which reduce beneficiaries’ costs without negatively affecting the projects’ R&I impact. Horizon Europe beneficiaries responded to open questions in the targeted survey and provided **specific feedback or suggestions** on related topics. 40 specific suggestions were received, including on: single personnel rate for SMEs, timesheets, helpdesk for administrative procedures, MSCA PF manual, and the on-boarding of new grantees³⁹⁷.

Lump sum funding

The main simplification potential targeting the administrative burden at project implementation stage is expected to come from lump sum funding. The use of lump sum grants is scheduled to broaden and pick up speed in the coming years, aiming to cover **half of the annual call budget by 2027**. In tandem, the simplification benefits from lump sum funding under Horizon Europe are expected to increase substantially. **The potential for future simplification from lump sum funding** in the remaining years of Horizon Europe is expected to **add between EUR 276 million and EUR 351 million** in reporting burden reduction³⁹⁸.

Personnel unit costs

Since May 2024, ‘**Personnel unit costs**’ have been introduced as an additional simplification measure available for Horizon Europe beneficiaries. This **new, optional method** enables

³⁹² Cut-off date for Dashboard data 6 January 2025. The ensuing calculations exclude project numbers without an ethics assessment, such as top-ups, Hop On Facility, framework partnership agreements, prizes, EIT KICs umbrella projects, and one Common Support Action. Additionally, the calculations exclude projects whose ethics review status is ‘pending’ (831). If these were to be taken into account, projects cleared without conditions would be 85.8% of the total signed and closed projects, projects conditionally cleared would be 8.9%, and the remaining 5.3% would be projects with pending outcome.

³⁹³ Evaluation support study on Digital & Industrial, page 531. More details on responses in Annex 4.4.4.

³⁹⁴ European Commission (2024). Synopsis Report, page 37, see also Annex 4.4.4.

³⁹⁵ Regulation (EU) 2021/695.

³⁹⁶ Public consultation, related event, position papers, qualitative evidence from the targeted survey, including responses to the open question.

³⁹⁷ See Annex 4.3.4.

³⁹⁸ Lump sum grants signed so far may not be representative of those expected to be signed under Horizon Europe overall. The estimate assumes a constant average ratio of lump sum benefits to grant value. The proportion of small grants will likely decrease, and the ratio will change. The total benefit is an order-of-magnitude-figure estimate, which combines assumptions about future uptake and past experience and evidence.

participants to calculate and report personnel costs using a **single daily rate that applies to all staff** and that is agreed upfront for all of the beneficiary's future grants. Once projects are running, beneficiaries only report the total number of person-days worked during a reporting period. This **removes the burden on beneficiaries to calculate personnel costs per staff member**, which is estimated to typically take **about 2 person-days per consortium member and per reporting period**³⁹⁹ in actual cost grants. For instance, an actual cost grant with 3 partners and 3 reporting periods is expected to benefit from savings of 18 person-days⁴⁰⁰. This suggests that the personnel unit cost method could tangibly reduce the reporting burden on beneficiaries. The interim evaluation has no evidence base to estimate the measure's expected voluntary uptake in the coming years, which would drive any estimation of the overall simplification effect. The **future monitoring of uptake and collection of feedback from beneficiaries is essential** to support an assessment of the measure and its potential in the final evaluation of Horizon Europe.

Application stage and proposal evaluation process

As reported in section 4.2.1, there has been no substantial change in the level of the application costs since Horizon 2020 and for many applicants the costs are not proportionate to their chances of securing Horizon Europe funding. The evaluation therefore confirms the finding of the Horizon 2020 final evaluation that any improvement with a potential to reduce the effort and cost required by applicants, in particular unsuccessful applicants, has a potential to increase the programme's efficiency.

Horizon Europe applicants responding to the survey's open question point out areas for improvement and make a number of concrete suggestions for simplification. For the **application stage** these centre on the topics: finding the right call, proposal templates, application guidance, internet interface/web portals, and the use of consultants. While qualitative evidence points at an **overall appreciation** of the evaluation process and of the quality of the evaluation, **evaluators and the evaluation process** were another focus of concerns (triggering 2007 comments alone). Topics included: quality of expert evaluators, level of detail of evaluation reports, scoring of resubmitted proposals, grant agreement platform, experiences with Seal of Excellence, and suggestions for the use of two-stage evaluations and partial randomisation (lottery) in proposal evaluation.⁴⁰¹

While the survey's open questions can only collect anecdotal evidence, which is not representative, the contributions can provide first-hand insights into potentially highly relevant areas that should be included in any considerations on future simplification.

4.2.5 Monitoring and reporting

At the time of this evaluation, the Commission has not yet fully implemented the Horizon Europe Regulation. A single database – the Common Research Data Warehouse (CORDA)⁴⁰² – does exist and includes implementation data for all parts of the programme⁴⁰³, covering both the proposal and project implementation (and reporting) stages. A curated version of CORDA can be accessed publicly through the interactive Horizon Dashboard⁴⁰⁴. Specific procedures are in

³⁹⁹ Median value of 1307 targeted survey responses of actual cost grant beneficiaries with experience in reporting.

⁴⁰⁰ Applying the labour cost in the EU's R&I sector this translates into a saving of EUR 4500 per such project.

⁴⁰¹ For details see Annex 4.3.4 and 4.3.5.

⁴⁰² CORDA is a part of the wider eGrants database, which includes implementation data for most direct management programmes implemented by the European Commission and its agencies.

⁴⁰³ European Partnerships, Missions, ERC, EIC and EIT are singled out by the legal basis.

⁴⁰⁴ [Horizon Dashboard](#)

place to ensure lawful access to a restricted population of users appointed by National Authorities.

Nonetheless, the central database remains incomplete in several aspects as described below.

1. Key Impact Pathway (KIP) indicators: during the first quarter of 2025, short-term indicators are to be made available publicly in a KIP Dashboard. Selected parts of the short-term KIP indicators are presented annually in the Programme Performance Statement⁴⁰⁵. Medium- and longer-term indicators are being operationalised, but their implementation is lagging due to CORDA data integration delays for some programme parts and the complexity of the indicator framework.
2. EIC Accelerator: at the time of this evaluation, approximately 3 900 proposals received in EIC Accelerator calls (both open and thematic) do not appear correctly in central monitoring systems. These are distinct between proposals that are not published in the Horizon Dashboard (due to missing data or inadequate disclosure rules)⁴⁰⁶ and applications that are missing from central databases altogether. The CORDA database does also not include information on the resubmission of proposals. This means that if the same proposal is submitted multiple times, only its latest version is counted. If no corrective measures are taken, this unusual arrangement artificially inflates success rates and share of high-quality proposals for the Accelerator – and therefore for the entire programme. **For this reason, this evaluation does not publish any application figures for the EIC Accelerator.** Moreover, public monitoring tools do not currently include any implementation figures for the EIC Fund, which are only currently available to Member State representatives. Due to their different source and their data taxonomy not fully aligned with other Horizon Europe projects, EIC Fund statistics are always shown separately in this document.
3. European Partnerships: for several types of partnerships partial or full implementation figures are not yet available. Call activities for EIT KICs, Article 185 TFEU initiatives, and co-funded partnerships are fully or partly managed outside Commission grant management tools. As a result, their integration in the central systems takes place periodically and is incomplete to date. In addition, there is no system in dashboards for distinguishing ‘cascading grants’ (from the partnership to its beneficiaries) from the ‘first-level’ grants from the Commission to the bodies implementing the partnership⁴⁰⁷.

The CORDA database includes information enabling the analysis of most of the areas listed in the monitoring provision of the Horizon Europe Regulation⁴⁰⁸. There are still a few aspects where integration of data into CORDA has not been implemented, which prevents public access through

⁴⁰⁵ [Horizon Europe - Performance](#)

⁴⁰⁶ These are specifically proposals that have been rejected, but that are still eligible for resubmission. In the EIC Accelerator, uniquely in the programme, resubmitted proposals receive the same unique identifier as the first submission. These proposals are not published in dashboards as they are not considered fully evaluated, even if they effectively went through at least one full evaluation. This same feature also means that success rates can be counted either by the number of distinct resubmissions or by the number of distinct proposal numbers. The second ratio, which is used for the rest of the programme, will always be the highest. For details on the proposal submission system of the EIC Accelerator and associated methodological issues, see p. 14 on the Commission monitoring report ‘SME participation in Horizon Europe’, 2024. <https://data.europa.eu/doi/10.2777/576670>.

⁴⁰⁷ While the issues described do not apply to JUs and co-programmed partnerships – which are all managed through Commission corporate tools – the visibility of partnership data is limited as there is no simple method (e.g. a single filter or a dedicated field in the dashboards) to identify all proposals and grants that are under European partnerships.

⁴⁰⁸ The full list in Article 50 point (b) includes: SSH, the ratio between lower and higher TRLs, participation of widening countries, geographical composition of consortia, researchers’ salaries, use of the two-stage procedure, the measures aimed at facilitating collaborative links, the use of the evaluation review and the number and types of complaints, climate mainstreaming expenditure, SME participation, private sector participation, gender participation, the Seals of Excellence, European partnerships and funding from other EU programmes, research infrastructures, time-to-grant, international cooperation, engagement of citizens and civil society.

the dashboard: (i) ‘Seals of Excellence’, for which the full figures for the EIC Accelerator are not yet in the central database; (ii) trends in researchers’ salaries⁴⁰⁹; (iii) (gender) participation in boards and advisory groups; and (iv) complementary and cumulative funding from other EU programmes.

The Commission's services responsible for data management have been working on finalising data integration in the central monitoring system, for instance by creating templates for reporting of implementation data and project outputs in ‘cascading grants’. The complexity of the task, particularly when it needs coordination with delegated bodies, has significantly slowed down progress. This evaluation however has not found any provisions in the legal basis that have proved technically impossible to implement.

The time lags are another limitation affecting the relevance and interpretability of figures released by the Commission. Call results are not made public when they become available. The Commission only publishes results for calls that have been fully evaluated and that comply with a set of disclosure rules. The list of calls that are not yet included in the database is not made public, although their results may already be available through different sources (e.g. press releases from implementing bodies).

On IPR, business factors also come into play, e.g. companies choosing secrecy over IPR to protect their innovations. Moreover, it is estimated that over half of patent applications reported by Horizon beneficiaries are confidential (cfr. Section 4.1.3), thus lacking the metadata needed to count them as part of the Key Impact Pathway reporting system.

4.3 Coherence

4.3.1. Internal coherence

The interim and *ex post* evaluations of Horizon 2020 judged the number of instruments excessive, making ‘the landscape for EU R&I support difficult to navigate and potentially leading to less coherent interventions’⁴¹⁰. In Horizon Europe, several changes were made to respond to this: (i) the pillar structure was redesigned⁴¹¹; (ii) the partnership landscape was rationalised; and (iii) the portfolio approach was introduced to the EU Missions and the EIC. These changes led to the programme structure outlined in Figure 13.

⁴⁰⁹ A joint OECD-Commission survey, part of the ReICO initiative, will fill this gap from 2026 onwards. More information: <https://ec.europa.eu/era-talent-platform/reico/>

⁴¹⁰ SWD (2024)29 final, p. 74. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2024:29:FIN>

⁴¹¹ SWD(2018)307final - 1/3, p. 21. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018SC0307>
Horizon Europe includes an innovation-focused pillar to support breakthrough market-creating innovations and integrates key enabling technologies. The redesigned pillar structure was set to improve coherence by integrating industrial technologies in Pillar II, rationalising societal challenges into five cross-theme clusters that cover the whole innovation chain and encourage transdisciplinary activities, including SSH; streamlining different innovation support instruments through the EIC; linking the EIC to the ERC, MSCA and the EIT KICs.

Figure 13: Overview of Horizon Europe types of action and their characteristics

HORIZON EUROPE'S INTERNAL COHERENCE												
		BUDGET	TRLs COVERED	TYPE OF ACTION	APPROACH	COLLABORATION	Start-ups	SMEs	BENEFICIARIES		Nation/Regional authorities	
PILLAR I Excellent Science	European Research Council	5.66 B	1-2 & 3-4	ERC Actions	⬆️⬆️⬆️	👤	●	●	●	●	●	
	Marie Skłodowska-Curie	1.67 B	1-4	TMA	⬆️⬆️⬆️	👤	●	●	●	●	●	
	Research Infrastructures	935.3 M	2-6	RIA CSA COFUND	⬆️⬆️⬆️	🌐	●	●	●	●	●	
PILLAR II Global Challenges and European industrial competitiveness	CLUSTERS 1-6	19.72 B	2-8	RIA IA CSA COFUND Procurement Prizes	⬇️⬇️⬇️	🌐	●	●	●	●	●	
PILLAR III Innovative Europe	European Innovation Council	Pathfinder	882 M	1-4	Grants	⬆️ Challenges Open ⬆️	👤🌐	●	●	●	●	●
		Transition	314.5 M	3-6		⬆️ Challenges Open ⬆️	👤🌐	●	●	●	●	●
		Accelerator	1.1 B	5-9	IMDA	⬆️⬆️⬆️	👤	●	●	●	●	●
	European Institute of Innovation and Technology	945.6 M	1-9	EIT-KIC	⬆️⬆️⬆️	👤🌐	●	●	●	●	●	
	European Innovation ecosystems	372.3 M	1-9	CSA RIA COFUND	⬆️⬆️⬆️	🌐	●	●	●	●	●	
WIDERA Widening participation and spreading excellence	Cross-Pillars	1,05 B	1-9	CSA, RIA, TMA	⬇️⬇️⬇️	🌐	●	●	●	●	●	

ERC Actions: Actions of the European Research Council

TMA: Training and Mobility Action

RIA: Research and Innovation Actions

CSA: Coordination and Support Actions(CSAs)

IA: Innovation Actions

IMDA: Innovation and market deployment Actions

EIT-KIC: European Institute of Innovation and Technology - Knowledge and Innovation Community

⬆️ TOP-DOWN APPROACH

⬆️⬆️ BOTTOM-UP APPROACH

⬆️⬆️⬆️ BOTH APPROACHES

👤 SINGLE BENEFICIARY

🌐 COLLABORATIVE PROJECT

👤🌐 BOTH

Source: Horizon Europe external evaluation studies. Budget data from Horizon Europe Dashboard 7 June 2024

However, the targeted survey showed that participants are not fully aware of opportunities for exploring the links and between the different programme's parts and discovering how they complement each other. Over 70% of the 5 970 beneficiaries who responded indicated that they either do not plan any joint activities or are unable to answer. The lowest number of collaborations are planned with Pillar III (less than 1% of respondents).

The external evaluation studies found a number of factors described below that are hindering internal coherence.

- Challenges hindering internal coherence in a number of clusters include the fragmentation of information, the complexity of putting cross-pillar bridges into practice and the identification of key results⁴¹².
 - For instance, the use of emerging technologies, such as AI tools, in the research process of Horizon-funded projects has been increasing as 12-17% of Horizon Europe projects use or develop AI across all clusters and pillars (including with funding from bottom-up instruments, such as the ERC or with start-up support from the EIC)⁴¹³.
 - A gap in portfolio management was also identified: for instance, potentially relevant MSCA networks or EIC projects are not considered systematically by project officers

⁴¹² Digital and Industrial Transition study, 2024, Executive summary. <https://data.europa.eu/doi/10.2777/300334>

⁴¹³ Digital and Industrial Transition study, 2024, case study 12. <https://data.europa.eu/doi/10.2777/489648>

in executive agencies when organising thematic workshops for their project portfolios⁴¹⁴.

- Joint activities between Missions and European Partnerships are rare⁴¹⁵. A good example is the joint call between the Cities Mission and the Towards Zero-Emission Road Transport (2Zero) partnerships and the Connected, Cooperative and Automated Mobility (CCAM) partnership in 2023. Similarly, the Innovative Health Initiative (IHI) JU has topics directly contributing to the Cancer Mission, while Europe's Rail JU has a pilot project supporting the Mission for Climate-Neutral and Smart Cities, focusing on a new railway station concept⁴¹⁶. In spite of these examples, the Missions' reliance on the same types of projects (e.g. RIA, IA, CSA) as other parts of Horizon Europe limits their distinctiveness.
- Under Pillar III, there is overlap between some of the instruments in terms of the type of support provided, the TRL levels covered, and the groups targeted⁴¹⁷. This overlap is mitigated by the instruments' specific characteristics (see Figure 14), but only to a certain extent.
- There is an overlap between the EIT and the EIE which both lay the groundwork for a pan-European innovation ecosystem connecting regional innovation ecosystems across the EU. The EIT brings together higher education institutions, research organisations and businesses (the knowledge triangle) around specific sectors, and the EIE involves a broader group of stakeholders across the quadruple helix⁴¹⁸. However, a lack of distinctive features between the two instruments has been highlighted⁴¹⁹.
- Stakeholders from academia raised concerns about the design and implementation of the WIDERA programme. They highlighted the complexity of the work programmes, which address both the widening and strengthening components for ERA⁴²⁰.

Nevertheless, as one of the more recent instruments, the EIC is taking measures to connect to other parts of the programme.

- Following the introduction of the EIC Transition scheme in Horizon Europe, there is now funding that targets innovation activities that go beyond the experimental proof of principle in a laboratory. This helps mature and validate novel technologies from the lab to the application environments, which initially included beneficiaries of ERC PoC support. In 2024, eligibility was further extended to include **former recipients of Horizon Europe and Horizon 2020 funding for collaborative projects**.
- ERC PoC project beneficiaries are among those who can draw on this new funding stream. **Nearly half the EIC Transition grants have been awarded to beneficiaries of PoCs.**

⁴¹⁴ Green Transition evaluation study, 2024, Chapter 3.4.1.2. <https://data.europa.eu/doi/10.2777/67934>.

⁴¹⁵ Ibid, Chapter 3.5.2.

⁴¹⁶ New railway station concept for green and socially inclusive smart cities. [EU Funding & Tenders Portal](https://data.europa.eu/doi/10.2777/499132)

⁴¹⁷ Innovative Europe evaluation study, 2024, Chapters 7.1 and 9.4. <https://data.europa.eu/doi/10.2777/499132>.

⁴¹⁸ The “quadruple helix” model in the context of innovation refers to a framework that emphasises the collaboration and multi-directional interactions among the government, industry, academia, and civil society.

⁴¹⁹ See the EIE and EIT beneficiaries in the Figure 14 - Overview of Horizon Europe types of action. They both facilitate interaction among innovation players and cultivate a conducive environment for innovation to thrive. They also both have a regional dimension: the EIT has a solid geographic coverage through the EIT KICs co-location centres or regional hubs, and the EIE focuses on building European, national, regional, and local networks across the EU and associated countries, particularly through Regional Innovation Valleys. As part of the EIE, the Commission launched several calls for proposals with an interregional dimension - closely linked to the EIT Regional Innovation Scheme that develops innovation ecosystems in low-innovation performance regions and links them to local and regional smart specialisation strategies. Innovative Europe evaluation study, 2024, p. 81.

⁴²⁰ Excellent Science evaluation study, 2024, Section 1.6.2.2. <https://data.europa.eu/doi/10.2777/2295765>

- From 2024, EIC Transition grants are also **open to former recipients of Horizon Europe and Horizon 2020 funding for collaborative projects**⁴²¹.
- There is also a **Fast Track approach for EIT companies** into the Accelerator that skips the first stage of the evaluation, but only five companies have benefited from this approach so far. Out of all 550 EIC Accelerator beneficiaries (not only those arriving via the fast track), as of May 2024, 140 companies supported by EIT KICs went on to win EIC funding.
- A similar **fast track was launched in 2023 for beneficiaries of national programmes**, and there have been 13 beneficiaries to date.

ERC Proof of Concept, EIC Transition and MSCA beneficiary wins the 2023 Nobel Prize in physics

Prof. Anne L'Huillier from Lund University is a former MSCA and ERC beneficiary. Dr L'Huillier supervised numerous MSCA postdoctoral researchers and coordinated several MSCA projects over the past two decades in the field of attosecond science and was the coordinator of an ERC Proof of Concept (PoC) project afterwards. This PoC grant has made the project eligible to apply for an EIC Transition scheme and her team was awarded the grant for the project called 'Single-shot, ultrashort laser pulse characterisation based on the dispersion scan technique' (101058075).

Prof. L'Huillier won the 2023 Nobel Prize in physics for 'for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter'⁴²².

While the general scope of the memorandum of understanding (MoU) on EIC-EIT cooperation remains relevant, progress has been uneven⁴²³. Cooperation between the EIC and the EIT KICs is still challenging because of their separate and different structural and governing models, the absence of a complete common strategy and stability, limitation in terms of human resources, and challenges in practically implementing the Fast Track scheme.

Technology readiness levels (TRLs)

Technology readiness levels (TRLs) are at times used to check the framework programme's internal coherence. In Horizon 2020, there were no legal requirements for TRL coverage, but it was the first framework programme to introduce a reference to the TRL classification in its calls. The Horizon Europe regulation lays down that the collaborative parts of the programme as a whole should ensure a **balance between lower and higher TRLs**⁴²⁴, that Missions⁴²⁵ and that Pillar II should cover activities from a broad range of TRLs, also including lower TRLs⁴²⁶.

The external evaluations collected different views described below:

- On the positive side, interviewees reported that the TRL concept helps applicants focus on technology progression for calls within Pillar II (Cluster 1)⁴²⁷.
- Cluster 3 interviewees highlighted that setting high TRLs as a target for calls strengthened stakeholder engagement as it requires user involvement in testing and demonstration activities that take place in a relevant or operational environment⁴²⁸.
- On the negative side, Cluster 4 interviewees reported that the programme's potential is hindered by a gap in financing collaborative research at lower TRL levels. It is also difficult

⁴²¹ EIC work programme 2024. https://eic.ec.europa.eu/eic-2024-work-programme_en. Previously, the grants were only open to previous recipients of ERC Proof of Concept, EIC Pathfinder and European Defence Fund. In addition, the EIC work programme 2025 opens eligibility of Transition to projects from JUs.

⁴²² Innovative Europe evaluation study, 2024, p. 76. <https://data.europa.eu/doi/10.2777/499132>.

⁴²³ Innovative Europe evaluation study, 2024, Chapter 7.1. <https://data.europa.eu/doi/10.2777/499132>.

⁴²⁴ Article 7 (3) of Regulation (EU) 2021/695 establishing Horizon Europe. In addition, Article 50 (1) states that monitoring and reporting should also encompass the ratio between lower and higher TRLs in collaborative research.

⁴²⁵ Article 8 of Regulation (EU) 2021/695 establishing Horizon Europe. <https://eur-lex.europa.eu/eli/reg/2021/695/oj>

⁴²⁶ Ibid., Annex I.

⁴²⁷ Resilient Europe evaluation study, 2024, Section 5.2. <https://data.europa.eu/doi/10.2777/797281>.

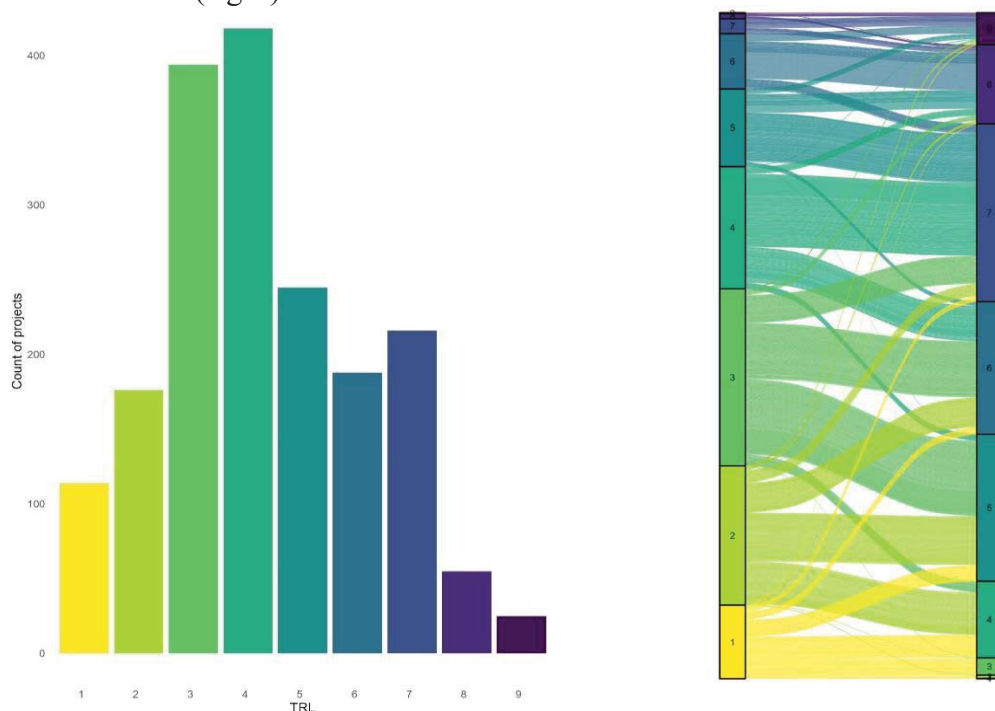
⁴²⁸ Ibid, section 4.1.

to ensure continuity between RIAs and IAs (around TRL 4-5). The interviewees noted the slow maturation of RIA results towards deployment, a fragmentation in research approaches and a lack of coordination between projects. This continuity is particularly important in fast-evolving areas (e.g. AI, data and robotics, advanced computing).⁴²⁹

- In Clusters 5 and 6, interviewees warned that the shift to higher TRL funding discouraged universities from participating⁴³⁰.
- The focus on innovation in European Partnerships may be associated with research gaps for lower TRLs. This can lead to a weakened scientific and technological base in the medium term as many solutions for climate neutrality have not been developed yet⁴³¹.

In Horizon Europe, some beneficiaries have reported for the first time on the TRL of their *projects*: by the time this analysis was conducted, TRL information was available for 1 807 projects (12% of all projects)⁴³². Figure 15 shows the current TRL of projects as reported by beneficiaries, as well as the levels at the beginning and planned (or already achieved) end-TRLs. Out of the 1807 projects for which TRL at project start and project end is consistently available, nearly half (48%) record an increase of at least three levels (actual or expected), and 88% reported an increase of at least two levels. For TRL data by pillar, see figures 120-123 in Annex 8.

Figure 14: Current TRL of Horizon Europe projects (left), as well as the levels at the project beginning and expected/achieved at the end, taking into consideration the size of EU contributions (right)



Source: DG RTD elaboration based on Dashboard, 6 January 2025 and Corda, 20 January 2025.

More than half of Horizon Europe project beneficiaries (66%) who responded to the evaluation survey perceived the TRL scale as an adequate measure for capturing market maturity.

⁴²⁹ Digital & Industrial Transition, 2024, executive summary p. 10, p. 90. <https://data.europa.eu/doi/10.2777/300334>

⁴³⁰ Green Transition evaluation study, 2024, section 14.2.5. <https://data.europa.eu/doi/10.2777/67934>.

⁴³¹ Ibid., section 13.4.1.1.

⁴³² This includes projects that reported TRL at the start of the project and the expected or achieved TRL at project end. TRL data is sourced from Periodic Reporting; this means that only projects that have been running for around 12-18 months can have valid TRL data. The time of publication of Periodic Reporting varies project by project. Additionally, TRL information is supplied on a voluntary basis so not all projects report TRL data consistently.

Respondents who did not agree with that statement⁴³³ specifically mentioned the fields of pure mathematics and fundamental research projects, as well as SSH-related projects and those focusing on policy-making and social innovation. This sceptical view was also supported by stakeholders participating in the public event for the interim evaluation of Horizon Europe, which was held in June 2023.

New programme governance

Horizon Europe introduced a new approach to programming through co-creation and co-design, involving relevant Directorate-Generals (DGs), Member States and stakeholders in strategic planning and topic drafting, focusing on outcomes to be achieved. The external evaluation studies report that this approach has improved the programme's coherence. Topics drafted with strong outcome statements for cluster 6 are considered easier to understand and selected projects under these topics engage a higher share of users (the stakeholders mentioned in the topic).⁴³⁴

To support the complex societal transition processes, the design of the work programme is now done in a more collaborative way. It involves all Commission departments with an interest in the Cluster/Destination on a level playing field, with a common budget envelope, and a steering board composed of Directors General and a Directors' Group for each programme part. Previously, topics were independently managed by a single DG, sometimes in isolation⁴³⁵.

Horizon Europe was designed to create synergies across EU funding programmes⁴³⁶. However, as seen in the assessment of internal coherence above, the full potential of synergies anticipated by the legislators has not been achieved so far.

The 2024 report on 'The future of European competitiveness' found that determination processes for priorities and budget allocation are overly complex⁴³⁷. The programme involves a wide range of Commission departments, Member States and the European Parliament through complex governance arrangements. One of the objectives of the strategic plan was to promote consistency between the work programmes, EU priorities and national priorities, as there is no formal mechanism that aligns EU and national R&I spending priorities, given that R&I are a national competence and thus not subject to EU-level decision-making.

What messages emerged from the stakeholder consultation?

Among all respondents, 76% (1 200) found that the introduction of the **co-creation process** with the relevant Commission departments **contributed either somewhat or to a great extent to strengthening the impact of European research and innovation**. In particular, NGOs (42%; 28), companies (39%; 106) and citizens (38%; 86) believed that it helped to a great extent. At the same time, public authorities were less convinced: only 33% (28) indicated that it helped to a great extent.

4.3.2. External coherence and synergies

Synergies between Horizon Europe and other EU programmes

In Horizon Europe, the strategic planning and work programming processes – co-created with other EU programmes and policies and Commission departments – identify and target initiatives for integrating EU funding for research and innovation into other instruments and programmes.

⁴³³ 4%; 225 (N= 5 305)

⁴³⁴ The data refer to Cluster 6 in comparison to other clusters and H2020 Green Transition evaluation study, 2024, chapter 12.1.1.1. <https://data.europa.eu/doi/10.2777/67934>.

⁴³⁵ Green Transition evaluation study, 2024, Chapter 12.1.1. <https://data.europa.eu/doi/10.2777/67934>.

⁴³⁶ Primarily those listed in annex IV of its regulation.

⁴³⁷ Draghi, M., "The future of European competitiveness – In-depth analysis and recommendations", 2024, p. 237.

The Horizon Europe Regulation describes **desirable synergies with 20 EU programmes**⁴³⁸ - **up from 13 that were assessed in Horizon 2020's ex post evaluation**. The Commission also adopted a guidance notice on new opportunities to maximise the synergies between Horizon Europe and the European Regional Development Fund (ERDF)⁴³⁹. The evaluation treats these documents as objectives/targets in the field of synergies and assesses progress in their implementation (with details in Annex 6).

External evaluation support studies⁴⁴⁰ found evidence of synergies with 18 programmes out of the 20 identified in the regulation – to a varying extent. Based on interviews, financial data and text analysis⁴⁴¹, **the strongest synergies were identified with the LIFE programme, Erasmus+ and the Digital Europe programme, while the weakest evidence concerns synergies with the Common Agricultural Policy (with the exception of Cluster 6), the Creative Europe programme and InvestEU**. The evaluation did not find evidence of synergies with the Instrument for Pre-Accession Assistance or the Just Transition Mechanism.

Despite Commission efforts to create synergies (described in Annex 6), 64% of beneficiaries surveyed reported that they had not sought additional funding for their research projects⁴⁴². Excluding the 10% of respondents who were unable to answer this question⁴⁴³, where additional funding was sought (1 623 respondents or 26%) - it was primarily under national or regional funding schemes. Among unsuccessful applicants, 29% of survey respondents (2 587) applied for alternative sources of funding. Over half of the beneficiaries also stated that the project they were working on was not a continuation of previous or other funding schemes (reaching as high as 60% of respondents in Pillars I and III⁴⁴⁴).

There is more information available on the Commission departments' *mechanisms* for creating synergies than data on the *results* of synergies, such as the deployment of specific Horizon Europe outputs through other EU programmes (which is an expected synergy for 11 of the 20 programmes listed in the regulation)⁴⁴⁵. The availability of data also varies depending on the programme's management mode (directly managed by the Commission or Executive Agencies, in shared management with Member States or indirect management by financial institutions). However, regardless of the management mode, there is no systematic, continuous monitoring of synergies.

Seal of Excellence as an instrument of synergy

The Seal of Excellence (SoE) quality label was awarded to 7 166 high quality proposals that could not be funded due to budget limitations between 2021 and 2024. The largest proportion

⁴³⁸ In Annex IV of Regulation (EU) 2021/695. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32021R0695&from=EN#d1e32-60-1>.

⁴³⁹ C(2022) 4747 final. https://research-and-innovation.ec.europa.eu/system/files/2022-07/c_2022_4747_1_en_annex.pdf.

⁴⁴⁰ On Excellent Science: <https://data.europa.eu/doi/10.2777/2295765>, Resilient Europe: <https://data.europa.eu/doi/10.2777/797281>, Digital & Industrial Transition: <https://data.europa.eu/doi/10.2777/845650>, Green Transition: <https://data.europa.eu/doi/10.2777/67934>, Innovative Europe: <https://data.europa.eu/doi/10.2777/499132>, all published in 2024.

⁴⁴¹ Catalano G., Consiglio, G. and Delponte L. *Horizon Europe Internal and External Coherence (Synergies): Supporting the Interim Evaluation of Horizon Europe*. Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/5616419>

⁴⁴² 4 045 out of 6 280 respondents.

⁴⁴³ 612 out of 6 280 respondents.

⁴⁴⁴ Survey of beneficiaries, May-July 2023. Respondents: Pillar I: 1859, Pillar II: 3725, Pillar III: 383, WIDERA; 313.

⁴⁴⁵ DEP, CEF, LIFE, ISF, JTM, RFF, CAP (and the EAFRD), EMFAF, EU4Health, ERDF and ESF+ (Annex IV to Horizon Europe Regulation).

was awarded to researchers who applied under the Marie Skłodowska-Curie Actions, followed by the EIC Accelerator and the ERC Proof of Concept scheme.

Table 7: Seals of Excellence awarded

Programme part	Number of proposals/researchers awarded with SoE	
	2021-2024	2018-2020
Marie Skłodowska-Curie Actions:	MSCA total: 5 342	7 434
- MSCA COFUND	60	
- MSCA Postdoctoral Fellowships	5 282	
European Innovation Council	1 304	EIC Accelerator Pilot: 3 827
- EIC Accelerator	1 237*	~11000 if the SME instrument
- EIC Transition	67	(phases I and II) is included
ERC Proof of Concept	476	80
WIDERA Teaming for excellence	26	3
Mission on Adaptation to Climate Change	18	n/a
Total Seals of Excellence awarded	7 166	20 890

Source: Commission monitoring systems, 6 January 2025. For EIC Accelerator: EISMEA internal monitoring, 15 January 2025. For EIC Transition, DG RTD monitoring, 25 September 2024. MSCA data for 2018-2020 provided by DG EAC. The table may not include SoEs issued within calls launched in 2024 that were not available in the monitoring resource at the reference date.

These statistics evolve due to the changes between Horizon 2020 and Horizon Europe. For instance, the number of entities that reach the final selection stage in the EIC Accelerator is lower than under its predecessor, the SME instrument phase 2, which also results in fewer Seals of Excellence being issued in Horizon Europe.

Almost all SoEs are issued in mono-beneficiary schemes. As an exception, the Mission on Adaptation to Climate Change awarded a Seal of Excellence for collaborative projects that met the selection criteria but could not be funded. However, this pilot was cancelled: the multi-beneficiary nature of these projects has made it difficult to ensure uptake at national level.

Around half of unsuccessful applicants who responded to the evaluation survey (45% of the 129 respondents) reported that the Seal of Excellence did not make it easier to secure alternative funding. Another 20% did not know or the question was not applicable. In open question responses, applicants specifically mentioned a lack of follow-up funding opportunities in their respective Member States that recognise their SoE.

While there is no legal obligation for Member States and beneficiaries to report back on the use of the SoE, some evidence has been collected through the Seal of Excellence Community of Practice, a forum that includes national and regional authorities. According to the voluntary reporting of its members, since the start of the initiative more than 40 national and/or regional Seal support schemes, including ERDF programmes, have been set up in most Member States.

Member States have seized the opportunity of creating synergies between Horizon Europe and the Recovery and Resilience Facility (RRF) by supporting SoE projects. Some examples are listed below.

- Spain allocated EUR 50 million in its recovery and resilience plan (RRP) to 33 innovative companies with SoE from the 2021 and 2022 EIC Accelerator calls. Similarly, Greece allocated EUR 18 million in its RRP to start-ups and SMEs. Bulgaria, Czechia and Slovakia are currently providing similar support.
- In Italy, the Ministry of Research launched an initiative to support approximately 400 researchers under its RRP.

* The count does not include 3 proposals that received a Seal of Excellence were subsequently funded by the EIC Accelerator using resources from the European Regional Development Fund assigned to Lithuania, the host country of the applicant companies.

- In Slovenia, a new initiative funded by the RRF provides financial support to Slovenian researchers who, since 2019, have been awarded the MSCA SoE when they applied with a host organisation abroad under MSCA IF and MSCA PF calls⁴⁴⁶.

EU Missions and European Partnerships as instruments of synergy

In terms of the EU Missions' *objectives and design*, previous assessments found synergies with other EU programmes. In the digital technologies field, several EU Missions share common objectives with the **ERDF and Digital Europe programme**^{447,448,449,450}. Four out of five Missions' goals are also aligned with the priorities of the **LIFE programme**⁴⁵¹. In the **Europe's Beating Cancer Plan**, the Cancer Mission is a major component of EU's investment in cancer⁴⁵². This enables close synergies with the EU4Health Programme⁴⁵³.

While there is no systematic reporting on synergies, the Policy Support Facility (PSF)⁴⁵⁴ identified the following progress.

- In the Climate Adaptation Mission, around 80 LIFE and InterReg⁴⁵⁵ projects have been identified as relevant for climate resilience, with over 20 actively participating in the Mission's Community of Practice⁴⁵⁶, sharing adaptation best practices⁴⁵⁷.
- The Ocean and Waters Mission 'is acting as a catalyst for synergies and complementarities across different EU, national and regional programmes, already pooling funds beyond R&I, namely EMFAF12 national plans, BlueInvest with at least EUR 1 billion in risk finance⁴⁵⁸, Recovery and Resilience Funds, Interreg and Copernicus'⁴⁵⁹.
- The Cities Mission mobilised support from the EIB (which participates in the review process of Climate City Contracts, provides advisory services to Mission cities and has set aside a lending envelope of EUR 2 billion to cities that received the Cities Mission Label).
- All CEF calls that launched in September 2022 for projects on the TEN-T network (for a total of EUR 5 billion) include participation in the Cities Mission as an award criterion under 'priority and urgency'.
- References to the Cities Mission and the Climate Adaptation Mission were included in call topics 'greener cities' (overall budget EUR 120 million) and 'energy transition' (overall budget EUR 90 million) under the Urban Innovative Action initiative managed by DG REGIO.

⁴⁴⁶ Excellent Science evaluation study, 2024, p. 53. <https://data.europa.eu/doi/10.2777/2295765>

⁴⁴⁷ Guidance on synergies with the ERDF, annex to Communication to the Commission C(2022) 4747 final, p. 42.

⁴⁴⁸ Ibid., pp. 44-45. Study supporting the assessment of EU missions and the review of mission areas: Mission Climate-neutral and smart cities assessment report, pp. 40-41, 2023. <https://data.europa.eu/doi/10.2777/35567>

⁴⁴⁹ SWD(2023) 260 final, p. 31 and 55. <https://op.europa.eu/s/zE5j>

⁴⁵⁰ Ibid., p.58.

⁴⁵¹ Such as Nature and Biodiversity (Soil and Ocean Missions), Circular Economy and Quality of Life (Cancer and Cities Missions), Climate Change Mitigation and Adaptation (Adaptation to Climate Change Mission), and Clean Energy Transition (Cities Mission). Commission Staff Working Document SWD(2023) 260 final, p. 27 and 29 – Adaptation to Climate Change, p. 84 – Ocean, p. 113, 130 – Soil).

⁴⁵² Europe's Beating Cancer Plan – Communication from the Commission to the European Parliament and the Council, 2022, p. 6. https://health.ec.europa.eu/system/files/2022-02/eu_cancer-plan_en_0.pdf

⁴⁵³ EU4Health programme 2021-2027 – a vision for a healthier European Union, available [here](https://data.europa.eu/doi/10.2777/647815)

⁴⁵⁴ Penna, C., Mission-oriented funding and instrument synergies – Mutual learning exercise on EU missions – Third thematic report, Publications Office of the EU, 2024, pp. 20-21. <https://data.europa.eu/doi/10.2777/647815>

⁴⁵⁵ [Climate adaptation mission portfolio Public - Projects | Sheet - Qlik Sense \(europa.eu\)](https://climate.ec.europa.eu/en/eu-mission-adaptation-community)

⁴⁵⁶ <https://futurium.ec.europa.eu/en/eu-mission-adaptation-community>

⁴⁵⁷ [Adaptation Stories \(europa.eu\)](https://adaptation-stories.europa.eu)

⁴⁵⁸ Including the launch of 'EU Blue Champions' scheme to support innovative projects. https://maritime-forum.ec.europa.eu/news/launch-eu-blue-champions-scheme-support-innovative-projects-2023-12-21_en#:~:text=A%20new%20pilot%20scheme%2C%20%27EU%20Blue%20Champions%27%2C%20is,advisory%20to%20selected%20projects%20in%20the%20blue%20economy.

⁴⁵⁹ Communication "EU Missions two years on – assessment of progress and way forward", 2023, p. 5.

- 18 Member States have integrated the Soil Mission by into their Common Agricultural Policy strategic plans, which allows for the replication of solutions in more than 1 000 testing sites, and the Mission is also being taken up by regional and local authorities.

Together with Europe's Beating Cancer Plan, the Cancer Mission has set up a new dialogue with Member States on the disease. This dialogue brings together health and research ministries in the joint cancer subgroup, ensuring that scientific knowledge gained through R&I informs policy development. This integrated approach is being replicated at national level, by the ECHoS project, supporting the creation of 'National Cancer Mission Hubs' in Member States.

European Partnerships reported in the BMR survey that their **synergies mostly consist of strategic exchanges, communication and dissemination of results and networking with project partners in the same area of research or a similar one**. Only one third of BMR partnership respondents indicated joint calls for research and/or innovation proposals (together with other partnerships)⁴⁶⁰. Nevertheless, five partnerships reported that the share of budget covered by regional and national funds is above 50%: Risk assessment of chemicals – 50%, Global health EDCTP3 – 59%, Metrology – 56%, and Biodiversa – 79.4%.

Several JUs are co-funded by other EU programmes:

- the EuroHPC JU receives most of its funding from the Digital Europe programme and the Connecting Europe Facility – a commitment of EUR 2.2 billion for 2021-2027 (with Horizon Europe contributing EUR 900 million)⁴⁶¹;
- the Clean Hydrogen JU is co-funded by REPowerEU (for the Clean Hydrogen Valleys)⁴⁶²;
- the Chips JU is co-funded by the Digital Europe Programme with EUR 1.45 billion (against a Horizon Europe contribution of EUR 2.725 billion)⁴⁶³;
- in the 2024 Biennial Monitoring Report on Partnerships, at least four Member States reported to have financially supported their participation in co-funded partnerships through the use of ESIF and ERDF funds⁴⁶⁴, and the Recovery and Resilience Fund⁴⁶⁵.

Among the co-programmed partnerships, only 'Clean Steel - Low Carbon Steelmaking' has received a commitment of funding from other EU funds – in this case from the Research Fund for Coal and Steel (RFCS) for an amount of EUR 350 million (matching the contribution from Horizon Europe)⁴⁶⁶. The contribution from the RFCS to the Clean Steel Partnership is in the form of a dedicated high-TRL call (the Big Tickets call) for large pilot and demonstration projects. This call has encountered problems on the budget-expenditure side. Between 2021 and 2024, only 31% of the planned EUR 208 million budget was spent.

The EIT KICs have been acting as implementors in other parts of Horizon Europe, conducting R&I activities which facilitate cross-policy, cross-sectoral and international cooperation. Their participation is shown in the following examples:

⁴⁶⁰ European Commission, Biennial Monitoring Report (BMR), 2024, p. 37

⁴⁶¹ Article 5 of the EuroHPC Regulation. https://eurohpc-ju.europa.eu/system/files/2022-03/uriserv_OJ.L_2021.256.01.0003.01.ENG_EN_TXT.pdf.

⁴⁶² RePowerEU Plan, COM/2022/230 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A230%3AFIN&qid=1653033742483>.

⁴⁶³ Council Regulation (EU) 2023/1782 amending Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe, as regards the Chips Joint Undertaking, Article 9. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1782>

⁴⁶⁴ BMR 2024, p. 77.

⁴⁶⁵ BMR 2024, p. 196. The case of Italy is specifically mentioned.

⁴⁶⁶ MoU for the Clean Steel partnership. https://research-and-innovation.ec.europa.eu/system/files/2022-01/c_2021_4113_fl_annex_en_v4_pl_1213800.pdf

- In the *Preparatory action for setting up joint programmes among innovation ecosystems actors and Stimulating Experimentation Practices* calls⁴⁶⁷, the EIT KICs were listed as the target groups.
- Involvement of the EIT KICs in the EIE CONNECT calls: EIT KIC Health is in the project on *Growing Connection for Bio Ecosystems* (COBIOE) and *Inclusive and Interconnected Ecosystem to Boost Paediatric Innovation in Europe* (i4KIDS-EUROPE). In the project *Mediterranean Island Cleantech Innovation Ecosystem* (MICIE), the EIT Climate-KIC is one of the partners⁴⁶⁸.
- The EIT Climate-KIC leads the flagship project consortium under the EU Mission for Adaptation to Climate Change, Pathways2Resilience, and also leads the NetZeroCities consortium running the Cities Mission platform (with an EU contribution of EUR 96.3 million, according to CORDA data in July 2024).
- The EIT KICs are supporting the implementation of the Mission Soil living labs: EIT Climate-KIC and EIT Food are part of the consortium supporting the Mission Soil living lab implementation⁴⁶⁹. EIT Food is also coordinating five living labs on carbon farming⁴⁷⁰.

The evaluation also found the following evidence of the partnerships' coherence with national initiatives.

- The **State Representatives Groups (SRGs)** serve as advisory bodies, ensuring alignment at all programming levels, from Strategic research and innovation agenda to annual work programmes, and national policies and priorities⁴⁷¹. This was also highlighted as a positive factor in the external evaluation of several JUs (the Circular Bio-based Europe JU, SESAR3, Europe's Rail JU) as well as co-programmed partnerships (Built4People, 2ZERO, CCAM).
- In Hungary, the **EIT Digital Hungary branch received local government support** of EUR 60 000 to support running the Hungarian hub. In Estonia, TalTech University agreed to support Tallinn satellite operation and contributed EUR 90 000 in 2022⁴⁷².

4.4 EU added value

4.4.1. Economic added value: Horizon Europe leveraged additional resources for R&I

As of 6 January 2025, project participants had invested a total of EUR 10.2 billion of their own resources in Horizon Europe projects. This is equivalent to a leverage factor of 0.236: in other words, each euro the EU invests in Horizon Europe R&I projects directly attracts additional R&I investments of about EUR 0.24. To date, the Horizon Europe's programme-wide leverage factor has not changed compared to the factor in Horizon 2020 projects (also 0.236).

With each euro of EU contribution, Horizon Europe leveraged around EUR 0.5 in co-investment from private for-profit bodies, which is about the same as in Horizon 2020. For SMEs specifically, the leverage factor is 0.36 (up from 0.33 at the end of Horizon 2020). For comparison, co-investment from higher education institutions is EUR 0.03 per euro invested by the EU.

An additional source of EU funding leverage not included in above statistics, is the **EIC Fund**, the equity instrument of the EIC Accelerator. This instrument is aimed specifically at SMEs (and

⁴⁶⁷ HORIZON-EIE-2023-CONNECT-01-02 and HORIZON-EIE-2023-CONNECT-02-01.

⁴⁶⁸ First two bullets from the Innovative Europe study, 2024, section on 7.1 on int. coherence, p. 85, <https://data.europa.eu/doi/10.2777/499132>. Details in Table 1, Case study 6. <https://data.europa.eu/doi/10.2777/354>.

⁴⁶⁹ <https://cordis.europa.eu/project/id/101145592>

⁴⁷⁰ <https://cordis.europa.eu/project/id/101157414>

⁴⁷¹ Green transition evaluation study, Appendix J, p. 923. <https://data.europa.eu/doi/10.2777/489648>

⁴⁷² Partnership Evaluation report, Section 4.2. <https://data.europa.eu/doi/10.2777/431739>

small mid-caps). For the Horizon Europe period only, as of 2 December 2024, the EIC Fund had disbursed approximately EUR 570 million: the sum includes EUR 471 million in equity investment over 104 funding rounds, as well as 38 convertible loans (EUR 97 million).

One of the goals of the EIC Fund is to match each of its investments by at least an equivalent amount of capital from other partners, such as private venture capital investors or public investment funds. As of 2 December 2024, the total amount of co-investment by partners other than the EU is EUR 1 491 million. Including also investment towards Horizon 2020 beneficiaries, since 2020, the EIC Fund has crowded in over EUR 2.6 billion of additional investment⁴⁷³.

The overall leverage effect of the EIC Fund is approximately 3:1⁴⁷⁴. For the Horizon Europe period, the leverage effect is equivalent to EUR 2.6 per euro invested by the EU, increasing to EUR 3.2 if only equity investments are considered. Convertible loans may be transformed into direct equity investments at a later point if enough matching partners are found. The co-investors are listed in the approval documents of the EIC Fund Advisory and Investment Committees. At the moment, information on co-investment to convertible loans is not channelled to the Fund's monitoring tools due to technical limitations. The EIB expects to make it available by the end of 2025.

The concept of leverage may also be used to encompass funding received by beneficiaries after project participation (a form of 'indirect' leverage). Information on additional investments collected by participants is currently not available to this evaluation for most programme parts: the first programme-wide data – as captured under the Key Impact Pathway 9 medium-term indicator⁴⁷⁵ – will become available from 2025 onwards. The only programme part for which structured figures about additional investments are already available is the EIT: for several KICs, additional investments reported exceed by substantial margins the size of the EIT grant (most notably, over 30 times in the case of EIT KIC InnoEnergy). More data on additional investments collected by EIT KICs beneficiaries is available in Annex 7.

European Partnerships

Looking at co-investment only, partnerships leverage more resources than the rest of the Framework Programme⁴⁷⁶. When all partnerships are excluded, the leverage factor for the 'mainstream' programme is around 0.09, equivalent to EUR 2.96 billion in co-investment. For partnerships as a whole, the leverage factor for project activities is 0.62 (EUR 7.22 billion).

Among the main Horizon Europe types of actions, joint undertakings have the highest direct leverage factor (0.8). In the average JU project, 55% of total eligible costs are covered by the EU, and 45% by project participants.

Leverage factors in JUs are higher for participants classified as for-profit companies: they invested EUR 2.83 billion in projects, a direct leverage factor of EUR 1.23 per euro in EU contribution the projects received. Out of this, at least EUR 2.17 billion comes specifically from privately-owned enterprises, and at least EUR 313 million from state-controlled enterprises. These have a comparatively high leverage factor of 2.25 (against 1.15 for companies without public ownership).

⁴⁷³ EISMEA, Scaling Deep Tech in Europe – the European Innovation Council Impact Report 2025. Available at: https://eic.ec.europa.eu/document/download/7b947b36-66cb-4471-a2d0-158d5ae6770f_en?filename=EIC-Impact-Report-2025.pdf

⁴⁷⁴ Ibid.

⁴⁷⁵ 'Scaling-up - Amount of public & private investment mobilised to exploit or scale-up results from the Programme (including foreign direct investments)'

⁴⁷⁶ This indicator is called 'direct call leverage' in the BMR on partnerships, with an identical definition and calculation method.

All partnership types may also accept contributions from partners in the form of additional activities. The monetised value of the members' additional activities counts towards the partnership's leverage objectives – for some partnerships, these activities are the main source of leverage. Once additional activities are included, leverage factors for institutionalised partnerships increase significantly, with partners contributing to R&I activities already more than the EU contribution received to date (leverage factor higher than 1). However, availability and quality of data on additional activities varies – as does the level of Commission oversight on their content.

In principle, due to their design, co-funded partnerships leverage the most compared to the Horizon Europe contribution (leverage ratio of 2:1). However, Commission monitoring systems are currently unable to systematically track the status of these partnerships' implementation beyond the initial grants, as structured implementation data has not yet been included in central monitoring systems. This prevents the Commission from assessing how much of the leveraged funding comes from Member States, private partners, and from other EU budget sources, such as EU regional funds and the RRF. Co-programmed partnerships have the lowest leverage factor (0.14): by design, most of their leverage is supposed to come from additional activities beyond EU-funded actions and subsequent private investment after the pre-competitiveness phases.

The picture for institutionalised partnerships varies. Some of these partnerships have a longer track record, having existed in a similar organisational set-up for at least two programming periods (i.e. since before the start of Horizon 2020). In Horizon Europe, these 'older' partnerships have a substantially higher leverage factor than those that were created more recently. In particular, the three older EIT KICs have a leverage factor including additional activities, close to 3:1, but a gap between 'older' and 'newer' partnerships is also visible for JUs.

For details, see Annex 7.

EU Missions

The Commission launched the EU Missions in 2021 with a budget of EUR 1.9 billion, which was intended to attract further investment. At the time of writing, there is no systematic approach yet to monitoring additional funds leveraged by these initiatives (which would not have been spent on these causes/objectives without the EU Missions' influence). Leverage of EU funding will be tracked through the KIP Dashboard from 2025, and in 2026, a comprehensive Missions assessment will investigate funding beyond Horizon Europe, in particular shared management programmes.

Nevertheless, the Cities Mission has successfully pooled resources from the national level, in cases where Member States have committed additional funding to support the cities participating in the Mission to become climate neutral. The Cities Mission also mobilised support from the EIB (the EIB participates in the review process of Climate City Contracts, provides advisory services to Mission cities and ringfenced a lending envelope of EUR 2 billion to cities that have received the Cities Mission Label).

4.4.2. Horizon Europe-supported activities would not have been possible without EU funding

Collaboration networks across borders

One of the key aspects of Horizon Europe's added value is its ability to promote cooperation on a large scale across countries. Most national (or regional) programmes may fund bilateral or, more rarely, trilateral collaborations, but usually they do not fund wider collaboration networks⁴⁷⁷. Of the EUR 43.2 billion in grants signed by 6 January 2025 under Horizon Europe,

⁴⁷⁷ European Commission (2024). Align, act, accelerate, p. 20. <https://data.europa.eu/doi/10.2777/9106236>.

81% were collaborative grants⁴⁷⁸. Since there are usually no limits to the number of participants in Horizon Europe consortia, these tend to be wide, including on average 11.3 participants⁴⁷⁹.

The added value of collaboration is reflected in feedback from beneficiaries. The key elements of EU added value identified by beneficiaries include: (1) international cooperation and mobility opportunities for researchers; (2) access to world-class research and technology infrastructures; (3) support for research topics and areas not covered by national and regional R&I funding programmes; and (4) the drive for excellence through EU-wide competition for R&I funding⁴⁸⁰.

Scale and scope of R&I support

Horizon Europe supports types of R&I that could not be funded at national and regional level. This is not only because of the extensive nature of the collaboration networks but also because the programme provides funding for a wide range of research topics. More specifically, there is clear relevance and added value for security research (Cluster 3) because most Member States except Germany, Austria, Bulgaria, Czechia, and Italy do not have an equivalent national programme in this field⁴⁸¹. They therefore rely on Horizon Europe for the development of innovative solutions in civil security, border management, disaster resilience and the protection of critical infrastructures⁴⁸². A project receiving Horizon Europe funding is perceived as trustworthy and relevant among stakeholders in the field of security⁴⁸³.

One significant benefit of Pillar III programmes is their ability to address the financing shortfall encountered by innovative actors in their national setting. For example, EIC funding enables programme beneficiaries to scale up innovation that would otherwise be unfeasible. As highlighted by the beneficiaries interviewed, projects would have progressed at a slower pace and on a smaller scale without this funding⁴⁸⁴.

The EU added value of Horizon Europe is also demonstrated by the fact that project proposals that were not selected for funding needed to be revised to secure national or regional sources of funding. According to the evaluation survey respondents, revisions to the projects included a reduced project scope (in terms of areas covered; 82%; 1 575 respondents), less complex methods (79%; 1 462 respondents), fewer research outputs (77%; 1 435 respondents), a smaller number of consortium partners (85%; 824 respondents) and shorter durations (75%; 1 368 respondents). As a result, projects were often funded at a smaller scale than what Horizon Europe would have offered.

Another significant aspect of the EU added value of Horizon Europe is the pooling of resources on a broader scale than at national level. A good example is rare diseases, where the low number of patients requires such a pooling to reach sufficient statistical levels⁴⁸⁵.

The added value of Horizon Europe support to cross-border collaboration and networking is particularly visible in the widening part of the programme. Case study evidence shows that there are no grants available in widening countries that are comparable to those available under Horizon Europe widening actions, which aim to foster connections with leading partners and

⁴⁷⁸ Analysis based on CORDA data with cut-off on 2 December 2024.

⁴⁷⁹ Analysis based on CORDA data with cut-off on 2 December 2024.

⁴⁸⁰ Based on responses from MSCA PF and ERC beneficiaries to a targeted survey carried between May and July 2023. Number of respondents for each topic: 1. 1 042; 2. 1 034; 3. 1 038; 4. 1 042. Excellent Science evaluation study, 2024, <https://data.europa.eu/doi/10.2777/2295765>; Innovative Europe Study.

⁴⁸¹ Enhancing security through research and innovation SWD(2021) 422 final; Resilient Europe evaluation study, 2024, Case Study 11, <https://data.europa.eu/doi/10.2777/22355>

⁴⁸² Resilient Europe evaluation study, 2024, Case Study 11. <https://data.europa.eu/doi/10.2777/22355>

⁴⁸³ Ibid., p. 133.

⁴⁸⁴ Innovative Europe Study, Chapter 8.1, page 91, referring also to relevant Case Studies 1 and 2.

⁴⁸⁵ European Commission, Directorate-General for Research and Innovation, Rare diseases : a major unmet medical need, Publications Office, 2017, <https://data.europa.eu/doi/10.2777/749056>

boost the quality of the research produced in widening countries⁴⁸⁶. A separate study reveals that, from Horizon 2020 to Horizon Europe, widening countries teams have surpassed those from third countries' teams in terms of presence in consortia networks⁴⁸⁷.

By bringing together resources, partners and infrastructure across countries, sectors and disciplines, EU R&I funding is able to support a range of initiatives of unparalleled scale and complexity⁴⁸⁸. This creates the necessary critical mass to strengthen the EU science-for-policy ecosystem.

Horizon Europe is designed to support key EU priorities. In the digital space, the programme has effectively identified and supported high-growth areas where the EU has the potential to take or reinforce its leadership⁴⁸⁹. Similarly, the programme has contributed to the European Green Deal, namely through Cluster 5 and Cluster 6 projects. It has enabled collaboration where it would otherwise not exist, particularly through solutions that make use of data generated via Earth observation⁴⁹⁰.

4.4.3 Structuring effect of Horizon Europe and the European partnerships

Horizon Europe is supporting thousands of new collaborations between researchers, which has a structuring effect on the ERA, the single, borderless market for research, innovation and technology that is being built in the EU. In particular, based on their individual evaluations in annex of the SWD, all the European partnerships deliver EU added value through the development of long-lasting knowledge networks. SESAR exemplifies this by bringing all European air traffic management stakeholders together to support the entire ATM value chain and align with the Single European Sky initiative⁴⁹¹. Similarly, the SNS JU (following 5G PPP), harnesses cross-border effects to accelerate the development of 5G and 6G technologies, securing a competitive edge for European tech companies⁴⁹².

All European Partnerships have a strategic research agenda or work programme that brings together the EU and other partners such as Member States, industries and foundations, to agreeing on joint priorities for funding. This is a key feature that distinguishes partnerships from other collaborative instruments⁴⁹³. For example, the tripartite approach of the Chips JU, which involves co-funding and joint decision-making with the private sector and Member States, promotes coordination with national activities, contributing to the ERA in the microelectronics field⁴⁹⁴.

Each JU also brings added value by tackling sectoral or research fragmentation. One example is EuroHPC: previously, the EU had 27 different supercomputing programmes and lacked its own supercomputers. With the creation of EuroHPC, the EU has gained a prominent position as a world power in supercomputing with its own systems⁴⁹⁵. EU-Rail tackles the rail industry's

⁴⁸⁶ Excellent Science evaluation study, Annex 2.7. <https://data.europa.eu/doi/10.2777/9552959>

⁴⁸⁷ European Commission (2024). The Structuring effect of consecutive Framework Programmes for health research, Working Paper for the Resilient Europe evaluation support study, pp. 10-12 ([The Structuring effect of consecutive Framework Programmes for health research - Publications Office of the EU](#)).

⁴⁸⁸ European Commission, Mitra, A., Canton, E., Ravet, J. and Steeman, J. (2024). The added value of European investments in research and innovation, p. 8. https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/added-value-european-investments-research-and-innovation_en.

⁴⁸⁹ European Commission (2024). Horizon Europe and the Digital & Industrial Transition, p. 90. <https://op.europa.eu/en/publication-detail/-/publication/44b1b11b-7fa2-11ef-a67d-01aa75ed71a1/language-en>.

⁴⁹⁰ European Commission (2024). Horizon Europe and the Green Transition, p. 90. <https://op.europa.eu/en/publication-detail/-/publication/c9383687-6420-11ef-a8ba-01aa75ed71a1/language-en>.

⁴⁹¹ SESAR JU evaluation report in annex 19, p. 13.

⁴⁹² SNS JU evaluation report in annex 20, p. 13.

⁴⁹³ Biennial Monitoring Report on European Partnerships, 2024, p. 19. <https://data.europa.eu/doi/10.2777/991766>.

⁴⁹⁴ Chips JU evaluation report in annex 11, p. 16.

⁴⁹⁵ EuroHPC JU evaluation report in annex 16, p. 15.

structural and geographical fragmentation by delivering via an integrated system approach, a high capacity, flexible, multi-modal and reliable integrated European railway network by eliminating barriers to interoperability and providing solutions for full integration, for European citizens and businesses⁴⁹⁶.

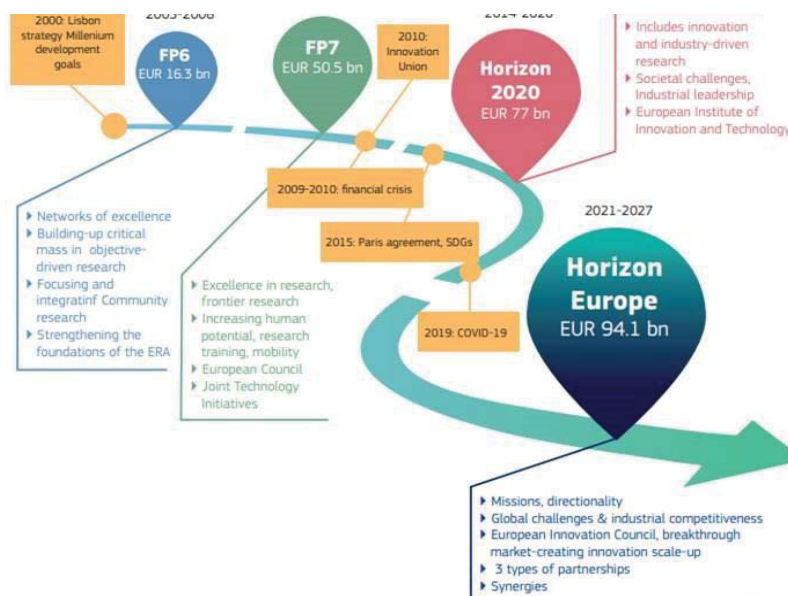
Half of the partnerships include a particular focus on funding high-TRL projects. Under the CBE JU, the deployment of large-scale, first-of-a-kind projects at TRL 8, known as Innovation Action-Flags (IA-FLAG), has upscaled the bio-based sector to market level, with a high participation of SMEs (51% of all CBE funding as of December 2023)^{497,498}.

4.5 Relevance

4.5.1. Responding to the needs of beneficiaries

2024 marked the 40th anniversary of the first framework programme for research and innovation. Certain parts of Horizon Europe have existed in several framework programmes, demonstrating these parts' value and relevance. This includes thematic priorities (currently the clusters in Pillar II), research infrastructures, the ERC, the MSCA, widening participation, strengthening the ERA, direct R&I actions through the JRC, as well as the Euratom programme. They have been reformulated and regrouped in various ways; however, they show overall a remarkable degree of continuity. Other features of the programme were added more recently – in Horizon Europe, new features included greater mission and impact-orientation (with five EU Missions and nine Key Impact Pathways for the programme), while also integrating the EIC as a fully-fledged programme part.

Figure 15: Evolution of the framework programme for R&I



Source: DG RTD, SRIP Chapter 2.1

⁴⁹⁶ Europe's Rail JU evaluation report in annex 15, p. 17.

⁴⁹⁷ European Commission, SME participation in Horizon Europe, 2024, p. 24.
<https://data.europa.eu/doi/10.2777/576670>

⁴⁹⁸ CBE JU evaluation report in annex 12, p. 3.

The mechanisms used to shape these changes included the stakeholder consultation, and the interim and ex post evaluations of Horizon 2020. Stakeholders are involved in the preparation of the strategic plans and the work programmes. For example, the largest ever stakeholder consultation on the framework programme, ‘Public consultation on the past, present and future of the European Research & Innovation Framework programmes 2014-2027’, started in December 2022 and closed in February 2023 with 1 663 replies associated with the section on Horizon Europe, as well as 136 position papers from various stakeholders. It supported foresight activities⁴⁹⁹ and other analyses⁵⁰⁰, as well as the strategic plan itself⁵⁰¹.

These analytical activities in particular showed that the needs that must be addressed by Horizon Europe are evolving⁵⁰². The past few years have been marked by global crises, including the COVID-19 pandemic, the Russian invasion of Ukraine, the energy crisis and high inflation, and the increased frequency of climate-related extreme events. These recent events – along with longer-term challenges such as climate change, biodiversity loss, pollution, decarbonisation, the green and digital transition, resilience, and competitiveness – provide an opportunity to ‘build forward better’. Moreover, the new geopolitical context has placed the EU’s just green and digital transition in the spotlight, requiring the reduction of strategic dependencies, for example on critical technologies, raw materials and finite critical minerals, and the speedup of the net zero industrial transformation to strengthen the EU’s resilience and foster its leadership in key technological domains and (global) value chains. The framework programme for research and innovation, with its dedicated instruments and objectives, has a direct impact on both the shorter-run crises and the longer-run challenges. The foresight and other analytical activities underpinning its Strategic Plan – including this evaluation – equip the programme with the information necessary to adapt and respond to evolving needs in the future.

One of the programme instruments that was rationalised under Horizon Europe in order to respond more effectively to needs and EU priorities are the European Partnerships. Their number decreased by more than half (more details on this in section 4.2.3. on simplification). The partnerships focus on the main EU priorities described below.

- **Strategic autonomy and global positioning:** Partnerships, such as EuroHPC, CHIPS, Global Health EDCTP3, SNS, Photonics, and Made In Europe, focus on ensuring the availability of components, technologies and know-how⁵⁰³. EIT Digital and EIT Manufacturing also contribute to this priority, by building and scaling ventures, support the commercialisation of innovation and upskilling talents in critical technologies⁵⁰⁴.
- **Green transition, sustainability and biodiversity:** The partnerships under Cluster 5, the co-programmed partnership on clean steel and zero-emission mobility (2Zero), together with the EIT Climate-KIC, EIT InnoEnergy and EIT Urban Mobility, contribute to reducing greenhouse emissions, designing more efficient transport and infrastructure, supporting a clean energy transition and circular economy, and fostering a competitive and innovative European hydrogen economy and battery industry⁵⁰⁵. The partnerships under Cluster 6 and EIT Food contribute to a better sustainability of food systems, improving the good

⁴⁹⁹ Commission: Directorate-General for Research and Innovation, Weber, M., Wasserbacher, D. and Kastrinos, N., *Foresight towards the 2nd Strategic Plan for Horizon Europe*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/77971>.

⁵⁰⁰ Commission: Directorate-General for Research and Innovation, *Horizon Europe strategic plan 2025-2027 analysis*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/637816>

⁵⁰¹ European Commission, Directorate-General for Research and Innovation, *Horizon Europe strategic plan 2025-2027*, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/092911>

⁵⁰² Horizon Europe strategic plan 2025-2027 analysis, 2023, p. 9.

⁵⁰³ Digital & Industrial Transition evaluation study, 2024. Annex I, p. 40. <https://data.europa.eu/doi/10.2777/489648>

⁵⁰⁴ European Commission, BMR 2024 on partnerships in Horizon Europe, 2024, p. 64.

⁵⁰⁵ Ibid, p. 74.

environmental status⁵⁰⁶ by 2030, mainstreaming biodiversity in key sectors and policies, and improving livelihoods, health and access to water⁵⁰⁷.

- **Digital transition and industrial competitiveness:** Partnerships under different clusters have integrated elements to facilitate the digital transition. The most relevant are under Cluster 4, which, together with EIT Digital, promote digitisation and a competitive and secure EU data economy⁵⁰⁸. Examples of other partnerships include the CBE, which develops innovative and sustainable bio-based solutions and deploys them in the market (see Annex 12).

All joint undertakings have as one of their primary objectives to ‘secure and enhance Union competitiveness’. As a thematic example⁵⁰⁹, one of the three specific objectives of the Innovative Health Initiative JU is to ‘drive cross-sectoral health innovation for a globally competitive European health industry and contribute to reaching the objectives of the new Industrial Strategy for Europe and the Pharmaceutical Strategy for Europe’. All projects supported by this JU include mandatory contributions from the health industry that participates in joint projects with academia, hospitals, SMEs and others⁵¹⁰.

- **Health and preparedness:** EDCTP2 delivered results related to COVID-19, antimicrobial resistance, malaria, tuberculosis and HIV. In addition, Horizon Europe continues the course of Horizon 2020 and FP7 in contributing to pandemic research preparedness and response. Support for research related to the COVID-19 pandemic continued, and a response to the 2022 mpox epidemic was mobilised. More details on this are in Section 4.5.3. on responding to emergencies.

The IMI2 JU (IHI’s predecessor) delivered results on diagnosing or treating conditions that significantly affect the EU population such as cancer⁵¹¹, cardiovascular diseases⁵¹² and diabetes⁵¹³. It contributed to developing Ebola vaccines⁵¹⁴ and improved methodologies for studying drug safety and running clinical trials with adults⁵¹⁵ and children⁵¹⁶, the latter involving over 250 hospital sites.

In addition, all the four types of funding set out in the EU Financial Regulation⁵¹⁷ – grants, prizes, financial instruments and procurement – are combined in the implementation of Horizon Europe, in order to respond to the beneficiaries’ needs. The programme has also proved to be flexible in combining these instruments. For example, the EIC uncoupled its grant and equity funding for start-ups, so that applicants can either bid for blended support while being able to postpone raising equity to a later stage or bid for only a grant or equity.

4.5.2. Strengthening Europe’s competitiveness

Promoting the EU’s competitiveness is one of the general objectives of Horizon Europe. Private and public sector investment is a necessary condition for strengthening Europe’s

⁵⁰⁶ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

⁵⁰⁷ European Commission, BMR 2024, p. 76.

⁵⁰⁸ Ibid, p. 80.

⁵⁰⁹ Art 115.1(c) of Regulation 2021/2085 establishing Joint Undertakings under Horizon Europe.

⁵¹⁰ Resilient Europe valuation study, Case Study 2 on IMI2 and IHI, p. 233.

⁵¹¹ <https://cordis.europa.eu/project/id/115749>

⁵¹² <https://cordis.europa.eu/project/id/116074>

⁵¹³ <https://cordis.europa.eu/project/id/945268> and <https://cordis.europa.eu/project/id/821508>

⁵¹⁴ <https://cordis.europa.eu/project/id/115854>

⁵¹⁵ <https://cordis.europa.eu/project/id/853966/results>

⁵¹⁶ <https://cordis.europa.eu/project/id/777389>

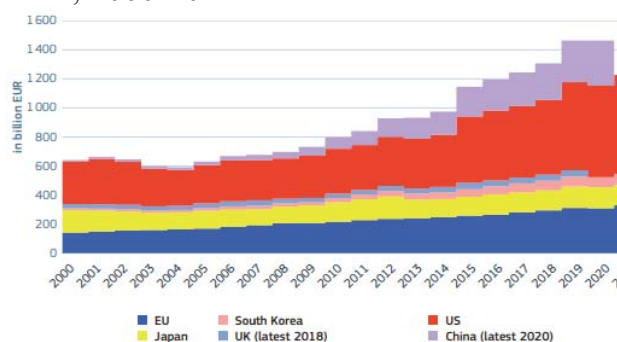
⁵¹⁷ Regulation (EU, Euratom) 2018/1046 on the financial rules applicable to the general budget of the Union, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018R1046>

competitiveness. Although the EU has set itself an ambitious R&D investment target of 3% of GDP, it is struggling to achieve this objective. In 2022, the EU would have needed to invest an additional EUR 123 billion to reach the 3% target, more than the budget of an entire seven-year framework programme for R&I⁵¹⁸.

While the EU has increased its R&D investment over the past two decades⁵¹⁹, the R&D *intensity* gap between the EU and the US and South Korea has also widened (Figure 15)⁵²⁰. In the EU, this gap is mainly due to a lack of private R&D investment. For example, venture capital funds raised in the EU are equal to only 5% of global venture capital finance, compared with 52% in the US⁵²¹. Compared with the US, the EU also lags significantly behind in the development and adoption of digital technologies, which are a key enabler of innovation^{522,523}. More generally, the EU lags behind other key players in strategic, productivity-enhancing technologies, including in the digital domain. It remains a leader in green infrastructure, outperforming both China and the US in areas related to climate adaptation and energy technologies and environment, but it has not kept up with progress in more complex technologies⁵²⁴.

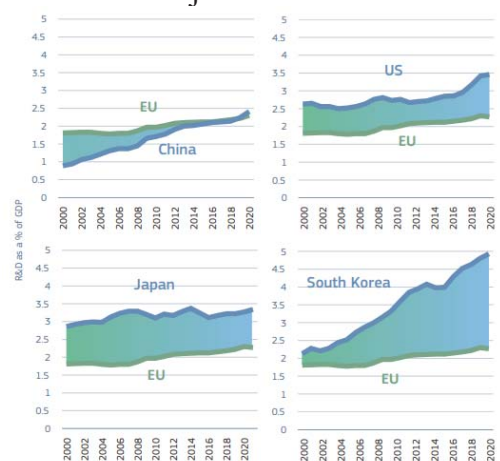
In addition, the valorisation of R&D outputs remains a challenge: only about one-third of the patented inventions registered by European universities or research institutions are commercially exploited⁵²⁵.

Figure 16: R&D expenditure in billion EUR, 2000-2021



Source: DG Research and Innovation, Science, research and innovation performance of the EU : Eurostat (online data code: rd_e_gendtot).
Note: The UK value of 2020 is a prediction based on the annual compound growth rate from 2014-2019.

Figure 17: The EU's R&D intensity gap with other major economies



Source: DG Research and Innovation, Science, research and innovation performance of the EU 2024 : Eurostat and OECD data.

The objective of competitiveness is clearly the focus of Pillars II and III. Pillar II seeks to promote industrial competitiveness throughout the R&I journey. Work programmes have also increasingly focused on key enabling technologies (KETs) and critical technologies for industry,

⁵¹⁸ DG RTD, SRIP chapter 2.1, p. 49. <https://data.europa.eu/doi/10.2777/965670>

⁵¹⁹ Ibid., p. 47

⁵²⁰ Ibid., p. 31

⁵²¹ European Investment Bank (2024). The scale-up gap: Financial market constraints holding back innovative firms in the European Union, page 22. https://www.eib.org/attachments/lucalli/20240130_the_scale_up_gap_en.pdf.

⁵²² DG RTD, EIS, chapter 1, p. 7-8

⁵²³ European Commission, Directorate-General for Research and Innovation, Science, research and innovation performance of the EU, 2024 : a competitive Europe for a sustainable future, pages 86-88, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/965670>.

⁵²⁴ European Commission, Directorate-General for Research and Innovation, Science, research and innovation performance of the EU, 2024: a competitive Europe for a sustainable future, page 38, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/965670>.

⁵²⁵ Draghi, M., "The future of European competitiveness – A competitiveness strategy for Europe", 2024, p. 25.

supporting convergence and cross-fertilisation⁵²⁶. Pillar III aims to fill the financing gap and strengthen innovation ecosystems.

The collaborative nature of Horizon Europe (see also Section 4) is key to promoting competitiveness, since it offers opportunities for European businesses and research organisations to forge international partnerships and access global markets, fostering economic growth^{527,528}. For researchers, respondents to the survey highlighted how MSCA contributed to improving the working conditions of researchers, which in turn improve the attractiveness of their research organisations⁵²⁹.

Successful and unsuccessful applicants that responded to the surveys highlighted the relevance of the programme for competitiveness. Asked whether Horizon Europe provides sufficient funding opportunities across a range of specific areas, 47% (7 323) responded that the programme's research focuses on technological applications that are important to industrial competitiveness to a 'very large' or 'large' extent⁵³⁰. This was 53% (2 938) among beneficiaries.

4.5.3. Response to emergencies and changing priorities

The challenges addressed at the start of Horizon Europe are still present: climate change, biodiversity loss, increasing levels of pollution, health threats, security threats, and the digital transition are as relevant today as in 2021. Therefore, Horizon Europe remains as relevant now as when it started; in addition, it was able to adapt to changing circumstances. The Russian invasion of Ukraine and the COVID-19 pandemic highlighted the need for flexible use of R&I instruments for short-term responses to unexpected crises and global challenges⁵³¹. The evaluation of Horizon 2020 found the programme's response to new emerging challenges such the COVID-19 crisis to be even faster than it was for Ebola and Zika⁵³². Similarly, programme parts across all Horizon Europe pillars responded to COVID-19, mpox and Ukraine emergencies – some examples are provided below and a more detailed description is in Annex 10.

- Cluster 1 is the only cluster with an 'emergency action fund', whose release can be triggered by a policy announcement (WHO's global pandemic)⁵³³. It mobilised resources and boosted preparedness for health emergencies. The first emergency call under Horizon Europe⁵³⁴ provided EUR 123 million to tackle coronavirus and its variants⁵³⁵. This support advanced our understanding of the virus by developing diagnostics, treatments and vaccines, and fed into public health policies. For instance, the EuCARE project provided insights into the

⁵²⁶ Viscido, S., Lotito, A. and Boekholt, P., Horizon Europe and the digital & industrial transition: interim evaluation support study, p. 44, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/845650>.

⁵²⁷ Evaluation study on excellent science, p. 35, 2024. <https://data.europa.eu/doi/10.2777/2295765>.

⁵²⁸ Denham, S., Stančiauskas, V., Dėlkutė-Morgan, R., Kazlauskaitė, D., et al., Evaluation support study on resilient Europe, p. 49, Publications Office of the European Union, 2024. <https://data.europa.eu/doi/10.2777/797281>.

⁵²⁹ Evaluation study on excellent science, annexes, p. 88, 2024. <https://data.europa.eu/doi/10.2777/9552959>.

⁵³⁰ For all applicants, 8% of respondents responded either 'to a small extent' or 'not at all' (7 323 respondents) and 26% responded 'do not know/not applicable' (4 095 respondents). For beneficiaries, these numbers are 5% (293 respondents) and 26% (1 460 respondents), respectively.

⁵³¹ Digital and Industrial Transition evaluation study, 2024, p. 25. <https://data.europa.eu/doi/10.2777/845650>

⁵³² SWD (2024) 29, p. 90. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52024SC0029>

⁵³³ The possibility for the mobilisation of emergency research funds is expressed as an 'other action' integrated in the Horizon WP for Health since 2018: Horizon Europe 2021-2022 work programme (p. 173): https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-4-health_horizon-2021-2022_en.pdf; and Horizon Europe 2023-2024 (p. 222): https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-4-health_horizon-2023-2024_en.pdf

⁵³⁴ Cluster 1 – funded under the 'label' of 'HERA incubator'.

⁵³⁵ https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1548

severity of the different variants of SARS-CoV-2⁵³⁶ and showed that opening schools did not increase transmission in Italy, Germany and Portugal⁵³⁷.

- In response to the mpox outbreak in 2022, the EU mobilised EUR 17 million of emergency funding under Cluster 1 to support European clinical research. For instance, the MPX-RESPONSE project is evaluating therapies against the disease⁵³⁸.
- A benchmark study of the United States medical research agency (National Institutes of Health) response to COVID-19 reported that Horizon Europe demonstrated flexibility in coping with changing circumstances in the world, including COVID-19. The study noted that the programme continues its funding efforts and directs initiatives on COVID-19 and coronavirus research, including preparations for the emerging variant⁵³⁹.
- The ERC identified 183 projects relating to COVID-19, such as diagnostics and treatments (including vaccines), medical devices, digital tools, AI, immunity, infection and pathology, social and economic behaviour, wellbeing and crisis management⁵⁴⁰.
- The Marie Skłodowska-Curie Actions supported doctoral candidates and post-doctoral researchers from Ukraine affected by the war by setting up the EUR 25 million MSCA4Ukraine scheme in 2022⁵⁴¹. A EUR 10 million top-up was subsequently awarded in April 2024 to allow 50 additional researchers to continue their work safely in academia, businesses, research centres and public institutions based in the EU and countries associated to Horizon Europe. In total, 175 researchers from Ukraine had received a fellowship.
- The EIC and EIT published dedicated calls to tackle COVID-19⁵⁴². The EIC also organised events to enable EIC companies to pitch to investors, companies and public healthcare authorities looking for innovative solutions to COVID challenges⁵⁴³.
- At the end of 2023, the EIT set up the EIT Community Hub⁵⁴⁴ in Kyiv, working to bridge Ukraine and the EU's innovation ecosystem and boost ideas and businesses emerging from Ukraine⁵⁴⁵. The overall EIT support has so far channelled more than EUR 2 million to Ukraine between 2022 and 2023.
- Following the start of the Russian invasion of Ukraine, Cluster 5 was better aligned with REPowerEU, resulting in EUR 172 million funding for strengthening the EU's energy independence⁵⁴⁶.

What messages emerged from the targeted evaluation survey of Horizon Europe beneficiaries?

Across the Horizon Europe pillars, the percentage of beneficiaries who 'strongly agree' or 'rather agree' that **Horizon Europe gives more flexibility to respond to changing socio-economic needs compared with national and/or regional research funding** ranged from 45.6% in Pillar I and 54.2% in WIDERA actions. In contrast, the percentages of beneficiaries who 'Strongly disagree' or 'Rather disagree' were relatively low, ranging from 4.8% in Pillar III to 8.4% in Pillar II.

At project level, 13-15% of beneficiaries across Pillars II, III and WIDERA actions reported that the **COVID-19 pandemic was a challenge** to a 'large or very large extent', with a higher share of respondents under pillar I (19%). Similarly, the share of responding beneficiaries that reported that the **pandemic was not a challenge** when carrying

⁵³⁶ [https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762\(24\)00021-8/fulltext](https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762(24)00021-8/fulltext)

⁵³⁷ <https://www.sciencedirect.com/science/article/pii/S1201971223007634?via%3Dihub>

⁵³⁸ <https://www.nature.com/articles/s41591-023-02393-6>

⁵³⁹ Resilient Europe evaluation study, Annex 5, benchmark study 1, p. 21. <https://data.europa.eu/doi/10.2777/22355>

⁵⁴⁰ European Research Council, COVID-19 Frontier research in the spotlight, 2022. https://erc.europa.eu/sites/default/files/2022-08/COVID19-Frontier_research_in_the-spotlight.pdf

⁵⁴¹ Ibid, pp. 843-844, <https://data.europa.eu/doi/10.2777/9552959>

⁵⁴² Innovative Europe evaluation study, 2024, Chapter 9.1, p. 98. <https://data.europa.eu/doi/10.2777/499132>

⁵⁴³ Deep Tech Europe. EIC Impact Report, 2021, p. 50. <https://data.europa.eu/doi/10.2826/005280>

⁵⁴⁴ Innovative Europe evaluation study, 2024, Chapter 4.1, pp. 40-41. <https://data.europa.eu/doi/10.2777/499132>

⁵⁴⁵ <https://eit-ris.eu/ukraine/>

⁵⁴⁶ https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/commission-invests-eu172-million-research-and-innovation-projects-support-eu-energy-independence-2024-01-11_en#:~:text=The%20European%20Commission%20has%20awarded,independence%20of%20the%20European%20Union.

out their project was lower in Pillar I (23%), in contrast to Pillars II, III and WIDERA actions (31-36%). *NB. ERC beneficiaries were not asked this question.*

5. What are the conclusions and lessons learned?

5.1 Conclusions

To what extent has Horizon Europe been successful so far and why?

Horizon Europe is **on track to achieve its objectives**: the number of peer-reviewed publications, patent applications and other Key Impact Pathway indicators are at a similar level as in the previous programme, Horizon 2020, at the same stage of monitoring.

Regarding research, over 79% of all publications are reported by beneficiaries as published with open access, a moderate increase compared with Horizon 2020 at the same stage (69.8%). The programme continues to support excellent science: between 1985 and 2023, it supported 35 Nobel Prize winners, two more than was reported in the *ex post* evaluation of Horizon 2020. It strengthens human capital in research and innovation by boosting researchers' skills and providing unique career development opportunities.

Horizon Europe played a key role in mobilising additional R&I funding and it contributed to the EU's target of investing 3% of GDP in R&D. It offered opportunities for European businesses and research organisations to forge partnerships with other entities in Europe and beyond, fostering economic growth. Nevertheless, Horizon Europe investments only accounted for about 10% of public R&D expenditure in the EU; the rest of the funding comes from the Member States and regional bodies. While this investment in innovation is crucial for productivity, there are other factors at play such as the macroeconomic environment, property right enforcement, openness to trade, effective government, and properly regulated markets.

The programme is **effectively contributing to the twin transition**: its climate contribution was 35% of its funding by the end of 2023 – on track to reach the legal target, which was not achieved in Horizon 2020. Spending on biodiversity objectives exceeds the target level for 2024: 8.7% in 2023 (compared with the 7.5% target). Horizon Europe investments in the digital transformation for 2021-2023 are estimated to be at 33% of its budget (compared with 32% in Horizon 2020). The programme combines agility and long-term competence building in strategic areas for the Digital and Industrial Transition. The systemic and “technology neutral” approach enhances its capacity to deliver integrated solutions to complex challenges in this field.

Three macro-economic models used in this evaluation confirm that **Horizon Europe contributes to EU's GDP growth, according to expectations**. The limited share of Horizon Europe funding that has been allocated in the first three years of the programme is estimated to contribute to an increase in EU GDP of up to EUR 8.1 billion yearly between 2021 and 2050, on average.

10 077 SMEs received grants for a total of EUR 7.4 billion (17% of all the budget allocated). Pillar II involves 70% of all SME unique participants and provides 68% of all EU contribution for SMEs (EUR 4.7 billion). Approximately 15% of the joint undertakings' funding went to SMEs. In Pillar III, 32% of all EU contributions went to SMEs. In addition to this, the EIC Fund's approved equity investments for start-ups and SMEs add another EUR 1.7 billion for SMEs in the Horizon Europe period, bringing the total investment to EUR 9.1 billion.

Horizon Europe has tripled the budget for **widening** participation to 3% of the programme budget (compared with its predecessor Horizon 2020) and introduced several measures to increase the participation of organisations from widening Member States in the programme. First results of this increased focus on widening are positive both in terms of participation and the number of newcomers. The Horizon Europe Widening Member States have received 14% of the funding to

date, compared with 9% of the total funding they received in Horizon 2020. The rate of newcomers in widening Member States is 53%, which is greater than in non-widening ones (49%). In addition, 58% of collaborative projects include a participant from a widening Member State.

The **EU Missions** are proceeding towards their goals despite a cumbersome governance system and an incomplete monitoring framework for reporting on their progress.

Institutionalised European partnerships had an impact on the creation and diffusion of new high-quality knowledge and skills, as well as on the EU's global leadership and value chain resilience in key technologies. A smaller number of JUs had an impact on developing and accelerating the uptake of innovative solutions. **The partnerships' transparency and openness improved**, although SMEs and participants from widening countries still face some challenges. The number of new organisations involved in the partnerships slightly increased from 2022 to 2024: most of the 308 new organisations were associated with the EIT KICs, while other institutionalised partnerships had few newcomers. The share of SMEs members increased more than that of universities and private organisations between 2022 and 2024, primarily thanks to participation in the EIT KICs. Only three JUs disclosed SMEs as members: SNS, Clean Aviation, Single European Sky. Participation from widening countries has improved, but some partnerships still struggle to attract organisations from Central and Eastern Europe.

In addition to the EIT KICs who all prepared their phasing-out strategies to become financially sustainable after 15 years, three European partnerships have produced a phasing-out plan. Among the institutionalised partnerships, EIT InnoEnergy, EIT Digital, and EIT Climate-KIC reached the end of their partnership status in December 2024 and are continuing their activities as financially sustainable ecosystems with less EIT funding.

The **programme's internal coherence is hindered by a high number of instruments, which nevertheless achieve a broad TRL coverage (including low TRLs in Pillar II).** In Pillar II, there are three impact-oriented streams of activities under way (the EU Missions, European Partnerships and clusters), each with its own governance and often weak links between themselves (in particular between the Missions and partnerships). In Pillar III, there is overlap in support provided by the EIC, EIE and EIT in terms of activities, TRL levels covered and groups targeted – each with its own governance.

The overall landscape of EU programmes supporting innovation and deployment of research is increasingly complex and difficult to navigate for the beneficiaries targeted. Horizon Europe is pursuing synergies with 20 EU programmes – up from 13 at the time of the *ex post* evaluation of Horizon 2020. Developing synergies is labour-intensive: the Commission made efforts in work programme coordination, the development of new support actions and a guidance notice (ERDF), and monitoring bridging instruments and bonus points in project evaluation. Existing synergy tools have been more widely deployed (Seal of Excellence) and strengthened (combined funding under Teaming projects). New mechanisms such as transfers from national ERDF programmes to Horizon Europe have been used in two instances. Cumulative funding exists with Member States using their ERDF funds as contributions to European Partnerships. EU programmes have different programming cycles and timelines, which create challenges for coordination.

The **co-creation approach** was introduced in Horizon Europe to foster synergies with EU policies and programmes. A wide range of Commission departments, Member States and the European Parliament, as well as representatives from industry participate in setting priorities and the budget allocation, through complex governance arrangements.

The **Seal of Excellence** continues to facilitate synergies with national and regional programmes: it was awarded to 7 166 proposals that could not be funded due to budget limitations in 2021-2024.

What costs are borne by the beneficiaries and applicants?

Beneficiaries' administrative costs: Beneficiaries are expected to spend **between EUR 4.75 billion and EUR 6.47 billion** on administrative costs on projects signed under Horizon Europe so far over the project lifetime. This is equivalent to 9% - 12% **of the total project cost**. The interim estimate is an order of magnitude higher than the previous (non-robust) estimate for all of Horizon 2020. The difference should not be interpreted as a change in costs but is primarily due to improvements in data quality and survey question design.

Costs of applicants: Overall, stakeholder feedback signals there has been no substantial shift in the proposal preparation effort required to apply for Horizon Europe compared to Horizon 2020.

Results of the evaluation's large, targeted survey suggest that consortium coordinators and mono-beneficiaries typically spend between **36 to 45 person-days on a proposal**, in addition to the **16 to 25 person-days** typically spent by consortium partners. **Consortium size** is a dominant factor influencing the time cost of coordinators.

So far, the application costs of all applicants to Horizon Europe are estimated to add up to EUR 1.92 billion to EUR 2.82 billion. This estimate is based on Horizon Europe's committed operational expenditures up to 2024, therefore not covering the entire programme. It corresponds to an **average cost per proposal of EUR 21 000 to EUR 32 000**, compared with an estimate of EUR 18 000 to EUR 37 000 under Horizon 2020. Our level of confidence in the Horizon Europe estimate is higher than in that of the Horizon 2020 final evaluation. The difference between the estimates for the two programmes should not be interpreted as an underlying change in costs but is due to an improvement in the quality of evidence and estimation method.

The overwhelming majority (74-80%) of Horizon Europe proposals reaching the quality threshold have been written without the involvement of external consultancies. Well over half of Horizon Europe applicants received support to prepare their proposals from a range of sources, primarily from **specialised departments in the organisation** (51%), the **National Contact Points** (19%) and **consultancy firms inside or outside the consortium** (17%). Around 30% of the respondents indicated that they had not used any source of support.

Time-to-Grant target: Horizon Europe without the EIC reaches a TTG of 241 days (240 days when excluding EIC Accelerator only), staying below the performance of Horizon 2020 without the SME Instrument (209 days) but still on the target. While the average time-to-grant period is longer than under Horizon 2020, Horizon Europe's performance is meeting the target of 245 days for all programme parts to which it applies.

Horizon Europe's **public sector Benefit Cost Ratio (BCR)** suggests the programme generates **value-for-money** for the EU: **One euro of costs to society associated with the programme is estimated to bring about 5 to 6 euros of benefits for EU citizens (measured through GDP impact) in the period up to 2045.**

What were the results of the simplification efforts?

Simplification of the Partnership landscape: The number and types of partnerships were significantly reduced, from 120 partnerships in Horizon 2020 down to 60 in Horizon Europe.

Beneficiaries of lump sum grants (excluding ERC Proof of Concept grants) are estimated to **typically save between 96 and 128 person-days per grant**, as financial reporting documents no longer have to be submitted. ERC Proof of Concept lump sum beneficiaries typically save 6

to 8 person-days per grant. In addition, beneficiaries of **larger lump sum grants save the cost of a certificate on the financial statements (CFS)**, which typically costs **EUR 4 500**.

At interim evaluation stage, only considering the grants that have been signed to date, **lump sum funding is estimated to already have secured savings for beneficiaries of between EUR 49.8 million and EUR 63.4 million** over their projects' lifetime (incl. ERC PoC). This is equivalent to 1.6% - 2.1% of the total grant value of lump sum grants and 14% - 30% of lump sum beneficiaries' administrative costs. The use of lump sum funding under Horizon Europe is scheduled to broaden and pick up speed in the coming years. **The potential for future simplification from lump sum funding** in the remaining years of Horizon Europe is expected to **add EUR 276 million to EUR 351 million in reporting burden reduction**.

The **blind evaluation of proposals** was proven to be feasible within the legal framework and the operational context of the R&I framework programme.

A reformed approach to the **ethics appraisal process** has brought simplifications for a large share of the proposals submitted to Horizon Europe.

The implementation of **monitoring and reporting** provisions in the Horizon Europe Regulation is partially complete. A single database (CORDA) exists and includes implementation data for all parts of the programme. Nonetheless, the central database remains incomplete in several aspects, including the EIC Accelerator and European Partnerships, because of technical issues linked to the implementation of new instruments and slow integration of data for actions managed outside of Commission IT systems. This affects the calculation of success rates and other programme statistics.

How has Horizon Europe made a difference so far?

Horizon Europe supports research that could not be funded at national/regional level, in particular collaborative actions in Pillar II involving multiple organisations from different countries, more than would be possible at national or regional level. Under Pillar I, projects support international cooperation and mobility opportunities for researchers, access to world-class research and technology infrastructures, and a drive for excellence through EU-wide competition for research funding. Horizon Europe also supports research topics and areas not covered by national and regional R&I funding programmes or where European-level action adds value in helping solve global challenges.

Additionally, the scale of Horizon Europe support is generally greater than national and regional funding: applicants that were unsuccessful in Horizon Europe and went on to look for additional funding had to reduce the scope and ambition of their projects. With its partnerships and participation in global consortia, the programme also aligns the R&I landscape in the EU and even globally, preventing duplication and addressing fragmentation by setting common strategic research agendas.

Horizon Europe brings co-investment from participants in research and innovation. To date, project participants have invested a total of EUR 10.2 billion of their own resources in Horizon Europe projects. Each euro the EU is investing in Horizon Europe R&I projects directly attracts additional R&I investments of about EUR 0.24 (almost the same as in Horizon 2020). This factor is higher for private for-profit entities: with each euro of EU contribution, Horizon Europe leveraged around EUR 0.5 in co-investment. European Partnerships, introduced to pool and align resources, have helped to increase the leverage effect of EU R&I investment and have a leverage factor of over 0.6 (EUR 7 billion as of December 2024). However, most JUs need additional activities to reach or approach an equal contribution between the EU and partners (leverage factor of 1) as private co-investment in call activities is usually not enough to match the contribution of the EU.

In European Partnerships, additional activities are activities that are not directly funded by the EU, but align with and contribute to the partnerships' objectives. Institutionalised partnerships, such as the EIT KICs and JUs, have the highest leverage factor when these activities are included, especially looking at the longer standing ones (2.83 for the first three KICs set up in 2010, and 1.76 for older JUs and Article 185 partnerships). When aggregated, additional activities constitute by far the largest source of leverage of partnerships.

The Innovative Health Initiative and EDCTP3 reported financial contributions from JU members to project activities, making 'cash' contributions to R&I expenditures. All other JUs reported that financial contributions from partners were used exclusively to cover administrative costs. This means that their cash contributions funded the running of JUs but did not contribute to the budget for the calls for proposals.

Three years in, does Horizon Europe remain relevant?

The relevance of Horizon Europe is confirmed, as private and public sector investment in R&D remains a necessary condition for strengthening Europe's competitiveness. With the framework programme's increased budget, the average success rate of proposals increased from 12% in Horizon 2020 to 16.4% in Horizon Europe. However, only 30.1% of the high-quality proposals could be funded with the available budget - an additional EUR 81.77 billion would have been needed in 2021-2024 to fund them all.

In addition, Horizon Europe showed its relevance in **responding to emergencies and changing priorities**, such as the COVID-19 pandemic and the Russian invasion of Ukraine. The first Horizon Europe call tackled the COVID-19 pandemic. Programme parts across all Horizon Europe pillars directed funding and initiatives to COVID-19 and coronavirus research and support for researchers from Ukraine.

The valorisation of R&D outputs remains a challenge: only about one-third of the patented inventions registered by European universities or research institutions are commercially exploited. The financing gap between the EU and the US is observed at all stages of development but remains more prominent in the scale-up phase. In Horizon 2020, there was a gap during the EIC Pilot stage for TRL 3-6 support as the EIC Launchpad Pilot offered only relatively small grants for bridging the 'valley of death' for organisations looking to commercialise the outputs of their research. The Transition instrument fills this gap and enabled the EIC to cover the entire TRL scale. Only the EIC Accelerator offers direct equity investment in companies with options for grant, blended finance (grant and equity) or equity-only support – this is where the EIC is unique in the framework programme. The EIT KICs are also developing innovative products and services, starting and supporting new companies. The EIT's involvement in Academies is a unique support for skills building and learning, which does not exist in other Innovative Europe programme parts. The EIT is also distinct in the sense that it is present 'on the ground' in all Member States and thus offers direct support.

International cooperation in research and innovation plays a key role for European competitiveness, building and making use of partnerships around the world. Through improved reciprocity clauses, Horizon Europe opens access to resources, know-how and scientific excellence that are developing outside the EU.

Gender equality continues to be strengthened in the programme: the 50% political commitment relating to the share of women participating in advisory and expert groups was recently met and currently stands at 51% (up from 43% in Horizon 2020). The share of women in expert evaluation panels stands at 45%, (up from 42% but still below the 50% target). The share of project coordinators who are women increased from 24% in Horizon 2020 to 31% in Horizon Europe, while the share of researchers still hovers at 38%. These results correspond to the under-

representation of women in senior academic and decision-making positions in the EU generally. However, the programme exceeds the EU average share of women researchers (34%).

Horizon Europe changed the approach to social sciences and humanities (SSH) from a cross-cutting issue to requiring all projects to take these disciplines into account when appropriate. In addition, the Commission launched dedicated SSH calls for proposals. The evaluation could not draw a conclusion on these efforts as the first monitoring report on SSH in Horizon Europe will be published in 2025.

5.2 Lessons learned

The final evaluation of Horizon 2020 identified the need to broaden participation in the programme. This interim evaluation of Horizon Europe noted increased participation in widening Member States, as well as more SMEs in some European Partnerships.

The final evaluation of Horizon 2020 flagged the need to **monitor the framework programme's contribution to EU priorities and competitiveness**. The Key Impact Pathway data for short-term indicators is reported in this evaluation SWD for the first time. For future publications and the final evaluation, the medium- and long-term indicators should also be developed and reported on. Efforts to complete the central database with data on all programme parts should continue. In addition, more attention could be paid to the monitoring and evaluation of expected effects outlined in work programmes. The lack of results indicators and targets makes it difficult to assess their contribution to addressing global challenges and European industrial competitiveness.

The **new approach taken to strategic planning and programming in Horizon Europe**, as well as the impact orientation of the programme and projects, made the process more participatory through co-creation and added new requirements in the application forms. In the future, any new layers of decision-making and engagement in programming could be preceded by a simplification of existing complex governance arrangements.

It is useful to **include emergency provisions in work programmes**, as was done by cluster 1 on health. Inclusion of emergency provisions could be considered in other parts of the programme.

Additional efforts could also **improve the monitoring of European Partnerships** as data consistency and quality varies greatly across different types of Partnerships and is affected by significant lags and inconsistencies. Integration of proposal and grant management tools of partnerships in the IT systems used for the rest of the programme should become a precondition for the launch of institutionalised and co-funded partnerships: alternative approaches have resulted in severe reporting lags and considerable administrative burden. The monitoring of in-kind contributions to partnerships – both to operational activities and as additional activities – could be improved. This would enable an assessment of whether these are already ongoing activities or planned activities of the partners and whether they create additional value, such as increased qualified employment or investment in upgrading production systems and deploying solutions. Moreover, the full list of members should be published and kept up to date by JUs and co-programmed partnerships, enabling an independent assessment of the extent to which partners are meeting their legal obligations on contributions to research activities.

The **partnerships' leverage effect** could increase if private investments were incentivised within the framework of existing partnerships in favour of concrete steps towards deployment. This could be done by using lower funding rates, which would, for example, ensure that more private funding would be put into demonstrator projects. However, expectations for leverage concern the phase after the projects are funded, the use of private investments for deployment, and other

closely related activities (such as skills and the development of standards). This follow-up phase cannot be monitored adequately at present: due to confidentiality concerns, little is known about the extent of these additional activities, which are not necessarily linked to the funded projects. Micro-level data should be collected on the contribution of Member States and international organisations to JUs and co-funded partnerships, especially the extent to which this contribution originates from shared management EU programmes, such as cohesion funds and the RRF.

EU Missions were designed as an impact-oriented new instrument in the programme's policy mix. The Horizon Europe Regulation called for the Missions to 'be targeted, measurable and time-bound and have a clear budgetary envelope' and 'impact-driven, but [have] realistic goals and on research, development and innovation activities'. Due to the monitoring framework shortcomings, it has been challenging for this evaluation to draw conclusions on Missions' progress towards their goals and the extent to which their goals were realistic in the relative short time available for implementation (2021-2030) and given their budgetary allocation (10% of the clusters' budget).

To prepare for the Horizon Europe final evaluation, all Missions could finalise their monitoring and evaluation frameworks, building on the drafts available in the implementation plans.

- Mission Cancer: explain which workstreams count to meeting the goal of 3 million people whose lives have been improved and how these will be reported and aggregated, while minimising any risk of double counting.
- Mission Ocean and Waters: progress on the assessment of the outcomes and impacts of Mission activities (notably Horizon Europe-funded projects) with respect to the Mission specific objectives and targets, as well as considering evolving policy priorities (Ocean Pact, Water Resilience Strategy).
- Mission Soil: the transition to healthy soils by 2030 should be assessed using the indicators monitored in the EU Soil Observatory Dashboard – across the whole EU territory and in the specific areas where the Mission is more active. The Mission should also draw up an approach for monitoring the contribution of its living labs and lighthouses to soil health changes.
- Mission on Climate Adaptation: publish an operational definition of 'climate resilient' regions, providing guidance on what is a climate-resilient region together with a report that can monitor progress to the Mission's goal. The Mission should also identify indicators that will enable the monitoring and aggregation of the key changes that we expect will be observed in these cities (i.e. a reduction of CO2 emissions and other effects).
- Mission Cities: define how and when the assessment of cities carrying the Mission label is conducted and where the number and list of Climate-Neutral and Smart Cities will be published.

Data on funding leveraged by EU Missions was not available for this evaluation. In the future, the Missions could jointly agree on the methodology for monitoring the 'mobilisation of the resources and leverage of additional public and private funds required to deliver their outcome', which is set out in the Horizon Europe Regulation. This could focus on resources and funds that would not have been invested in the set goals without the EU Mission, in order to assess their added value in the final evaluation.

In the field of **efficiency**, the evaluation confirms the finding of the *ex post* evaluation of Horizon 2020 that there is a potential for efficiency savings through reducing the effort and costs of applicants, as a large majority of applicants are unsuccessful.

The *ex post* evaluation of Horizon 2020 identified **dissemination and exploitation** as an area for improvement and it continues to be a challenge. The new Horizon Results Booster was launched in November 2024 to increase exploitation of Horizon Europe projects, including

through matchmaking events with potential investors. Its effectiveness should be monitored in the second half of Horizon Europe and assessed in the final programme evaluation. In particular, the IPR results of Horizon Europe projects will be monitored through the Key Impact Pathways during implementation and evaluated in the ex post evaluation of the programme.

At this stage, the lack of data on the deployment and uptake of Horizon Europe-funded R&I hampers the analysis. In relation to dissemination, exploitation and deployment, **stronger synergies** were also recognised as an important mechanism in the *ex post* evaluation of Horizon 2020. Despite specific efforts to create synergies and guide beneficiaries among the different EU programmes, this report indicates that the funding landscape is too complex. Member States could consider voluntary reporting on their funding of proposals that have been awarded a Seal of Excellence.

In **international cooperation**, multilateral activities should be further pursued with programme-level cooperation (e.g. International Rare Diseases Research Consortium, Global Research Collaboration on Infectious Diseases Preparedness for coordinating international sectoral policy development and implementation, as well as to create greater scale. Efforts could be targeted at specific countries (world leaders) and associated with stronger incentives for third-country participation (e.g. simplified rules, specific funding rates).

As recommended in the final evaluation of Horizon 2020, continued attention is needed to **support women in research and innovation**. This report notes that some improvements are visible, but gender balance has not yet been achieved. The effectiveness of gender equality plans (GEPs) could be further supported by facilitating development of compliance plans, and by strengthening enforcement by means of *ex ante* verification and regular *ex post* compliance checks.

Regarding integration of **SSH**, this could be assessed in more depth, in preparation for the final evaluation of Horizon Europe so as to identify root causes of limited integration in some cases and potential solutions. Moreover, certain actions could already be implemented, such as giving more visibility to the Net4Society NCP project⁵⁴⁷ that supports SSH integration across Horizon Europe. The project does this by organising brokerages, trainings for NCPs, and highlighting SSH research funding opportunities beyond flagged topics in Horizon Europe.

Regarding **simplification**, the evaluation recommends to pilot changes to the programme implementation through the use of small but well-designed policy experiments, that follow best practice (e.g. use randomisation to set up a treatment and control group) and are accompanied by careful monitoring and analysis. These pilots can generate a robust evidence base that can then underpin decisions on simplification measures for the wider programme.

⁵⁴⁷ <https://horizoneuropencpportal.eu/cluster-2>



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PART 2/21

COMMISSION STAFF WORKING DOCUMENT
EVALUATION

**Interim Evaluation of the Horizon Europe Framework Programme for Research and
Innovation (2021 - 2024)**

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

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Annex 1 Procedural information

The interim evaluation of the Horizon Europe programme (Decide reference: PLAN/2022/785) has been developed under the lead of DG RTD, under the guidance of the interservice steering group (ISSG) composed of 29 DGs (AGRI, BUDG, CLIMA, CNECT, COMM, COMP, DEFIS, EAC, ECFIN, ECHO, EMPL, ENER, ENV, GROW, HOME, HR, IAS, INTPA, JRC, MARE, MOVE, NEAR, OLAF, OP, REGIO, SANTE, SG, SJ, TRADE) and 5 Executive Agencies (CINEA, EISMEA, ERCEA, HADEA, REA), established in April 2022.

Preparatory activities started in April 2022 when the ISSG met to discuss the expectations of participating services, the draft call for evidence, the draft consultation strategy and the working methods of the ISSG. Following this ISSG the call for evidence was then published in July 2022 for four weeks and received 54 individual replies (presented in Annex 5). The ISSG met again in October 2022 to discuss the feedback received on the call for evidence and the draft questionnaire for stakeholder consultation.

The stakeholders' consultation was launched on 1 December 2022 and closed on 19 February 2023, having gathered 1663 replies for questions on Horizon Europe. This was followed by an online public event which was held on 29 June 2023 to complement the public consultation process on key themes that emerged prominently in the survey results namely: proposal preparation and project implementation in Horizon Europe, the balance between low and high TRLs across Horizon Europe as well as the Horizon Europe's novelties.

After the *ex post* evaluation of Horizon 2020 was completed and published in January 2024¹, the ISSG met that June to discuss the planning of the interim evaluation of Horizon Europe. In October 2024, the ISSG members provided comments on the first draft of the SWD. After addressing these comments and finalising the individual partnership evaluation reports, the full package of documents was shared with the ISSG for final comments in December 2024-January 2025. The Horizon Europe Executive Committee was consulted at the same time.

The final inter-service consultation took place between 12 and 25 March 2025.

¹ https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/shaping-eu-research-and-innovation-policy/evaluation-impact-assessment-and-monitoring/horizon-2020_en

Annex 2 Methodology and analytical methods used

The interim evaluation of Horizon Europe was coordinated by the Common Programme Analysis & Regulatory Reform Unit of the Commission's Directorate-General for Research & Innovation, with the support of: (i) a working group (the 'MEAVE' - Impact Monitoring, Evaluation and Analysis Virtual Entity) gathering together the R&I family DGs and Executive Agencies; (ii) and an interservice steering group comprising relevant Commission DGs. The interim evaluation of Horizon Europe started in 2023 and builds on: (i) a large amount of quantitative and qualitative evidence collected through a variety of methods described below; and (ii) a thorough evaluation analysis, applying triangulation of evidence from different sources, ensuring an objective and robust assessment.

Main data sources

The scope of the Horizon Europe interim evaluation covers 15 148 signed projects that closed as of 6 January 2025. Section 3 of the SWD provides data on how the situation evolved during the evaluation period since Horizon Europe was launched in April 2021 until 6 January 2025. Section 4 of the SWD provides the evaluation findings based on triangulation of evidence predating January 2025 (most external evaluation studies were carried out during 2023-2024, with programme data extracted in June/July 2023).

The analysis was based on the following data sources:

- The main source of data for the evaluation is the Common Research Data Warehouse (CORDA) Portal. The portal gathers data collected through different Commission tools, including policy monitoring at work programme level, data collected at proposal stage, grand agreement preparation and through continuous project reporting.
- Beyond CORDA, additional data were used. This was also to have comprehensive data on the whole framework programme, in particular for the EIC, different partnerships and missions (such as the EIC Impact Report², Biennial monitoring report³ on partnerships in Horizon Europe, External assessment reports⁴ of the EU Missions, the Commission Communication⁵ and Staff Working Document⁶ on the assessment of EU Missions two years on, a report⁷ of the expert group on monitoring of EU Missions, and an assessment⁸ of JRC by a panel of independent experts).

² EISMEA, Scaling Deep Tech in Europe – the European Innovation Council Impact Report 2025, https://eic.ec.europa.eu/document/download/7b947b36-66cb-4471-a2d0-158d5ae6770f_en?filename=EIC-Impact-Report-2025.pdf

³ European Commission, [Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe](#), Publications Office of the European Union, 2024

⁴ Janssen, M. and Schiele, J., [Mission A Soil Deal for Europe assessment report](#), Angelis, J. and Boski, I., [Cancer Mission assessment report](#), Kaufmann, P. et al., [Mission Climate-neutral and smart cities assessment report](#), Griniece, E. and Rantcheva, A., [Mission Restore our Ocean and Waters assessment report](#), Nauwelaers, C. and Phillips, C., [Mission Adaptation to Climate Change assessment report](#), Publications Office of the European Union, 2023

⁵ COM(2023) 457

⁶ SWD(2023) 260

⁷ Karo, E., Barajas, A., Sarvaranta, L., Antoniou, L. et al., [Commission Expert Group to support the monitoring of EU missions – Final report](#), Publications Office of the European Union, 2024

⁸ European Commission, [Interim evaluation of the activities of the Joint Research Centre under Horizon Europe and Euratom 2021-2025 – Final report of the evaluation panel](#), Publications Office of the European Union, 2023

- Evidence and analysis conducted in the ex-post evaluation of Horizon 2020⁹ and the Commission Expert Group on the Interim Evaluation of Horizon Europe.¹⁰
- External datasets such as Scopus¹¹, Orbis¹², PATSTAT¹³, Crunchbase, Dealroom, Technote, MAG/OpenAlex, PlumX, Overton, NamSor, and Unpaywall.
- Monitoring reports¹⁴ of Horizon Europe and statistical data mainly from the Commission's internal IT Tools (Horizon Dashboard), as well as Eurostat/OECD data and Horizon Europe Performance Statement.¹⁵
- Extensive quantitative and qualitative analyses on specific aspects and objectives of Horizon Europe, conducted through five external evaluation studies (with multiple reports each) by independent evaluation experts, selected using a transparent process and overseen by relevant Commission services.

Five studies covered the different impact areas of the programme:

1. Evaluation study on **Excellent science in the European framework programmes for research and innovation** – interim evaluation support study, 2024, <https://data.europa.eu/doi/10.2777/2295765>
2. **Horizon Europe and the Green Transition** – Interim evaluation support study, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/67934>
3. Evaluation support study on **Horizon Europe's contribution to a resilient Europe**, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/797281>
4. **Horizon Europe and the digital & industrial transition** – Interim evaluation support study, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/845650>
5. Evaluation study of the **European framework programmes for research and innovation for an innovative Europe** – support study for the interim evaluation of Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/499132>
6. **Synthesis study** summarizing the findings on **programme coherence and synergies** from these five impact area studies, while providing updated e-grants data analysis: Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/5616419>

The above-mentioned five studies included individual reports on the evaluation of institutionalised partnerships:

1. **Clean Aviation JU**: <https://data.europa.eu/doi/10.2777/403632>
2. **Circular Bio-Based Europe JU**: <https://data.europa.eu/doi/10.2777/636121>
3. **Clean Hydrogen JU**: <https://data.europa.eu/doi/10.2777/577004>
4. **Europe's Rail JU**: <https://data.europa.eu/doi/10.2777/3737899>
5. **The Global Health EDCTP3 JU**: <https://data.europa.eu/doi/10.2777/555121> (and its predecessor, the second European and Developing Countries Clinical Trials Partnership Programme (EDCTP2): <https://data.europa.eu/doi/10.2777/017474>)
6. Interim evaluation of the **innovative health initiative (IHI)** and final evaluation of the **innovative medicines initiative (IMI2)**: <https://data.europa.eu/doi/10.2777/918737>
7. **The Single European Sky JU**: <https://data.europa.eu/doi/10.2777/7895247>
8. **EIT Urban Mobility**: <https://data.europa.eu/doi/10.2777/9939305>
9. **EIT Climate-KIC**: <https://data.europa.eu/doi/10.2777/1601692>

⁹ SWD (2024) 29

¹⁰ European Commission, [Align Act Accelerate – Research, technology and innovation to boost European competitiveness](#), Publications Office of the European Union, 2024.

¹¹ <https://www.scopus.com/search/form.uri?display=basic#basic>

¹² <https://login.bvdinfo.com/R1/Orbis>

¹³ <https://www.epo.org/en/searching-for-patents/business/patstat>

¹⁴ [SME participation in Horizon Europe](#) (2024), [Country participation in the EU R&I FPs](#) (2024), [Fostering gender equality](#) (2025), [EU Missions](#) (forthcoming 2025)

¹⁵ Horizon Europe Performance Statement, retrieved 07/10/24 from [Horizon Europe - Performance - European Commission \(europa.eu\)](#)

10. **EIT Food:** <https://data.europa.eu/doi/10.2777/3661526>
11. **EIT InnoEnergy:** <https://data.europa.eu/doi/10.2777/5626827>
12. **EIT Health:** <https://data.europa.eu/doi/10.2777/049770>
13. **EIT KIC Manufacturing,** <https://data.europa.eu/doi/10.2777/58516>
14. **EIT KIC Raw materials,** <https://data.europa.eu/doi/10.2777/85259>
15. **EIT KIC Digital,** <https://data.europa.eu/doi/10.2777/431739>
16. **Key Digital technologies (Chips) JU,** <https://data.europa.eu/doi/10.2777/71518>
17. **Smart networks and services JU,** <https://data.europa.eu/doi/10.2777/17621>
18. **The European Metrology Programme,** <https://data.europa.eu/doi/10.2777/39988>
19. **Euro HPC,** <https://data.europa.eu/doi/10.2777/561873>

In addition, there were shorter individual evaluation reports on 20 co-programmed and co-funded partnerships which do not have a legal obligation for evaluation:

1. **European Partnership on Transforming Health and Care Systems (THCS)** <https://data.europa.eu/doi/10.2777/140226>
2. **ERA for Health,** <https://data.europa.eu/doi/10.2777/053085>
3. **European Partnership on the Assessment of Risks from Chemicals (PARC)** <https://data.europa.eu/doi/10.2777/001851>
4. **Artificial Intelligence, Data and Robotics,** <https://data.europa.eu/doi/10.2777/057832>
5. **Made in Europe,** <https://data.europa.eu/doi/10.2777/334596>
6. **Photonics Europe,** <https://data.europa.eu/doi/10.2777/711691>
7. **Process4planet,** <https://data.europa.eu/doi/10.2777/324548>
8. **European partnership for batteries (BATT4EU),** <https://data.europa.eu/doi/10.2777/1965736>
9. **Clean steel partnership,** <https://data.europa.eu/doi/10.2777/2978548>
10. **Towards zero-emission road transport (2ZERO),** <https://data.europa.eu/doi/10.2777/2828415>
11. **People-centric Sustainable Built Environment (Built4People),** <https://data.europa.eu/doi/10.2777/6054686>
12. **Zero-emission waterborne transport,** <https://data.europa.eu/doi/10.2777/2538595>
13. **Connected Cooperative Automated Mobility (CCAM),** <https://data.europa.eu/doi/10.2777/2675321>
14. **Water4all: Water security for the planet,** <https://data.europa.eu/doi/10.2777/0349316>
15. **Clean Energy Transition,** <https://data.europa.eu/doi/10.2777/2130749>
16. **Driving urban transitions to a sustainable future (DUT),** <https://data.europa.eu/doi/10.2777/7146788>
17. **European Biodiversity Partnership (Biodiversa+),** <https://data.europa.eu/doi/10.2777/9001288>
18. **A climate neutral, sustainable and productive Blue Economy,** <https://data.europa.eu/doi/10.2777/1846443>
19. **Eurostars-3,** Part of the co-funded European partnership “Innovative SMEs”, <https://data.europa.eu/doi/10.2777/308203>
20. **European Open Science Cloud (EOSC) Association,** <https://data.europa.eu/doi/10.2777/7356844>

- Data from other EU institutions, such as the Council Conclusions¹⁶ on the Ex-post Evaluation of Horizon 2020, relevant Court of Auditors’ reports, and reports/evaluations of the European Economic and Social Committee.¹⁷
- Input from the public consultation¹⁸ on the Horizon Europe interim evaluation. This consultation received input from 1 663 respondents and 136 position papers.

¹⁶ [The ex-post evaluation of Horizon 2020 and future outlook](#) - Council conclusions, 23 May 2024

¹⁷ [European Economic and Social Committee exploratory opinion](#): results and experiences of efforts to close the innovation gap in the EU in the light of Horizon 2020 and Horizon Europe; [European Economic and Social Committee recommendations](#): interim evaluation of Horizon 2020.

¹⁸ [Horizon Europe – interim evaluation \(europa.eu\)](#)

Detailed descriptions of the models and methods used in the different information sources mentioned above are available in each respective external study and internal analysis report. Below is a short overview.

Main methods used

1. Macroeconomic modelling

Measuring the full impact of R&I, i.e. capturing indirect effects on top of direct ones, is an intricate question, compounded by the often relatively long-time lags between policy initiatives and observed actual impacts. The European Commission uses complementary modelling platforms for both the ex-ante and ex-post evaluations of research and innovation policies. In this annex, macroeconomic modelling is used to quantify the economic impact of Horizon Europe in terms of GDP gain and job creation in the EU. While there is consensus that R&I is an important factor in increasing productivity, quantifying the impact of R&I policies at macroeconomic level requires modelling tools that accurately capture how R&I translates into economic gains.

There are several models available to assess the dynamic transmission channels of R&I, each with specific features. This interim evaluation uses results produced by three macroeconomic models: NEMESIS, RHOMOLO and FIDELIO. This is an interim assessment in the sense that the input data on the Horizon Europe investments are preliminary and do not yet reflect the actual disbursements during the programming period. However, the results should not be regarded as a way to exactly track and monitor the actual macroeconomic impact of the Horizon Europe interventions. This is because they rely on assumptions both on the modelling setup and on the simulation strategy adopted to simulate the investments' impact (i.e. the economic channels activated by them). NEMESIS and RHOMOLO models are publicly available in the European Commission's modelling inventory and knowledge management system (MIDAS)¹⁹, which includes, among other things, details on model structure and approach, model inputs and outputs, and spatial-temporal resolution and extent. MIDAS is managed by the Commission's Joint research Centre (JRC).

Results from NEMESIS were produced by a team of external experts, while RHOMOLO and FIDELIO results were produced by European Commission departments (the Joint Research Centre). The strength of these models lies in their distinct features. NEMESIS is considered one of the richest models covering different types of innovation and their spillovers in the economy. RHOMOLO is the most suitable model to address the geographical concentration of innovative activities and analyse regional impacts of R&I, as it models regional economies. FIDELIO tracks the indirect and induced effects across all agents, countries, and detailed industrial sectors of the economy and is therefore the most effective model to analyse sectoral impacts.

1.1. NEMESIS

Presentation of the model

NEMESIS was developed by a European consortium²⁰ in 2000 to analyse the macro-sectoral impacts of EU policies, based on R&D investments and related knowledge spillovers. The model

¹⁹ <https://web.jrc.ec.europa.eu/policy-model-inventory/>

²⁰ Lab. ERASME / Ecole Centrale Paris (now SEURECO), Federal Planning Bureau of Belgium, E3M3 lab. / ICCS /NTUA and Chambre d'Industrie et de Commerce de Paris.

became a reference tool for assessing EU and national R&I policies, and since 2004 has been used by the European Commission for several analyses. These include the assessments of: (i) the Lisbon Strategy target of 3% of EU GDP to be invested in R&D²¹; (ii) the RTD national action plan related to the Barcelona Objective²²; and (iii) the impact of European R&I programmes (*ex-ante* assessment of the 7th Framework Programme²³, of Horizon 2020²⁴, and of Horizon Europe²⁵).

Structure of the model

NEMESIS is a macro-econometric model comprising detailed sectoral models for every EU country. The representation of technical progress in NEMESIS is derived from the new growth theories, where innovations result from the investment in R&D by private firms and R&D undertaken by the public sector. In its latest version, used for the *ex-ante* evaluation of the Horizon Europe programme in 2018²⁶ and for the *ex-post* evaluation of Horizon 2020 in 2023²⁷, innovations still arise from private and public investments in R&D, but also from investments in two other complementary innovation inputs: ICT and Other Intangibles (including training and software). This improves the accuracy of assessing R&I policies by considering the most up-to-date theoretical and empirical findings of economic literature.²⁸ In that respect, NEMESIS is considered²⁹ the wealthiest model in terms of innovation types and policy elasticities compared to other standard macroeconomic models for R&D and innovation policies. Consequently, policy makers can design options for specific innovation types or channels using this model more easily.

²¹ Brécard, D., Fougereyrollas, A., Le Mouël, P., Lemiale, L. and P. Zagamé (2006), '[Macro-economic consequences of European Research Policy: Prospects of the NEMESIS model in the year 2030](#)', *Research Policy*, No 35(7), pp. 910-924.

²² Chevallier, C., Fougereyrollas, A., Le Mouël, P., and P. Zagamé (2006), '[A time to sow, a time to reap for the European Countries: A macro-econometric glance at the RTD National Action Plans](#)', *Revue de l'OFCE*, 2006/5 (No 97 bis), pp. 235-257.

²³ Delanghe, H. and U. Muldur (2007), '[Ex-ante impact assessment of research programmes: The experience of the European Union's 7th Framework Programme](#)', *Science and Public Policy*, No 34(3), pp. 169-183.

²⁴ European Commission (2013), [The Grand Challenge – The design and societal impact of Horizon 2020](#), Directorate-General for Research and Innovation.

²⁵ European Commission, Directorate-General for Research and Innovation, (2018), [A new horizon for Europe: impact assessment of the 9th EU framework programme for research and innovation](#), Publications Office.

²⁶ European Commission, Boitier, B., Le-Mouël, P., Zagamé, P., Ricci, A., [Support for assessment of socio-economic and environmental impacts \(SEEI\) of European R&I programme – The case of Horizon Europe](#), Publications Office of the European Union, 2018; J. Ravet, B. Boitier, M. Grancagnolo, P. Le Mouël, L. Stirbat, and P. Zagamé, [The Shape of the Things to Come: Ex-ante Assessment of the Economic Impact of Horizon Europe](#). Journal for Research and Technology Policy Evaluation, Vol. 47, pp. 96-10, 2019

²⁷ European Commission, Naujokaitytė, R., Stančiauskas, V., Cakić, M., Délkutė, R. et al., [Evaluation study of the European framework programmes for research and innovation for an innovative Europe – Annexes – Phase 1](#), Denham, S.(editor), Publications Office of the European Union, 2023

²⁸ Le Mouël. [Macroeconomic evaluation of EU R&I Policies: Ways and Means](#). Economics and Finance. PhD thesis, Université Côte d'Azur, 2019; U. Akcigit, C. Benedetti-Fasil, G. Impullitti, O. Licandro, and M. Sanchez-Martinez. [Macroeconomic Modelling of Innovation Policy](#). Palgrave Macmillan, 2022

²⁹ Joint Research Centre: Institute for Prospective Technological Studies, Di Comite, F. and Kanacs, d., [Macroeconomic models for R&D and innovation policies](#), Publications Office, 2015

Box 1: The innovation mechanisms in NEMESIS

Schematically, the innovation mechanisms at the level of a firm (or a sector) can be described as follows:

- Firms determine their investments in the three innovation inputs (private R&D, ICT and OI) depending on their relative costs and degree of complementarity.
- Firms' investment effort increases their knowledge (stock variable) and the knowledge of other firms and sectors nationally or internationally through the knowledge spillover matrices (knowledge transfers). For each innovation input, the knowledge stock is modelled as a weighted sum of the stock of assets, R&D, ICT or OI, belonging to all sectors and countries. The coefficients of the matrices used to build these stocks are calibrated based on patent citations between sectors and countries. These matrices combine the citations between patents allocated by technology classes and country with the OECD concordance table to allocate these citations **between sectors**³⁰. **For R&D, the knowledge stock is also influenced by the public investments undertaken by the public sector.**
- The growth of the knowledge stocks will generate innovations at a rate that is a positive function of the knowledge absorption capacity of the firm (measured by its investment intensity in each innovation input).
- Innovations take two forms: product and process. Product innovations increase the intrinsic quality of the product the firm sells, whereas process innovations improve the production process without changing the product quality (pure TFP effect).
- Product innovations directly positively impact internal and external demands; innovations reduce production costs and, in the context of a competitive market, lower their market price and increase demand.
- These dynamics at the firm or sectoral level are brought together, at the macro level, by the input-output tables of the model, and the combination of the sectoral interdependencies ("bottom-up") with the "top-down" macro-economic forces impulses, finally, the medium- and long-term dynamics of the model.

Key assumptions for the interim evaluation

There are three critical assumptions for the evaluation methodology:

1. **The programme's financing:** Does the evaluated Framework Programme rely on financing, or does the Framework Programme money come from "nowhere?"
2. **The direct crowding-in effect of the Framework Programme:** How much 1 EUR of Framework Programme will increase (decrease), i.e. crowd-in(-out), the R&I investments in the public and private organisations that receive this 1 EUR FP subsidy? Notably, besides this "direct" crowding-in effect of the Framework Programme on the R&D investments made by its beneficiaries, there is an "indirect" crowding-in effect, which refers to the additional R&D investments made by a research entity, financed by the

³⁰ D.K.N. Johnson. [The OECD Technology Concordance \(OTC\): Patents by Industry of Manufacture and Sector of Use](#). OECD Science, Technology and Industry Working Papers, 2002.

Framework Programme or not, as a response to the modification of the overall economic activity that provokes the Framework Programme (and not as the direct result of the EC financial support, as with the direct crowding-in effect). The total crowding-in is, therefore, the sum of the direct and indirect crowding-in;

3. **The economic performance or European Added Value (EAV) of the Framework Programme:** How much the performance of the R&I investments provoked by the Framework Programme, in terms of R&I outcomes, is superior to those of the R&I supports from other sources of funding, and especially national ones. The assumptions are summarised in **Table 1** for the three cases ('Low', 'Medium' and 'High'). As in the ex-ante evaluation of Horizon Europe³¹, it is assumed that the Horizon 2020 programme was financed by an equivalent reduction of public investment at the EU level. The degree of reduction in public investment in each Member State is proportional to their historical contribution to the EU budget. Depending on the success of each Member State to benefit from the Framework Programme and their relative contribution to the EU budget, there are net contributors and net beneficiaries.

Table 1: Key assumptions of the NEMESIS model

CASE	Financing	Direct effect	Crowding-in	EAV
Low	An equivalent decrease in public investments	Basic research: EUR 0 Appl. res.: +EUR 0.0 Average: +EUR 0.0		+0%
Medium		Basic research: EUR 0 Appl. res.: +EUR 0.15 Average: +EUR 0.0975		+15%
High		Basic research: EUR 0 Appl. res.: +EUR 0.35 Average: +EUR 0.2275		+20%

The three cases - for sensitivity ('Low', 'Medium', and 'High') - assume that there is no direct crowding-in and no direct crowding-out effect of the Framework Programme on basic research, the same assumption as in the ex-post evaluation of FP7³² and the survey of the dedicated literature realised for the ex-ante assessment of Horizon Europe.³³ At the same time, the (direct) crowding-in effect of the Framework Programme on applied research and the EAV of the Framework Programme vary according to case. The 'Low' case uses conservative assumptions, no direct crowding-in effect of the Framework Programme for applied research, and no EAV compared to

³¹ European Commission, Boitier, B., Le-Mouël, P., Zagamé, P., Ricci, A., [Support for assessment of socio-economic and environmental impacts \(SEEI\) of European R&I programme – The case of Horizon Europe](#), Publications Office of the European Union, 2018; J. Ravet, B. Boitier, M. Grancagnolo, P. Le Mouël, L. Stirbat, and P. Zagamé, [The Shape of the Things to Come: Ex-ante Assessment of the Economic Impact of Horizon Europe](#). Journal for Research and Technology Policy Evaluation, 2019, Vol. 47, pp. 96-10

³² European Commission: Directorate-General for Research and Innovation, [Assessment of the Union added value and the economic impact of the EU Framework Programmes – Final report](#), Publications Office, 2017

³³ European Commission, Boitier, B., Le-Mouël, P., Zagamé, P., Ricci, A., [Support for assessment of socio-economic and environmental impacts \(SEEI\) of European R&I programme – The case of Horizon Europe](#), Publications Office of the European Union, 2018

national funding, delivering a low bound for evaluating the impacts. This ‘Low’ case uses similar assumptions to the ex-ante evaluation of Horizon Europe done by DG ECFIN with the QUEST III model.³⁴ For the ‘Medium’ case, the direct crowding-in effect of the Framework Programme on applied research is 0.15 EUR, following the median value from the literature review realised for the ex-ante assessment of Horizon Europe.³⁵ Economic performance, +0.15% for the EAV, has also been used by NEMESIS as a central assumption since the ex-ante impact assessment of Horizon 2020³⁶ and based on the evaluation of past FPs. In the ‘High’ case, the value of EUR 0.35 for the direct crowding-in effect of the Framework Programme on applied research is implemented as for the ex-post evaluation of the Horizon 2020 programme. This value was recently supported by the Phase II results from the OECD Microberd+ project³⁷, which found an average marginal additional effect of direct support to private R&D in OECD at +EUR 0.48, with a 90% confidence interval: [+EUR 0.30 - +EUR 0.66]. Retaining the (conservative) lower value of the confidence interval and adding +EUR 0.05 from the literature³⁸ on the additional crowding-in effect of EC direct R&D supports compared to national R&D supports, ends therefore on this +EUR 0.35 value. For the EAV, we assumed +20% that comes out of the microanalysis done for the ex-post evaluation of FP7.³⁹ It can indicate that the +15% used in the past may be too conservative. An EAV of +20% compared with national funding was based notably on the following findings:

- For FP7 comparing SJR (Scientific Journal Ranking), it comes out that the publications produced in Framework Programme projects were published in higher impact journals than non-FP publications published by the same authors who participated in EU-funded projects from 2007 to 2015. It represents a higher scientific impact of about +21%.
- According to the analysis of FP7 survey data, the EU FPs' research teams were around 40% more likely to be granted patents or produce patent applications and 25% of funded research units produced at least one IPR output in 2015 compared to 18% for non-funded units.
- For FP7, the patent analysis shows that the patents produced in the FPs were of higher quality and likely commercial value than similar patents made elsewhere. One of the most often used indicators for a patent's value is the number of citations it received from other patents, and the analysis found that FP7 patents were cited significantly more from the control sample (randomly selected non-FP sample) with a higher score of about +70%.

³⁴ J. Ravet, B. Boitier, M. Grancagnolo, P. Le Mouël, L. Stirbat, and P. Zagamé, [The Shape of the Things to Come: Ex-ante Assessment of the Economic Impact of Horizon Europe](#). Journal for Research and Technology Policy Evaluation, 2019, Vol. 47, pp. 96-10

³⁵ European Commission, Boitier, B., Le-Mouël, P., Zagamé, P., Ricci, A., [Support for assessment of socio-economic and environmental impacts \(SEEI\) of European R&I programme – The case of Horizon Europe](#), Publications Office of the European Union, 2018

³⁶ European Commission (2013), [The Grand Challenge – The design and societal impact of Horizon 2020](#), Directorate-General for Research and Innovation.

³⁷ OECD. [The impact of R&D tax incentives: Results from the OECD microBeRD+ project](#). OECD science, technology and industry policy papers. October 2023. N° 159.

³⁸ European Commission, Boitier, B., Le-Mouël, P., Zagamé, P., Ricci, A., [Support for assessment of socio-economic and environmental impacts \(SEEI\) of European R&I programme – The case of Horizon Europe](#), Publications Office of the European Union, 2018

³⁹ European Commission: Directorate-General for Research and Innovation, [Assessment of the Union added value and the economic impact of the EU Framework Programmes – Final report](#), Publications Office, 2017

- FP7 patents cited non-patent literature +11% more often than non-FP patents, suggesting that FP patents are likely to be of higher technological value and more likely to be based on cutting-edge scientific knowledge.

Finally, **Table 2** reports the assumptions underlying the precise outline of the framework programme budget, its annual layout, and the distribution of the Commission contribution between basic and applied research, Member States and the different economic activities.

Table 2: Horizon Europe budget and its repartition

HE budget (EC contribution, in constant million € 2020)	Average duration of HE projects (in years)	Repartition between basic and applied research	Geographical allocation of funds	Sectoral allocation of funds
Reduced by 7.6% in constant terms compared to what was assumed in 2020, due to inflationary crisis	3	Basic: 38% Applied: 62%	Based on eCorda	Based on CORDA data and Orbis for private companies

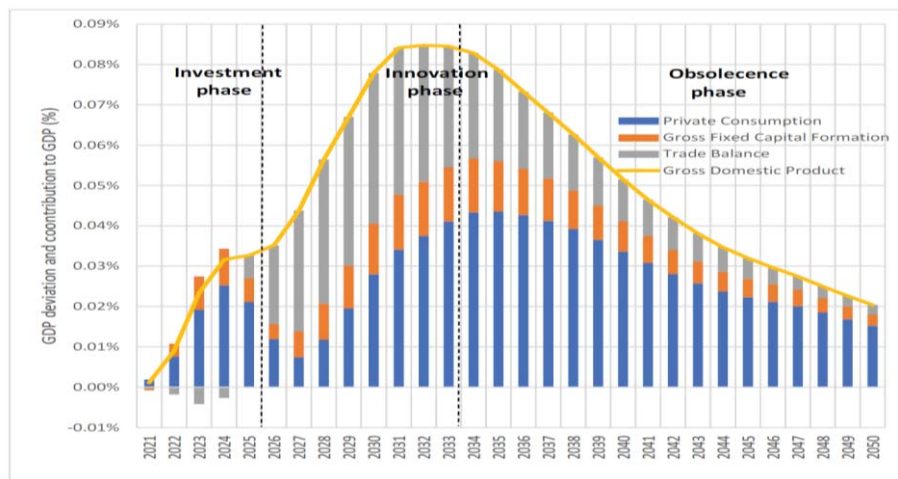
The data used for NEMESIS go up to 10 June 2023, with 9,457 projects signed for EUR 24,732 billion of EC contribution. Out of a total budget of 24.732 billion of EC contribution, only 22,841 billion was retained in the study. This was done by subtracting the part of the EC contribution that benefits countries outside the EU-28. In the model, EC funding is implemented in constant euros. Consequently, the Horizon Europe budget decreases from EUR 22.8 billion to only EUR 17.8 billion when converted from current euros to constant euros of 2020. In addition, the current inflationary crisis has an important impact on the Horizon Europe budget measured in euro constant 2020. Consequently, the budget implemented in NEMESIS was reduced by 7.6% in constant terms compared to what was assumed when the Horizon Europe budget was adopted in December 2020. The average duration of the financed project was estimated to be about three years. The split between basic and applied research was 38% for basic and 62% for applied. This distribution was determined by assuming that the EC contribution benefiting public bodies and higher education institutions finances basic research, with the remaining portion allocated to applied research. The geographical allocation of the funds was based on eCORDA. Finally, the Horizon Europe budget was introduced at a sectoral level in NEMESIS by considering that the basic research is performed by the public sector and the applied one by the private sector, with a sectoral repartition based on CORDA data and Orbis for private companies.

Results

This section provides an overview of the results of the interim evaluation of Horizon Europe, covering Horizon Europe financing engaged from January 2021 to June 2023 and for Horizon Europe only, i.e. isolated from FP7 and Horizon 2020. The results are displayed for the ‘Medium’ case, where the assumptions retained for the direct crowding-in effect and the EAV of Horizon Europe have medium values. The results indicate that Horizon Europe produces positive effects on GDP. **Figure 1** displays the results from the simulation across three main phases: *Investment*,

*Innovation and Obsolescence.*⁴⁰ The GDP gains, although limited during the *investment* phase, are about +0.02 of GDP percentage points (GDP ppt) on average between 2021 and 2025. During these first years, the programme's positive effects on GDP come mainly from its crowding-in on the R&D investments by Framework Programme's beneficiaries. The programme is financed by an equivalent cut in public investments in Member States, but the crowding-in effect induces a net positive impact on investment at the macroeconomic level. Compared to other forms of investments, the high and direct content in the labour of R&D investments also raises households' income and final consumption, where the main GDP gains originate during this first phase. There are, in return, inflationary pressures that deteriorate the external balance during the first four years of simulation. Still, the situation begins to ameliorate in 2024, with the arrival of the first *innovations* that the programme has financed. The GDP gains increase reaching a maximum annual average of about +0.085 ppt in 2031 up to 2033, and an average of about +0.067 ppt in 2026-2033. Finally, after 2033, the reduction in R&D investments induced by Horizon Europe after 2025, along with the gradual *obsolescence* of the new knowledge and innovations it has contributed to create, gradually offsets the GDP gains. The external balance (and investment) remains positively impacted by the programme from 2033 to 2050. Nevertheless, final consumption emerges as the primary contributor to GDP gains, with a growing relative contribution during this obsolescence phase.

Figure 1: The impact of Horizon Europe on EU GDP and its components



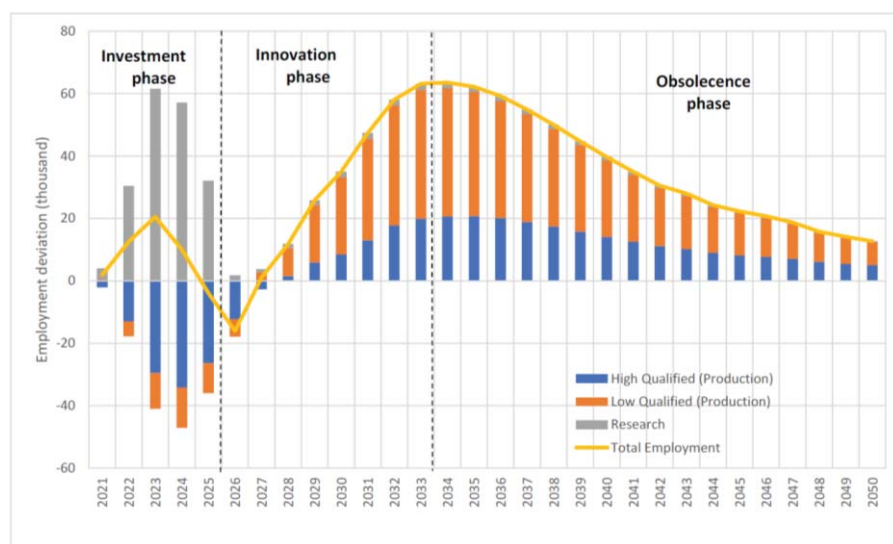
Source: Innovative Europe Annex, NEMESIS simulation, p. 430

Positive effects are observed also on the employment level. As reported in **Figure 2**, the *Investment* phase is characterised by a significant increase in the number of persons employed in the research sector, with the creation of up to 60,000 jobs in research by 2023-2024. There is, in return, a fall in highly qualified employment in production activities. Doctors, engineers, and technicians employed by research entities are scarce in the labour market of highly qualified workers. Thus, the rise in qualified workers wages reduces the overall demand for this category of workers. Similarly, but to a much lower extent, low-qualified employment declines slightly. This crowding-

⁴⁰ For simplicity, the three phases follow each other chronologically in the figures, but in reality they overlap.

out effect of research employment on production employment means that total employment increases only very slightly in this first phase. During the *Innovation* period, Horizon Europe funding and investment in research goes down and research employment stabilises by about +1,650 between 2026 and 2033, compared to the reference scenario. Research employment does not crowd out any more research employment, and the market deployment of the provoked innovations leads to large job creation in every economic sector. On average, in 2026-2033, the gain in total employment is about +28,000, with +1,650 for research employment and +6,440 and +20,181 for high and low-qualified jobs, respectively. During the *Obsolescence* phase, similarly to GDP, the employment gains decrease gradually from +64,000 in 2034, at their maximum, to +13,000 in 2050.

Figure 2: The impact of Horizon Europe on employment



Source: Innovative Europe Annex, NEMESIS simulation, p. 431

In addition to ‘medium’ case of Horizon Europe only, effects on GDP and employment were also simulated using NEMESIS model for the case where Horizon Europe – covering financial engagement from January 2021 to June 2023 – is considered altogether with the two past FPs (FP7 and Horizon 2020) and compared with ‘low’ and ‘high’ case.⁴¹

Limitations of the model

While NEMESIS’ strengths justify its relevance when measuring the impact of R&I policies, the model’s specific features also imply a number of limitations to be considered when interpreting the results. First, the model relies on the empirical observation of relationships and allows for flexibility in behavioural functions, which may generate inconsistencies between the most recent

⁴¹ European Commission, Naujokaitytė, R., Cakić, M., Didžiulytė, M., Zharkalliu-Roussou, K. et al., [Annexes for the evaluation study of the European framework programmes for research and innovation for innovative Europe – Phase 2 – Supporting the interim evaluation of Horizon Europe](#), Publications Office of the European Union, 2024, p. 429 – 462.

developments in macroeconomic theory. Furthermore, it uses adaptive expectations rather than forward-looking ones. NEMESIS also does not link the use of human capital with investments in the educational system.

1.2. RHOMOLO

Presentation of the model

RHOMOLO⁴² is the macroeconomic model of the European Commission focusing on EU regions. It has been developed and maintained by the Joint Research Centre, in cooperation with the Directorate-General for Regional and Urban Policy. It is used for policy impact assessment and provides sector-, region- and time-specific simulations on investments and reforms covering a wide array of policies. RHOMOLO is built on a micro-founded general equilibrium approach and is used to provide a breakdown of results by region and sector.

Structure of the model

RHOMOLO is a spatial dynamic computable general equilibrium (CGE) model with new economic geography features.⁴³ The version of the model used for this evaluation covers 276 NUTS 2 regions of the EU and the UK. Each region contains ten economic sectors operating under monopolistic competition (with the exception of agriculture and public services, which operate under perfect competition). Regional goods are produced by combining labour and capital with domestic and imported intermediate inputs. Public capital enters the production function as an unpaid factor.

Final goods are consumed by households, government and investors. Each region is inhabited by a representative household, which supplies labour of three skill types, consumes and saves part of its income. The government collects taxes, purchases public consumption goods, invests in the economy and transfers resources to the various agents in the economy. Goods and services can either be sold within the domestic economy or exported to other regions. Trade between regions is associated with a set of bilateral regional transport costs.⁴⁴ The RHOMOLO model incorporates imperfect competition in the labour market and allows for unemployment. Wage formation is assumed to follow a wage curve specification⁴⁵, which implies that lower unemployment increases workers' bargaining power and thus real wages.

The RHOMOLO model includes two types of capital: sector-specific private capital and public capital. The latter is accumulated by the government through public investment, and it is considered an unpaid factor of production freely available to firms in all sectors within each

⁴² Christou, T., Crucitti, F., García Rodríguez, A., Lazarou, N.J., and Salotti, S. (2023), 'The RHOMOLO ex-post impact assessment of the 2014-2020 European research and innovation funding programme (Horizon 2020)', JRC Working Papers on Territorial Modelling and Analysis, No. 01/2024, European Commission, Seville, JRC133690.

⁴³ Lecca, P., Barbero, J., Christensen, M.A., Conte, A., Di Comite, F., Díaz-Lanchas, J., Diukanova, O., Mandras, G., Persyn, D., and Sakkas, S. (2018). RHOMOLO V3: A spatial modelling framework. JRC Technical Reports JRC111861, EUR 29229 EN, Publications Office of the European Union, Luxembourg.

⁴⁴ Persyn, D., Díaz-Lanchas, J., and Barbero, J. (2022). [Estimating distance and road transport costs between and within European Union regions](#). Transport Policy 124, 33-42.

⁴⁵ Blanchflower, D.G., and Oswald, A.J. (1995). [An introduction to the wage curve](#). Journal of Economic Perspectives 9(3), 153-167.

region.⁴⁶ Public capital is subject to congestion⁴⁷, so its efficiency declines as production increases, and the elasticity of output to public capital is set to 0.08.⁴⁸ Sector-specific private capital is accumulated by private investors. The investment-capital ratio is a function of the rate of return on capital and the user cost of capital, allowing the capital stock to reach its desired level smoothly over time.

Box 2: How RHOMOLO models innovation

- R&D expenditure is modelled as private investment. Therefore, R&I expenditure generates demand for capital goods. In addition, R&I expenditure leads to the accumulation of an intangible knowledge capital stock, which has a positive effect on total factor productivity (TFP).
- Public spending to support R&I is introduced into the model as a reduction in the user cost of capital, which in turn generates an increase in private investment.
- The impact of R&I spending on TFP through the accumulated stock of knowledge capital is captured by a set of regional elasticities, ranging between 0.01 and 0.04, that are positively related to regional research and development (R&D) intensity.
- The intuition is that firms in regions that already spend a lot on R&D signal their pre-existing capacity to generate value from innovation activities. The range of R&D elasticities is between 0.01 and 0.04, which is in line with the existing literature⁴⁹ on this topic.
- Expectations are assumed to be myopic and the model is solved sequentially, with stocks being updated at the start of each period. For this particular exercise, capital mobility within the EU was assumed, but no labour mobility.

Key assumptions for the interim evaluation

The RHOMOLO analysis covered the investments made under Horizon Europe programme between 2021 and 2024. The data related to these investments was based on the CORDA database, in monetary terms by NUTS 2 region and by year, and include only projects signed before 1 July 2024. The key assumptions retained for the simulation of the results are summarised in Table 3.

⁴⁶ Barro, R.J. (1990). [Government spending in a simple model of endogenous growth](#). Journal of Political Economy 98(5), S103-S125; Baxter, M., and King, R.G. (1993). [Fiscal policy in general equilibrium](#). American Economic Review 83(3), 315-334.

⁴⁷ Fisher, W.H., and Turnovsky, S.J. (1998). [Public investment, congestion, and private capital accumulation](#). The Economic Journal 108(447), 399-413.

⁴⁸ in line with the findings by Bom, P. R., and Ligthart, J. E., (2014). [What have we learned from three decades of research on the productivity of public capital?](#) Journal of Economic Surveys 28(5), 889-916, and the modelling choices made by Pfeiffer, P., Varga, J., and in 't Veld, J., (2021). [Quantifying spillovers of Next Generation EU investment](#). European Economy Discussion Papers no. 144, July.

⁴⁹ Männasoo, K., Hein, H., and Ruubel, R. (2018). [The contributions of human capital, R&D spending and convergence to total factor productivity growth](#). Regional Studies 52(12), 1598-1611.

Table 3: Key assumptions for the RHOMOLO model

Key assumptions	
Budget size and allocation	The total amount of funding examined is €33,890,389,958
Support to basic vs applied research	It is assumed that 30% of the funding are allocated to basic research and 70% to applied research
Regional spillovers	Regional spillovers in the model are related mainly to trade flows and interregional capital mobility.
Direct leverage effect	European applied research funds crowd in additional private investment (+15%)
Economic performance	The output elasticity of public capital accumulated thanks to Horizon Europe (EU funding) is 15% higher than the standard elasticity (national funding). The same is true for the Total Factor Productivity elasticity of private investment funded by Horizon Europe.
Financing	Lump sum
EU Added Value	To account for the added value of the EU-level instruments, a 15% increase was applied to the output elasticity of the additional public capital accumulated thanks to the Horizon Europe funds and to the TFP elasticity of private investment.

Firstly, it is assumed that 30% of the funding are allocated to basic research and 70% to applied research. The funds allocated to public bodies and higher education institutions are considered as basic research and the rest as applied research (a similar split had also been used in the ex-post evaluation of Horizon 2020).

In RHOMOLO, basic research funding is simulated via an increase in public investment, which leads to a temporary increase in the public capital stock of the regions (which depreciates at a rate of 5% per year). Due to the role of public capital in the production function, in addition to the demand-side effect of increased (public) investment, this increases the productivity of firms.

It is assumed that the applied research funds reduce the user cost of capital, leading to an increase in private investment. This is a demand-side effect that also leads to a temporary increase in the private capital stock (which depreciates at an annual rate of 15%). Based on the NEMESIS assumption regarding leverage, the change in the user cost of capital is calibrated so that the European applied research funds crowd in additional private investment (+15%). It is also assumed that this R&I investment leads to an increase in TFP, subject to an annual depreciation rate of 5% and with an elasticity that depends on the R&D intensity.

Based on the evidence⁵⁰ and to be consistent with the NEMESIS analysis, the output elasticity of the additional public capital accumulated thanks to the Horizon Europe funds was increased by 15%, and the TFP elasticity of private investment was also increased by 15% to account for the added value of EU-level investments that lead to economies of scale and scope and increased cooperation between institutions.

Finally, it is assumed that the policy is financed by lump-sum transfers. In order to mimic the financing of the EU budget, regional contributions are proportional to the GDP weight of each

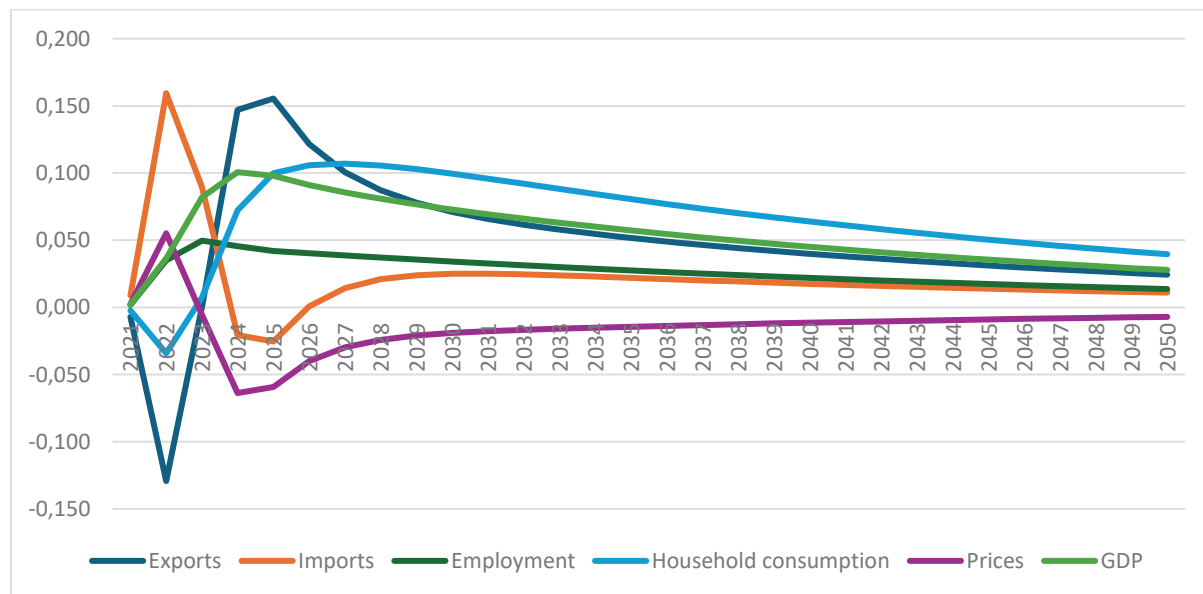
⁵⁰ Mitra, A., Canton, E., Ravet, J., and Steeman, J.T. (2024). [The added value of European investments in research and innovation](#). Publications Office of the European Union, 2024

region in the EU GDP. In other words, a region does not necessarily have to finance the policy with a contribution equal to the amount of Horizon Europe earmarked for the region itself, but instead the contribution depends on the share of EU GDP generated in the region.

Results

The impact on GDP increases steadily over the implementation period, peaking at +0.10% in 2024. It then gradually declines as the simulated monetary injection ends, the increased private and public capital stocks depreciate and the temporary increase in TFP fades. In 2050, the residual effects of the policy are relatively small, as GDP is 0.03% above its initial level. The policy injection also leads to improvements in employment, whose impact peaks at +0.05% in 2023, amounting to about 94,600 persons (the total number of persons employed in the EU in the reference year of the model (2020) is 190 million).

Figure 3: Horizon Europe (2021-2024) impact over time on selected macroeconomic variables (EU27)



Source: JRC - RHOMOLO simulations.

The other variables presented in Figure 3 show that the Horizon Europe injections lead to an initial deterioration in the EU's trade balance with the rest of the world, as imports increase and exports decrease in the early years of the simulation. This is due to the initial increase in demand caused by the policy injection and the subsequent increase in prices (measured here by the changes in the GDP deflator). Competitiveness then improves, leading to a fall in the price level, with a positive impact on exports and hence on the trade balance.

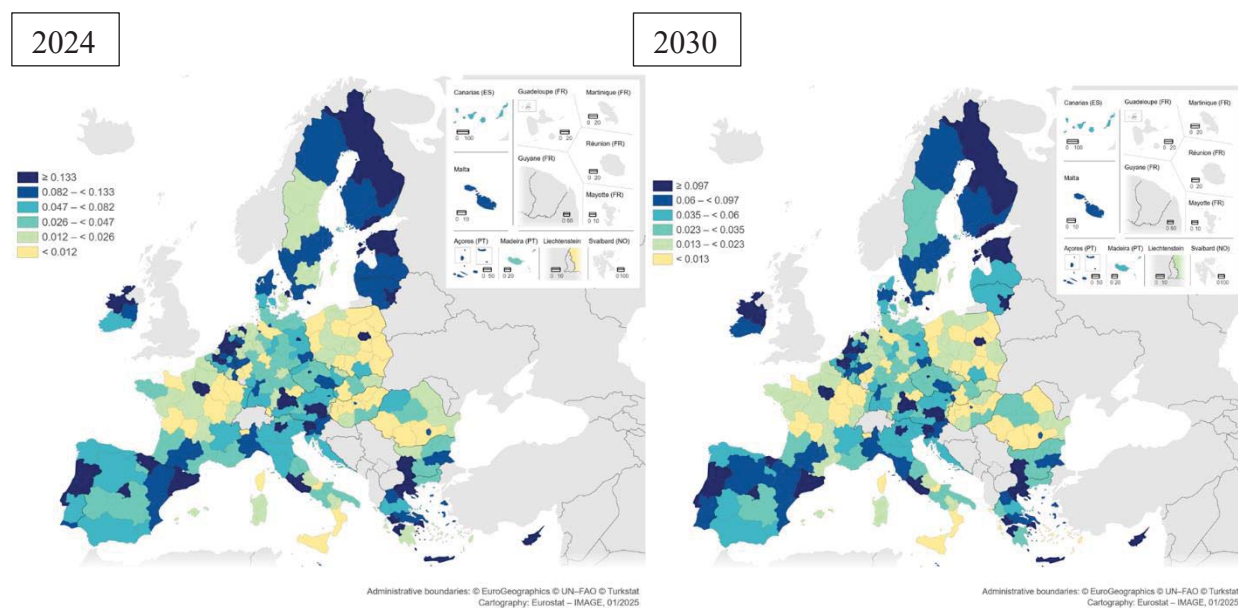
Figure 4 presents the territorial distribution of the GDP impact of Horizon Europe investment, expressed as percentage deviations from the baseline (i.e. a hypothetical scenario without Horizon Europe) in 2024, 2030, 2034 and 2050. The impact on GDP in 2024 is stronger in the regions targeted by the Horizon Europe policy. For example, the macroeconomic impact of the policy is relatively high in the Scandinavian regions, Central Europe and the Iberian Peninsula. Moreover, in most countries the capital regions benefit more than the other regions, which is particularly

evident in countries such as Poland, the Czech Republic, Slovakia, Hungary, Bulgaria, and Romania.

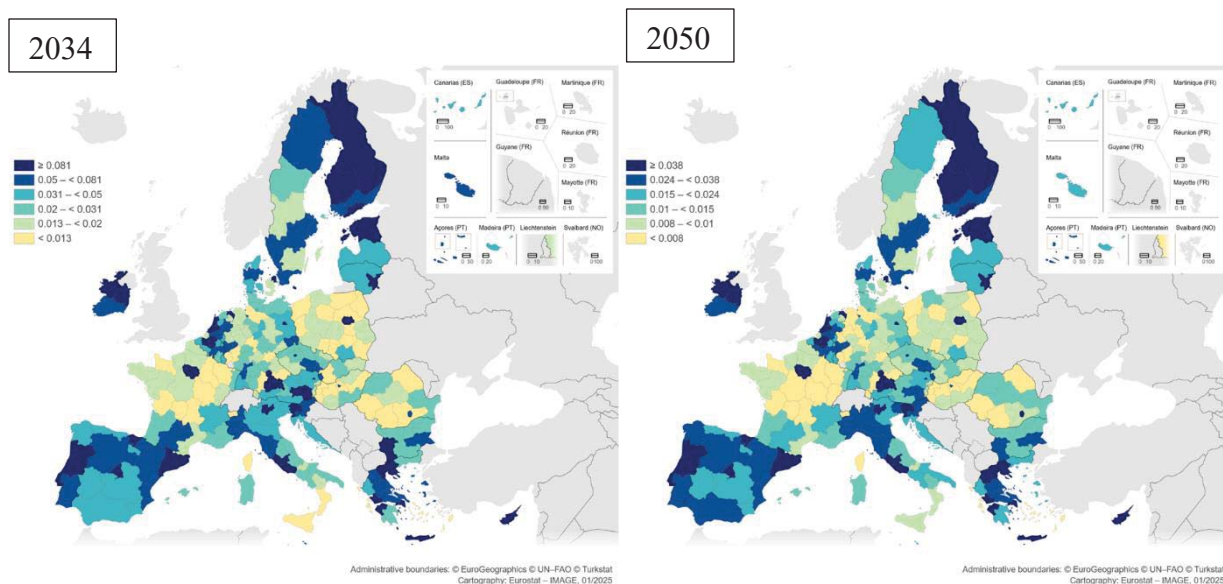
Over time, in countries such as Spain, Italy, France, Germany and Poland, the effects gradually spill over to regions receiving relatively less Horizon Europe funding (2021-2024). However, this does not seem to be the case in all EU countries, as the effects remain mostly concentrated in the richest regions, which are also the capital regions in Hungary, Bulgaria and Romania. This last finding is not entirely surprising: investments in the capital regions show little spillover to the peripheral regions, because the trade flows of the richest regions are mostly with regions abroad and therefore investments there do not stimulate production in the neighbouring regions of the same country.⁵¹

Overall, the magnitude of the impact decreases across the board, due to the temporary nature of the investments and the assumed depreciation rates of the temporarily increased private and public capital stocks, as well as the decay rate of the TFP improvements.

Figure 4: Territorial distribution of the GDP impact of the Horizon Europe funds (2021-2024) in 2024-2050



⁵¹ Barbero, J., et al. (2024). [A spatial macroeconomic analysis of the equity-efficiency trade-off of the European cohesion policy](#). Spatial Economic Analysis 19(3), 394-410.



Source: JRC - RHOMOLO simulations.

Limitations of the model

The results presented above assume that all funds allocated through Horizon Europe are used efficiently and activate the economic channels used in the model to simulate their impact. Also, the timing assumption is that the funds start affecting the economy as soon as the projects are signed, but it is realistic to expect delays in terms of deployment of the money with respect to the date of project signature. The distinction between basic and applied research can be considered as a strong assumption, in particular due to its homogeneity across EU regions. Finally, the results are inevitably affected by the parameterisation of the shocks used to simulate the impact of the policy (including the elasticity used to govern the changes in TFP brought about by the Horizon Europe investments or the output elasticity of public capital). The uncertainty of results is limited by using values that are consistent with the existing literature on the subject.

1.3. FIDELIO

1.1 Presentation of the model

FIDELIO is a macroeconomic model developed by the Joint research Centre of the European Commission to analyse at industrial level how investment grants stimulate growth in the EU economy. The model simulates the impact of R&I funding by incorporating R&D expenditures as secondary activities within a wide range of industries (64), and disentangles the Gross Expenditures in R&D (GERD), by institutional sectors (BERD, GOVERD, HERD), by NACE industry and country-wise economic effects. With its granularity in terms of economic sectors and its ability to capture sectoral spillover and dependency effects, it provides valuable insights for policy impact assessment.

Structure of the model

FIDELIO is a Multi-sector Dynamic General Equilibrium economic model, designed for policy impact assessment, providing industrial-, country-, and time-specific simulations. The model

compares counterfactual and baseline equilibriums to assess interaction effects between economic agents.

As an Input-Output model, FIDELIO is able to capture all sectoral spillover and dependency effects of any policy under analysis due to its granularity in terms of economic sectors and regions. In fact, FIDELIO describes 64 economic sectors, and is a multi-regional model, describing agents' choices in 41 countries (27 + 1 EU countries and 13 non-EU countries). The model also captures how a policy can change trade balances, relative prices and comparative advantage in the international trade arena.

To produce, firms use four production factors: capital, labour, energy intermediates, and non-energy intermediates or materials. From the production processes, firms pay the cost of the other factors of production (labour and capital) to households and to the government. Goods and services can either be sold within the domestic economy or exported to other regions. Households receive their income through wages, a share of the gross operating surplus, property income and the governmental and non-governmental transfers. Household income, net of taxes and social security contributions, is used to consume or to save.

The Government raises its revenue from five main sources: operating surplus that goes to the government, production taxes, taxes less subsidies on products, social security contributions and taxes on household income. This revenue is then used to finance the government interest, the government capital formation, the government transfers to the households, and the government consumption that is another component of the total demand. The budget balance is calculated as the difference between government revenues and expenses, and it determines the variation in public debt.

Box 3: Modelling of R&I activities in FIDELIO

- FIDELIO is an Input-Output model that includes some of the most important properties of endogenous growth theory (innovation and knowledge spillovers) to simulate the potential effect of R&D subsidies on economic growth. In this sense, two types of economic effects are expected.
- The first effect refers to the rippling effect throughout the economy brought about by spending on R&I. This is called the Keynesian multiplier effect and occurs with spending on any type of product. The allocation of inputs to the R&D process are reflected in enlarged levels of future output of economic sectors from one period to another. That is, incremental changes in direct input coefficients, productivity growth and changes of R&D capital-output intensities.
- The second effect is the increase in productivity due to technical progress and only occurs through spending on R&D. This is called the return on R&D. This is part of the dynamics of the model introduced in a second stage, in which the sectoral interlinkages are modelled on the values that are assumed to be exogenous at the beginning of the next period(s). Current decisions regarding R&D expenditures shape future production functions and investment decision, thus, additional value added by country and sector is included in the investment trajectory as a future expenditure in R&D. Consequently, R&D funds, which are considered exogenous to the short-run decision process, can be fed into the system and long-term effects of parameter changes can be studied.

- The modelling approach is sequential since, at the beginning of each period (first stage), the industries have to decide on their current period R&D inputs on the basis of their previous output levels and the prevailing production functions in their R&D sector. The complete set of these short-run equations yields current output, R&D, employment and final demand levels (static input-output model in each period).

Table 4: Key assumptions for the interim evaluation

FIDELIO	Key assumptions
Budget size and allocation	The total amount of funding examined is €33,884,503,833
Support to basic vs applied research	It is assumed that 30% of the funding is dedicated to basic research, specifically in the NACE M72 category from the BERD sector, 30% to the HERD sector, 3% to the GOVERD sector, and the remaining 37% is allocated to applied research, covering the remaining BERD sector categories.
Regional spillovers	Country spillovers are primarily linked to trade flows at the industry level.
Direct leverage effect	European applied research funds crowd in additional private investment (+17%)
Economic performance	It is assumed that BERD, HERD, and GOVERD sectors display varying degrees of Value-Added elasticities due to the industries' distinct contributions to the economy. The average value at the European level for Business R&D performance, focused on nurturing innovation and productivity within industries, exhibits a 3.5% elasticity to the economy. On the other hand, Public R&D performance demonstrates a higher responsiveness. HERD, emphasizing human capital development and knowledge generation, boasts a 6.1% elasticity, while GOVERD, which funds basic research, exhibits a 3.6% elasticity.
Financing	Lump sum
EU Added Value	EU R&I investment is not modelled as generating an increased sectoral performance compared to national or regional R&I investment.

In FIDELIO modelling, both basic and applied research are funded. For basic research in the BERD sector, the sectoral R&D activities are embodied in the coproduction of product “CPA-M72 - Scientific research and development services” on the supply side. The coproduction of product M72 increases according to the allocation of Horizon Europe funding by country and by sector.

In terms of the effect of innovation, all three types of expenditure (BERD, HERD, and GOVERD)⁵² contribute to fostering innovation. BERD drives innovation within the private sector,

⁵² Gross Expenditures in R&D encompasses the total expenditure on R&D across all sectors of the economy, including higher education, business enterprises, and government. HERD refers specifically to R&D spending by higher education institutions, such as universities and colleges. BERD pertains to R&D expenditures made by private businesses and companies, while GOVERD refers to the R&D investments made by government entities or public sector organizations.

HERD supports the development of innovative ideas and human capital in higher education institutions, and GOVERD ensures the funding of long-term, basic research, and strategic R&D priorities. Together, these expenditures create a synergistic effect that promotes technological advancements, economic growth, and societal well-being.

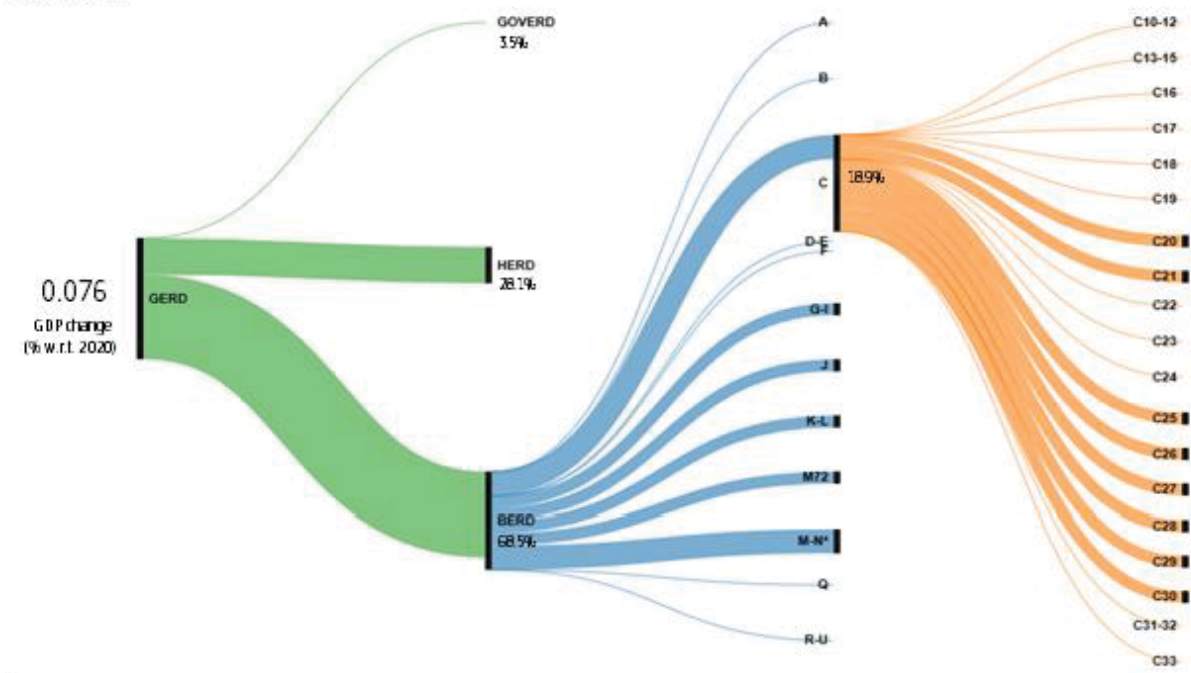
Results

The impact analysis of Horizon Europe using the FIDELIO model demonstrates a positive effect on the European economy, particularly in the manufacturing sector. In particular, simulations results indicate that investments in R&D contribute to consistent GDP growth throughout the policy implementation period, with the GDP being 0.08% higher than the 2020 baseline scenario in 2023. The GDP multiplier increases over time, as the impact on GDP remains positive throughout the simulation period, while the policy shocks are confined to the initial four years. As the policy implementation nears its conclusion, the multiplier gradually approaches 1 and eventually surpasses 1.6 by the end of the programming period in 2027. The supply-side effects of the policy contribute to its continued rise, leading the multiplier to exceed 4.7 in 2050.

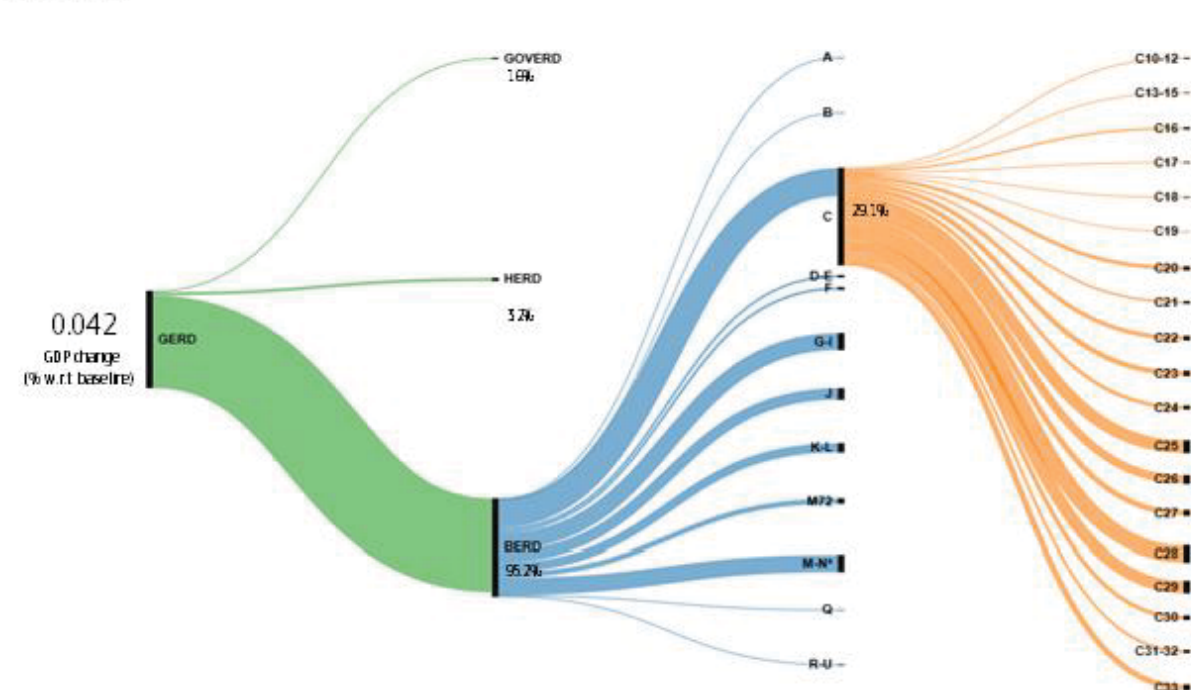
The impact of Horizon Europe funds on the EU can be broken down by institutional sector (HERD, BERD, GERD) and by industry (NACE codes). In 2023, within the EU, 68.5% of the impact is directed towards BERD, followed by 28.1% towards HERD, while the impact on GOVERD is relatively small (3.5%). Following the Sankey diagram in Figure 5, the disaggregation of the impact on BERD by industry can be visualized. The impact on the manufacturing sector (C) stands out, with the top benefiting sectors being machinery and equipment (C28), computer, electronic, and optical products (C26), motor vehicles, trailers, and semi-trailers (C29), and fabricated metal products (C25). The positive effects on innovations gains, in the BERD sector investments contribute to substantial GDP gains following the conclusion of the four-year intervention period.

Figure 5: Horizon Europe impact on EU, by institutional sector and industry.

Year: 2023



Year: 2030



Source: FIDELIO simulations, JRC.

Limitations of the model

Similarly to the RHOMOLO model, the results presented above assume that all funds allocated through Horizon Europe are used efficiently and activate the economic channels used in the model

to simulate their impact. Also, the timing assumption is that the funds start affecting the economy as soon as the projects are signed, but it is realistic to expect delays in terms of deployment of the money with respect to the date of project signature. The results are also affected by the assumed sectoral value-added elasticities (for BERD, HERD and GOVERD) which are the key parameters in the simulation of the impact of sectoral R&D performance on the economy. The uncertainty of results is limited by using values that are consistent with the existing literature on the subject.

Analysis of monitoring data

Monitoring flashes⁵³ on Horizon Europe, presenting internal analysis on specific topics of interest, were also used to feed into the evaluation report.

2. Documentary review / desk research

Extensive desk research was conducted to ensure background information, as well as to provide evidence that was then triangulated with other sources of information to draft the answers to the evaluation questions. Documents reviewed included legal texts, strategic documents, previous evaluations and policy analyses.

3. Analysis of unstructured data

The following types of unstructured analyses were carried out: text mining to detect patterns and trends relating to sustainability practices in MSCA research⁵⁴, to analyse how different parts of Horizon Europe contributed to SDGs and to new or fast-growing research and innovation topics.⁵⁵

Limitations of SDG analysis

Direct comparison of EU contributions to SDGs in Horizon Europe and Horizon 2020 was not possible for the following reasons: 1) Horizon 2020 analysis was based on closed projects, 2) the early stage of the Horizon Europe programme, 3) Horizon 2020 analysis was based on publications data, and in Horizon Europe on the proposal text (description of action).

4. Interviews

The primary purpose of the interviews was to collect evidence from the different actors concerned by the framework programme. This would give an objective assessment of what has happened by taking into account the different points of view. This method was used in particular in case studies and international benchmarks. Interviews were also conducted to confirm and complement the data collection, with a view to drafting the findings and conclusions. Some 1 049 interviews were conducted (including some with the same actors on different topics), gathering the perspectives of Commission staff, Member States, associated countries, and a large range of stakeholders (universities, companies, umbrella organisations, etc.).

5. Targeted survey

⁵³ [SME participation in Horizon Europe](#) (2024), [Country participation in the EU R&I FPs](#) (2024), [Fostering gender equality](#) (2025), [EU Missions](#) (2025).

⁵⁴ Excellent Science evaluation study, 2024, [Annex 2.3](#), p. 309, 333

⁵⁵ Innovative Europe evaluation study, 2024, [Annex 6](#), pp. 397-417, Resilient Europe study, [Annex 3](#), p. 205-208.

A targeted evaluation survey⁵⁶ was designed by independent contractors to collect data for the interim evaluation of the programme. The survey was conducted between May and July 2023 and covered beneficiaries and unsuccessful applicants in Horizon Europe. The surveys gathered evidence on the needs and motivation for engaging with Horizon Europe, perceptions of expected project outcomes and impacts, and obstacles encountered during the application and project implementation.

The survey of Horizon Europe's **beneficiaries** included six different questionnaires:

1. MSCA Postdoctoral Fellowships beneficiary researchers;
2. ERC beneficiary Principal Investigators (PIs);
3. Beneficiary organisations under collaborative actions, including:
 - a. Pillar I: MSCA (Doctoral Networks; Staff Exchanges; and COFUND), Research Infrastructures.
 - b. Pillar II: Global Challenges & European Industrial Competitiveness (Clusters 1-6).
 - c. Pillar III: beneficiaries of European Innovation ecosystems;
 - d. Horizontal actions: WIDERA.
4. European Innovation Council (EIC): Pathfinder and Transition grants;
5. EIC Accelerator grants.

The survey of Horizon Europe's **unsuccessful applicants** included three questionnaires:

1. MSCA Postdoctoral fellowships and ERC;
2. Horizon Europe's collaborative actions, including:
 - a. Pillar I: MSCA (Doctoral Networks; Staff Exchanges; and COFUND), Research Infrastructures.
 - b. Pillar II: Global Challenges & European Industrial Competitiveness (Clusters 1-6) grants.
 - c. Pillar III: European Innovation Ecosystems grants and EIC Pathfinder and Transition grants.
 - d. Horizontal actions: WIDERA.
3. EIC Accelerator grants.

The survey invitations were sent to all the Horizon Europe beneficiaries and unsuccessful applicants under the relevant programme parts. This strategy allowed collecting survey answers from the maximum number of respondents. Before sending the survey invitations, several steps were taken to clean and prepare the eCORDA contact data. This involved removing ineligible or irrelevant applications, filtering out irrelevant calls, program parts, and contact types, and

⁵⁶ Catalano G., Consiglio, G., Delponte L., Monaco, F. and Santoro, C. *Survey Visualisation Report – Feedback of Horizon Europe Beneficiaries and Unsuccessful Applicants: Supporting the interim Evaluation of Horizon Europe*. Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/2180607>

eliminating duplicate contacts to ensure each individual received only one survey invite per project. Contacts who had previously requested not to be contacted were also removed, along with invalid email addresses. After these steps, the final contact list included 111,095 unique individuals, comprising 28,843 successful applicants and 82,252 unsuccessful applicants.

Figure 6 presents the survey response rates by program component. Both the total number of completed responses and the percentages indicating representativeness within each group are illustrated. The total number of respondents among programme beneficiaries is 5 414, while the number of unsuccessful applicants who responded to the survey is 10 290.

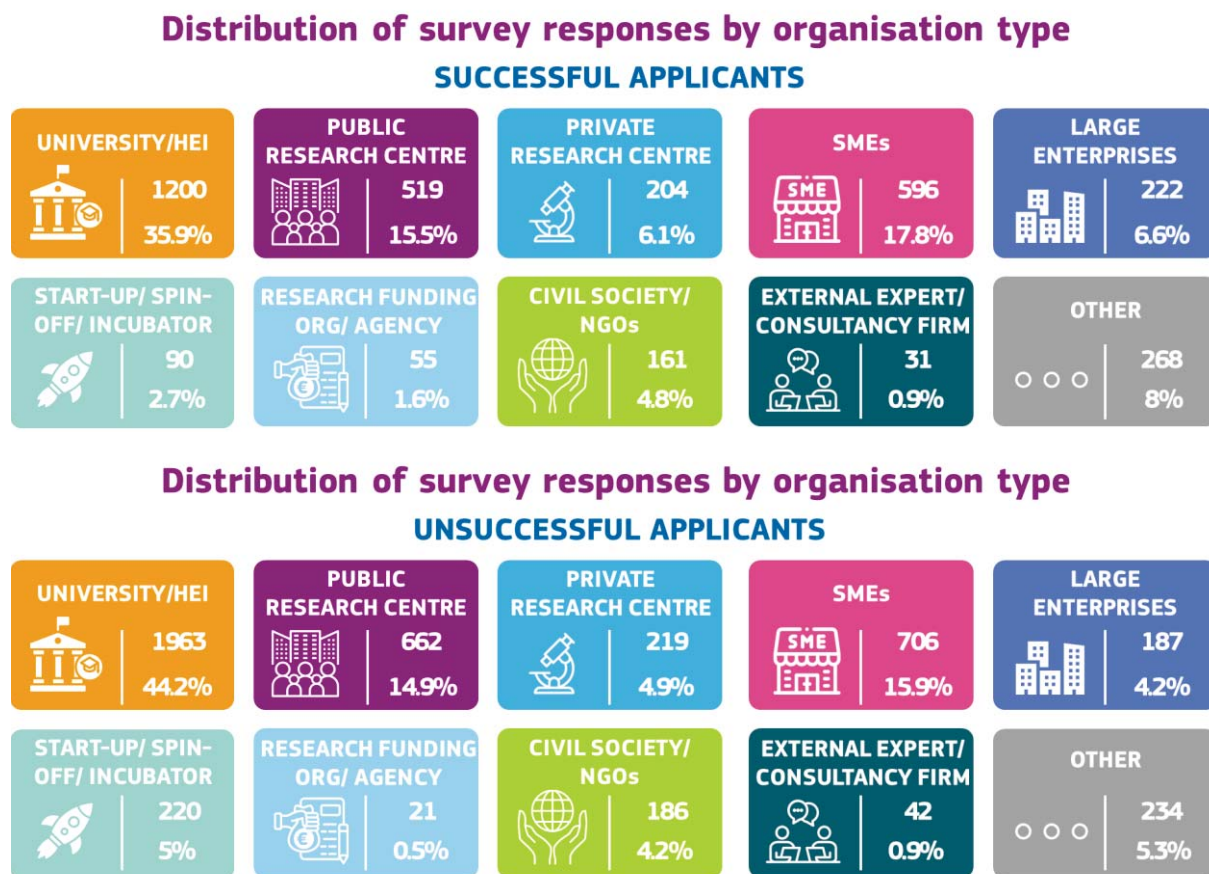
Figure 6: Survey response rate across Horizon Europe programme parts



Source: Survey Visualisation Report - Feedback of Horizon Europe Beneficiaries and Unsuccessful Applicants.

To ensure that there were no underrepresented groups among the different programme parts covered in the survey, the distribution of survey responses by type of organisation was also assessed. The analysis showed that there were no underrepresented groups, and the response pool reflected the structure of Horizon Europe's applicant population (**Figure 7**).

Figure 7: Survey response rate by categories of stakeholders



Source: Survey Visualisation Report: Feedback of Horizon Europe Beneficiaries and Unsuccessful Applicants.

6. Network analysis

Network analysis was performed in Digital Europe, Excellent Science, Innovative Europe and Resilient Europe evaluation support studies and involved analysis of connectedness of Horizon Europe programme parts, networks and cross-collaborations within WIDERA. It also included analysis of geographic dimension, and continuity of researchers across the FP.

7. Patent analysis

This analysis⁵⁷ served to investigate if the FP is attracting patenting companies. The analysis involved extracting metadata from eCorda (June 2023) on Horizon Europe beneficiaries and applicants and identifying matches between them and PATSTAT⁵⁸ applicants. Out of 4,759 unique Horizon Europe private-for-profit beneficiaries, 1,556 (33%) were identified in PATSTAT. For non-funded applicants, the shares of identified companies in PATSTAT were similar, with the Horizon Europe share at 30%.

⁵⁷ Innovative Europe evaluation study, 2024, [Annex 6](#), pp. 417-419

⁵⁸ <https://www.epo.org/en/searching-for-patents/business/patstat>

The analysis of both Horizon Europe beneficiary companies and non-funded applicants matched to PATSTAT looked at the following key metrics:

- number of companies matched to PATSTAT by the Horizon Europe pillar;
- patent value metrics based on: (a) number of patents; (b) number of triadic patents, i.e. patents registered with the European, US and Japanese patent offices; (c) number of high-value patents, i.e. patents that can yield substantial economic gains and may be used to protect one's own products or to create licensing income; and (d) average number of patents per company.

8. Bibliometric analysis

The KIP monitoring framework recommends that scientific outputs such as journal publications or citations towards these publications be evaluated at least two years after the supported projects have been completed. On this basis, as of fall 2023, it was not appropriate, nor is even the necessary data available, to conduct a (even partial or initial) bibliometrics evaluation exercise of Horizon Europe journal-publication-mediated scientific outputs. Instead, a so-called calibre analysis was performed in two evaluation studies⁵⁹, which measured enabling factors of Horizon Europe effectiveness, on the prior scientific achievements of researchers involved in projects selected for Horizon Europe funding. In both evaluation studies, Cluster 4, Cluster 5 and Cluster 6 researchers' prior publications (from 2017 to 2021) were retrieved from Scopus to establish their track records on dimensions such as academic-private co-publication, cross-disciplinarity, or scientific excellence (proxied through citation impact), among others. It was hypothesized that Horizon Europe funding competitions should select, for example, researchers with past experience in conducting cross-disciplinary research, as a mechanism to increase the likelihood that societal impacts will be realized from supported projects. In the **Green transition** evaluation study, three altmetric indicators were used:

- citation from online policy-related documents
- Wikipedia mentions
- trade and journalistic news outlets mentions

The indicators used in the **Digital and Industrial transition** evaluation study were:

- Share of international co-publications
- Share of open access publications
- Share of highly cited publications at the 10% level
- Citation distribution index and citation distribution chart
- Interdisciplinary integration
- Multidisciplinary integration
- Publication-level average of authorships held by women
- Share of publications that are academic-private co-publications
- Percentage shares of publications associated with policy-related outcomes
- Percentage shares of publications associated with journalistic mentions or Facebook and Twitter attention.

⁵⁹ Green Transition evaluation study, 2024, [Appendix E](#), p. 201-207; Digital and Industrial Transition evaluation study, 2024, [Annex VI](#), p. 579-622

9. Benchmarks

Benchmarking activities provided evidence to inform evaluation questions and identified lessons learnt from best practices worldwide supporting research and innovation. In addition, they put in perspective the framework programme's performance in the area covered by the study. As a minimum, the benchmarks were based on desk research, project monitoring and publication data, and interviews with stakeholders and beneficiaries. The following benchmark was used in the staff working document:

Table 5: Benchmarks

International benchmark	Comparison with:
Evidence from the benchmark study ⁶⁰ demonstrated that Horizon Europe showed similar approaches towards the COVID-19 response to the NIH. The responses are particularly similar in ensuring open data access and data sharing in the field of infectious diseases, infectious disease surveillance on different levels, the development of vaccines and therapeutics to prevent and treat COVID-19, as well as emerging infectious diseases and dedicating further research efforts to understand the emerging coronavirus variants. To this end, Horizon Europe also demonstrates flexibility in coping with changing circumstances in the world, such as COVID-19, as the FP continues its funding efforts and directs initiatives towards COVID-19 and coronavirus research, including the preparations for the emerging variants.	US medical research agency National institutes of Health (NIH)

10. Case studies

Overall, 76 case studies were conducted, covering the specific policy objectives, cross-cutting issues, and specific aspects of Horizon Europe such as institutionalised, co-programmed and co-funded partnerships. The impact area evaluation studies had 15 case studies each (except for Innovative Europe evaluation study that had 16).

11. Policy workshops

Some 6 policy workshops were conducted to support this evaluation. The workshops were implemented in the context of the independent external studies. They were used to consolidate and increase the robustness of the findings and conclusions arising from the data collection conducted through other methods, addressing evidence gaps whenever needed.

12. Public consultation

The public consultation on the interim evaluation of Horizon Europe was part of a larger joint consultation exercise looking at the past present and future of the R&I framework programmes (ex post evaluation Horizon 2020, interim evaluation Horizon Europe and the 2025-2027 strategic plan). In full compliance with the Better Regulation requirements, the online questionnaire was published, among other places, on the Have your Say portal⁶¹, also offering the possibility to submit position papers. It ran from 1 December 2022 until 23 February 2023.

⁶⁰ Resilient Europe evaluation study, [Annex 5](#), p.21

⁶¹ [Horizon Europe – interim evaluation \(europa.eu\)](https://www.europa.eu/your-say)

For the section on Horizon Europe, 1 663 responses were submitted along with 136 position papers. The factual summary report and position papers have been published on Have your Say portal. To analyse the responses received through the public consultation, *quantitative analysis* was conducted by means of descriptive statistics, differentiating and comparing responses of different groups of respondents. Correct representation and interpretation of results are fundamental to drawing coherent conclusions which is why the number of respondents has been shown along with percentages. Linkages between answers and respondents' characteristics such as participation in the programme, country affiliation and type of respondent (e.g. Member State and business organisation representatives, researchers). When evident, correlations between answers given in closed questions have been explored. The summary statistics were bundled in .xml format which allowed for swift cross-comparison among the various dimensions covered in the public consultation survey.

Key messages were extracted from *qualitative* contributions, primarily position papers and open questions present in the public consultation survey. Same holds true for the analysis of the feedback contributions received for the call for evidence. Contributions were clustered by topics and specific aspects raised in both position papers and open questions by means of using Excel, presenting findings in a contribution matrix.

Although there was some coordination between some of the respondents (e.g., those participating in the same network, cluster, or country), as testified by the uploading of the same position paper by multiple respondents, the analysis of the consultation results does not indicate any campaign affecting the overall results.⁶²

13. Multivariate regression analysis

A multivariate regression analysis was run to identify the factors that influence the efficiency of project application and administration processes for Horizon Europe Pillar II's applicants and beneficiaries. It was based on a combination of data from eCORDA (extracted in June 2023, 151 199 applicants under Pillar II) and from the targeted survey.

The dependent variables were based on the survey data and expressed as follows. For the efficiency of application costs: a proposal effort composite, the number of person-days dedicated to proposal preparation, and the perceived proportionality of the proposal effort. For the efficiency of administration process: the perceived proportionality of the granting procedure effort, the perceived proportionality of the project reporting requirements, and the share of project resources dedicated to administrative tasks. The dependent variables were tested independently against a range of independent variables (size of consortium, budget, previous FP experience, role in the consortium, type of organisation, use of NCP, reliance on external support, separation of management tasks from research activities), combined with control variables (cluster, country).

The analysis used OLS regression and logit regression models depending on the nature of the dependent variable. In addition, a bootstrap method was applied to validate the results of the multiple regression models by assessing the stability and reliability of the estimated coefficients (5000 bootstrap replications).

⁶² Overall, 24 campaigns were identified (coordinated responses to the survey by more than one respondent and up to 9). The campaigns include responses by 88 respondents, representing 5% of all responses.

14. Overall limitations of the Horizon Europe interim evaluation

Methodological and data limitations were identified (listed below). Thanks to thorough checks ensuring that data is robust, these limitations did not affect the overall reliability of the analysis and the findings. Nevertheless, the evaluation faced the following challenges and limitations:

- Limitations in the analysis are due to the **sizable share of projects that were still ongoing at the time of preparing this evaluation**: only 983 (6.5%) of the 15 148 signed projects have been closed as of 6 January 2025 (projects suspended and terminated are not included). This affects the mid- and long-term impact indicators, as the large majority of projects will not have reached their impact at this early stage.
- Moreover, a considerable share of monitoring and impact indicators – among which the Key Impact Pathways, are based on data collected through periodic reporting by Horizon Europe beneficiaries. As such, the indicators incur a lag in calculation. On 6 January 2025 – the cutoff date for most monitoring data presented in this evaluation, only 3 443 projects had submitted periodic reports. This amounts to 21% of the signed grants by that date.
- A more general limitation regarding monitoring and impact indicators stems from the use of self-reported information by project beneficiaries. This induces sources of possible error and bias, which the Commission mitigates through triangulation and validation of data explicitly included in calculation methods for all indicators, and in particular the Key Impact Pathways. However, in some cases, it can be assumed that some indicators are largely underestimated due to underreported data – such as IPR applications, scientific publications, etc. Moreover, confidentiality of some IPR applications can further reduce their visibility in the Commission’s monitoring systems, thus further underreporting results and impact of the programme.
- Only partial data available to the evaluation on the financial support to **third parties (“cascading grants”)** in Horizon Europe. These grants are not managed through standard Commission IT tools: basic information about participants is submitted in periodic reports by the “first-level” beneficiaries arranging the calls, but only with a significant delay. For European partnerships using a cascading model, such as EIT KICs and co-funded partnerships, integration in Commission monitoring systems takes place with a considerable time delay and did not happen at all until 2024. This is a serious data limitation, as the Commission does not know who is the end-receiver of parts of FP budget is (up to EUR 300 million in Horizon Europe Cluster 4 only). This considerably limited and possibly distorted some of the analysis, especially on the distribution of the funding over participants (type incl. SMEs, geography, newcomers, etc.).⁶³
- **Lump sum** projects do not submit financial costs in reporting periods, including personnel costs as FTE. This means that data for some Key Impact Pathway (KIP) indicators that rely on cost declarations will never be available for these projects if no changes are made to the methodology (for the KIP 8 short-term indicator on Number of FTE jobs created, as well as

⁶³ Table 9 on “Monitoring and evaluation system - issues encountered” in the evaluation study on [Digital and Industrial Transition](#), 2024.

the KIP 8 medium-term indicator on FTE jobs following the project funded).⁶⁴ For KIP 9 short-term indicator (“Amount of public and private investment mobilised with the initial investment for the programme”), which is the difference between total costs and EU contribution - the value available in CORDA is an ex-ante estimation based on co-funding rates defined at the level of each call. The actual value of beneficiary costs will never be reported. This is important for assessing whether the project leverages more funding than it is contractually required to, e.g. for joint undertakings (some of their grants use lump sums).

- Lagged availability, gaps and inconsistencies in the data on indirectly managed actions, which includes some European Partnerships. Different partnership analyses (i.e. in the partnerships’ annual reports, the Biennial Monitoring Report and Corda) have different sources, thus causing inconsistencies even if the formula they use is aligned.
- Policy officers who prepare the text of the calls for proposals are requested to flag the calls if they believe they are relevant for certain predefined priorities, e.g. AI. These flags do not take into account what happens in the project during implementation. For this reason, they cannot be used reliably for analysis, as they only signal *potential* synergies, not actual synergies.
- For Cluster 4, Destination 5 Space, the analysis was limited to the topics implemented by HaDEA. It did not include the topics and actions delegated to the European Space Agency (ESA) and to the EU Space Programme Agency (EUSPA), which represent about half the budget.
- While the evaluation strives to use public data sources, some data on the EIT KICs and EU Missions was not published in a timely way to support the evaluation so internal Commission monitoring is cited as the data source.

⁶⁴ For the short-term KIP indicator, only an ex-ante estimate of the number of employees in lump sum grants is available, from “Part A” of the grant agreement. Analysis is still in progress on the medium-term indicator.

Annex 3 Evaluation matrix

1. Effectiveness

Evaluation questions	Judgement criteria: extent to which...	Indicators and where available – targets	Main data sources
1.1. To what extent was Horizon Europe successful?	Horizon Europe has advanced scientific excellence (<i>scientific impacts</i>)	KIP 1: Creating high-quality new knowledge Number of publications in peer-reviewed journals Number of awards and prizes won % of peer reviewed scientific publications reported under the KIP 1 that come from the European Research Council (ERC) grantees	CORDA dashboard frozen on 1 December 2024 Replies to stakeholders' consultation Programme Performance Statement, June 2024 Survey of Horizon Europe ERC beneficiaries
		KIP 2: Strengthening human capital in R&I Number of researchers benefitting from upskilling activities Number of researchers benefitting from mobility activities	Excellent Science evaluation study (links in Annex 2) CORDA dashboard frozen on 1 December 2024
		KIP 3: Fostering diffusion of knowledge and Open Science Number of open Access publications produced Number of open Access datasets produced Number of open Access software applications produced	Excellent Science evaluation study (links in Annex 2) Replies to stakeholders' consultation Resilient Europe evaluation study (links in Annex 2)
		Field-weighted citation impact (FWCI) of Joint Research Centre's (JRC) publications indexed by Scopus Proportion of JRC's publications indexed by Scopus in the top 1% and the top 10% of the most-cited journals ranked according to the SCImago Journal Rank	A bibliometric study of JRC's publications indexed by Scopus between 2018 and 2022 JRC assessment by a panel of independent experts (links in Annex 2)
	Horizon Europe has increased the R&I contribution to addressing global challenges (<i>societal impacts</i>)	KIP 4: Addressing EU policy priorities and global challenges through R&I. % of Horizon Europe projects focused on SDGs Amount of own funds mobilised by beneficiaries to address SDGs Number of publications linked to SDGs	Innovative Europe evaluation study, Annex 6.3 (links in Annex 2) Horizon Europe Work Programme Resilient Europe evaluation study (link in Annex 2) Biennial Monitoring Report (BMR) 2024 on Partnerships in Horizon Europe Replies to stakeholders' consultation
		KIP 5: Delivering benefits and impact via R&I missions. Missions' progress towards their goal	Commission Expert Group supporting the monitoring of EU Missions (link in Annex 2)

Evaluation questions	Judgement criteria: extent to which...	Indicators and where available – targets	Main data sources
		% of public consultation respondents who responded that “EU Missions contributed “somewhat” or “to a great extent” to strengthening the impact of European research and innovation % of public consultation respondents who are (very) satisfied with the EU missions’ progress towards objectives so far	External assessment reports of the EU Missions (links in Annex 2) Replies to stakeholders’ consultation
		KIP 6: Strengthening the uptake of R&I in society % of projects with EU citizens or end-users contribution	Commission Expert Group supporting the monitoring of EU Missions (link in Annex 2) External assessment reports of the EU Missions (links in Annex 2)
		Partnership-specific evaluation criteria <i>International positioning and visibility:</i> number of partnerships with allocated budgets for collaborations with partners outside the EU <i>Transparency and openness:</i> number of new organisations involved in the partnerships, number of countries partnerships were extended to beyond European borders, Participating members from widening countries, number of partnerships with SMEs members <i>Phasing-out preparedness:</i> number of partnerships with a phasing-out plan, number of partnerships with measures to improve their financial sustainability and reduce reliance on public funding % of public consultation respondents who either “agreed” or “strongly agreed” that the rationalisation of European Partnerships led to delivering more solutions for the benefits of society, the environment, and the economy	Biennial Monitoring Report (BMR) 2024 on Partnerships in Horizon Europe, survey results Partnerships’ individual evaluation reports (links in Annex 2) Digital & Industrial Transition evaluation study, Annex I (link in Annex 2) Resilient Europe evaluation study- Annexes-case study 15 Replies to stakeholders’ consultation
		Social Sciences and Humanities (SSH): % of Horizon Europe projects that took into account SSH Number of dedicated calls for proposals for SSH related topics Extent to which SSH were incorporated into HE Clusters % of public consultation respondents who reported that SSH should be further elaborated for the Strategic Plan 2025-2027	Horizon Europe monitoring data Directorate-General for Research and Innovation. (2023). Synopsis report: Looking into the R&I future priorities 2025-2027 , p.37 Digital & Industrial Transition evaluation study (link in Annex 2) Green transition evaluation study (link in Annex 2)

Evaluation questions	Judgement criteria: extent to which...	Indicators and where available – targets	Main data sources
		Promotion of Gender Equality Amount of Horizon Europe funding directly linked with gender equality-advancing efforts % of women expert evaluators % of women in Horizon 2020/Europe advisory groups and expert groups % of women project coordinators in FP projects % of women researchers in FP projects % of public consultation respondents who agreed or strongly agreed that strengthened gender equality provisions bear potential to promote gender equality across R&I organisations and activities	Horizon Europe Performance Statement, retrieved 07/10/24 from Horizon Europe - Performance - European Commission (europa.eu) Fostering gender equality: Key Figures from Horizon Europe (link in Annex 2). Replies to stakeholders' consultation Digital & Industrial Transition evaluation study (link in Annex 2)
		International cooperation Associated countries vs Other third countries: % of participations in collaborative projects % of EU contribution to non-EU participants % of collaborations that countries are part of % of public consultation respondents who agreed that participating in Horizon Europe “improved cooperation with partners from other countries - within the EU and beyond”	Country Participation in R&I Framework programmes (link in Annex 2) Excellent Science evaluation study, annex on international cooperation (link in Annex 2) CORDA dashboard frozen on 1 July 2024 Replies to stakeholders' consultation
	Horizon Europe has fostered innovation-based growth, created jobs and leveraged investments in R&I (<i>economic impacts</i>)	KIP 7: Generating innovation-based growth Number of IPR outputs, including patent applications, trademarks, and utility designs Number of innovative products, processes, or methods produced and reported by the projects	5 evaluation studies (links in Annex 2) ERC Proof of Concept List of PIs funded CORDA dashboard frozen on 1 December 2024
		KIP 8: Creating more and better jobs Number of jobs in Full Time Equivalent (FTE) created or maintained with the support of Horizon Europe Total employment creation resulting from Horizon Europe	Macro modelling analysis. Models: RHOMOLO, FIDELIO (by Joint Research Centre), NEMESIS (in the Innovative Europe study 2024, p. 60)

Evaluation questions	Judgement criteria: extent to which...	Indicators and where available – targets	Main data sources
		KIP 9: Leveraging investments in R&I % of Horizon Europe contribution to GDP in the EU-27: average annual GDP gain	Macro modelling analysis. Models: RHOMOLO, FIDELIO (by Joint Research Centre), NEMESIS (in the Innovative Europe study 2024, p. 60)
		European Innovation Council (EIC) Number of start-ups and SMEs supported by the EIC Accelerator	Innovative Europe evaluation study (link in Annex 2) CORDA dashboard frozen on 1 December 2024 EISMEA, Scaling Deep Tech in Europe – the European Innovation Council Impact Report 2025
		European Innovation Ecosystems (EIE) Number of beneficiaries % of women researchers involved in EIE funded projects Number of identified Regional Innovation Valleys (RIVs)	CORDA data extracted on 26 September 2024 Innovative Europe study (link in Annex 2)
		European Institute of Innovation and Technology (EIT) Number of people who graduated from the EIT-labelled master and doctoral programmes Number of start-ups were created by students from EIT programmes Number of start-ups as a result of EIT innovation projects Number of start-ups that received support from EIT KICs Number of innovative products or services were put on the market by the EIT KICs Participants in (non-degree) education and training	Innovative Europe evaluation study (link in Annex 2) EIT internal monitoring
	Horizon Europe has widened participation and strengthened the European Research Area	Widening MS: • % of participation in collaborative projects • % of EU contribution • Applications success rate • % of public consultation respondents who agreed or strongly agreed that Horizon Europe is on track to strengthen and increase the impact and attractiveness of the European Research Area	Country Participation in R&I Framework programmes (link in Annex 2) CORDA dashboard frozen on 1 December 2024 Replies to stakeholders' consultation

Evaluation questions	Judgement criteria: extent to which...	Indicators and where available – targets	Main data sources
	Exploitation and dissemination measures have made it possible to reach these outcomes and impacts	Number of visitors on Horizon Results Platform Number of beneficiaries and organisations that profited from the Horizon Results Booster % of beneficiaries who agreed to a very large or large extent that EC platforms and measures have positive impacts on facilitating the uptake of projects' research findings % of public consultation respondents who deemed Commission-related exploitation services helpful in view of dissemination, exploitation and access to research and innovation results	Digital and Industrial Transition evaluation study, section 6.2.4 Green Transition evaluation study, section 14.4.2 The beneficiaries' survey results (targeted evaluation survey, May-July 2023) Replies to stakeholders' consultation

2. Efficiency

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
2.1 To what extent do the costs of applicants and administrative costs of beneficiaries (including reporting cost) introduce inefficiencies into the framework programme?	Costs of applicants are proportionate to the chances of securing funding and size of grants	Magnitude of applicant's cost [person-days, EUR] % of Horizon Europe applicants who received (internal and external) support to prepare their proposals Median value of the consultancy fee, EUR Perception of proportionality of unsuccessful and successful applicants % of respondents who 'rather agreed' or 'strongly agreed' that proposal preparation and submission in Horizon Europe is simpler than those in Horizon 2020 (OPC)	Targeted survey responses of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023 Replies to public stakeholders' consultation Responses to open questions to targeted survey of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023 Responses to open questions to 2 targeted surveys of Horizon Europe lump sum grants beneficiaries and unsuccessful applicants, autumn 2023 and summer 2024.
	Administrative costs incurred by beneficiaries to fulfil grant agreement obligations are efficient	Magnitude of administrative expenditure of beneficiaries [person-days, EUR] Qualitative feedback on inefficiencies by beneficiaries	

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
2.2 How efficient has the performance of the Horizon Europe been against administrative targets ?	EU administration was efficient	Time-to-inform Time-to-sign Time-to-grant Time-to-pay Administrative expenditure ratio of Horizon Europe	implementation data on administrative expenditure (ABAC, CORDA, DG BUDG)
2.3 How do expected benefits compare to the costs Horizon Europe gave rise to?	Horizon Europe delivered value for money	Committed and spent operational expenditure [EUR] of Horizon Europe Committed/spent administrative expenditure of the EU public sector of Horizon Europe [EUR] Costs of applicants to Horizon Europe [person-days, EUR] (benefits = Wider-economic impact of Horizon Europe) Comparison of expected macroeconomic impact relative to incurred total cost to society	- Macroeconomic impacts: modelling Rhomolo, Nemesis - Surveys of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023 - Financial implementation data (European Commission)
2.4 How efficient has been the performance of Horizon Europe's simplification measures?	European Partnership landscape was rationalised	% of public consultation respondents who 'agreed' or 'strongly agreed' that the rationalisation of European Partnerships had • allowed additional public and private investments in research and innovation to be leveraged • led to delivering more solutions for the benefits of society, the environment, and the economy Qualitative feedback on perceived change by stakeholders	Replies to public stakeholders' consultation Digital and Industrial Transition evaluation study Green Transition evaluation study Surveys of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023
	European Partnership administrative costs are efficient	- Administrative cost ratio, including benchmarking. - Comparison between administrative cost intensity and direct leverage factor	Partnerships' individual evaluation reports (links in Annex 2)
	Lump sum funding delivered simplification benefits	Reduction of financial reporting burden experienced by lump sum grant beneficiaries [person-days; EUR] change in proposal preparation costs for lump sum grant applicants (relative to actual cost grants) [person-days] qualitative feedback from applicants and beneficiaries of lump sum grants	Two targeted surveys of lump-sum grant applicants and beneficiaries, and matched actual cost grant applicants and beneficiaries (autumn 2023, summer 2024) Assessment of lump sum funding in Horizon 2020 and Horizon Europe, September 2024 CORDA data

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
			Surveys of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023
	Horizon Europe has potential for further simplification , with respect to application, proposal evaluation and grant implementation processes	-Total expected financial reporting reduction for lump sum grant beneficiaries [EUR] - Potential of the “Personnel unit costs” measure to reduce financial reporting cost of actual cost grant. [qualitative] - potential for simplification in implementation processes raised by applicants and beneficiaries	Two targeted surveys of lump-sum grant applicants and beneficiaries, and matched actual cost grant applicants and beneficiaries (autumn 2023, summer 2024) Surveys of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023 5 evaluation studies (links in Annex 2)

3. Coherence

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
3.1. How coherent has the R&I Framework Programme been between its programme parts and with other EU programmes serving similar objectives and with national, regional and international initiatives?	implementation of Horizon Europe was consistent <i>between programme parts</i>	% of beneficiaries that plan joint activities Number of collaborations planned with Pillar III	Targeted survey Innovative Europe evaluation study (link in Annex 2)
		Number of beneficiaries transiting from EIT and ERC to the EIC measures	EIC Work Programme 2023 Innovative Europe evaluation study (link in Annex 2)
		Balance between lower and higher TRLs	Horizon Dashboard, as of 20 September 2024 Digital and Industrial Transition evaluation study (link in Annex 2) Green Transition evaluation study (link in Annex 2) Resilient Europe evaluation study (link in Annex 2)
	Horizon Europe has worked in synergy <i>with other relevant EU programmes</i>	Degree to synergies with other EU programmes listed in Annex IV of the regulation establishing Horizon Europe have been implemented	5 evaluation studies (links in Annex 2) EISMEA internal monitoring data CINEA internal monitoring data
		% of Horizon Europe beneficiaries that have sought additional funding for their research projects from other EU programmes	Survey of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023
		Number of unsuccessful project proposals awarded a Seal of Excellence	Horizon Dashboard data, as of 6 January 2025

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
			EISMEA monitoring data DG RTD monitoring data DG EAC monitoring data
		% of joint European Partnership calls for research and / or innovation proposals (together with other Partnerships)	Partnerships Biennial Monitoring Report (link in Annex 2)
	Horizon Europe has worked in synergy with national programmes	Number of beneficiaries transitioning from national support measures to the EIC	EIC Work Programme 2023 Innovative Europe evaluation study (link in Annex 2)
		% of unsuccessful applicants responding that the Seal of Excellence was helpful for obtaining alternative funding	Survey of Horizon Europe beneficiaries and unsuccessful applicants, May-July, 2023
		Number of national and/or regional Seal of Excellence support schemes set up in the Member States	Excellent Science evaluation study (link in Annex 2)

4. EU added value

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
4.1. What was value resulting from the FP that is additional to the value that could result from interventions which would be carried out at regional or national level?	Horizon Europe leveraged additional resources for R&I	Leverage factor of partnerships	Partnerships Biennial Monitoring Report (link in Annex 2) CORDA dashboard, data as of 31/12/2023 eGrants dashboard, data as of 31/12/2023 Annual Activity Reports of partnerships European Court of Auditors 2022 Annual report on EU Joint Undertakings Figures provided by individual partnerships
	research and innovation activities would not have been possible without Horizon Europe	% of respondents who found that Horizon Europe funding provides funding for research topics or fields not covered in national or regional R&I funding programmes	Excellent Science evaluation study, Appendix F (link in Annex 2)
		Existence of grants equivalent to Horizon Europe in Widening countries	Excellent Science evaluation study, case study 6 (link in Annex 2)

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
	funding (i.e. through other national or regional support)	Existence of national programmes equivalent to Horizon Europe in the field of security research (Cluster 3)	Resilient Europe evaluation study
	International cooperation in R&I strengthened Europe's competitiveness and partnerships	Combined annual financial contribution of the Associated Countries	DG RTD internal calculations

5. Relevance

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
5.1. How relevant has the support to innovation by the Framework Programme (FP), including partnerships, been given the stakeholders' needs and considering the scientific, technological and/or socio-economic problems and issues identified at the time of its design and over time?	The FP (including partnerships) responded to the <i>needs</i> of beneficiaries	% of respondents who were satisfied with blended finance in Horizon Europe Support for coverage of low TRLs	Replies to stakeholders' consultation Horizon Europe monitoring data
	The FP strengthened Europe's competitiveness	EU research and development expenditure relative to GDP % of private R&D investment Number of companies with the status of unicorns Innovation index indicator	DG RTD, SRIP
	The FP demonstrated that it was <i>flexible</i> in responding to emergencies and changing priorities	Extent to which Horizon Europe responded to unforeseen and emergency circumstances, such as the COVID-19 pandemic and Russian invasion of Ukraine % of respondents who "strongly agreed" or "rather agreed" that Horizon Europe gives more flexibility to respond to changing socio-economic needs compared to national and/or regional research funding	5 impact area evaluation studies (links in Annex 2) Targeted evaluation survey of Horizon Europe beneficiaries
	New programme governance	Extent to which co-creation approach improved the coherence of Horizon Europe's programme. % of respondents who found that co-creation process with the relevant Commission services contributed either somewhat or	Digital and Industrial Transition evaluation study (link in Annex 2) Green Transition evaluation study (link in Annex 2)

Questions	Judgement criteria: extent to which...	Indicators	Main data sources
		to a great extent to strengthening the impact of European research and innovation	Strategic Plan Replies to stakeholders' consultation
	Monitoring and reporting	Extent to which the monitoring and reporting requirements outlined in the regulation establishing Horizon Europe are being met	Corda system
	EU Missions' design and governance	Extent to which the Missions' design is "bold and inspirational", with "wide, scientific, technological, societal, economic, environmental or policy relevance and impact" as foreseen by the regulation establishing Horizon Europe	The Commission Communication on the assessment of EU Missions two years on (link in Annex 2) Missions' implementation plans
	Directionality of European Partnerships	Average % of partnership funding allocated to the strategic priorities	Partnerships Biennial Monitoring Report (links in Annex 2) Digital and Industrial Transition evaluation study (link in Annex 2)

Annex 4 Efficiency - underlying analysis and additional detail

This annex contains the underlying analysis and additional detail summarised in section 4.2 (efficiency) of the main evaluation report.

4.1 Costs of Horizon Europe's affected stakeholder groups

4.1.1 Beneficiaries' administrative costs

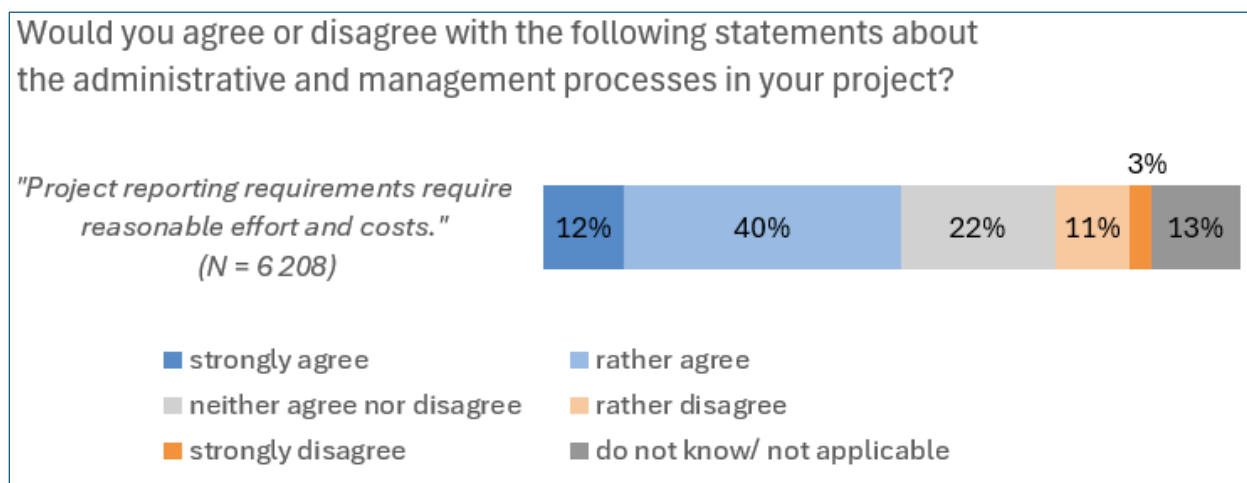
Beneficiaries incur **administrative costs** to fulfil specific obligations, set out in their grant agreement that would otherwise not have been incurred to manage the project. While beneficiaries are compensated for all administrative costs through grant payments, any avoidable part of this effort negatively affects the programme's overall efficiency.

i) Qualitative evidence on beneficiaries' administrative costs

While **around half of the beneficiaries agree to some extent that project reporting requires reasonable effort and costs**, for most these are **just about reasonable (i.e at the border to unreasonable)**. In response to the statement 'Project reporting requirements require reasonable effort and costs', (Figure 8), 40% of Horizon Europe beneficiaries 'rather agree' (2455 respondents) and 22% (1378) 'neither agree nor disagree'. Explicit disagreement with the statement (14%, 855) but also strong agreement (12%, 727) are less frequent.

Beneficiaries' feedback in response to the open question of the targeted survey (see also Annex 4.5.2) illustrate their concerns. Twenty-one beneficiaries stated their administrative burden was far too high and negatively affected the work on their project. Topics that were raised as problematic by other respondents included, for instance: the number and formatting of required deliverables, a lack of sufficient user-friendly and tailored information on how to implement the own grant, and the cumbersome nature of updates emailed by the web portal.

Figure 8: Beneficiaries – extent of effort of project reporting (“reasonable”)

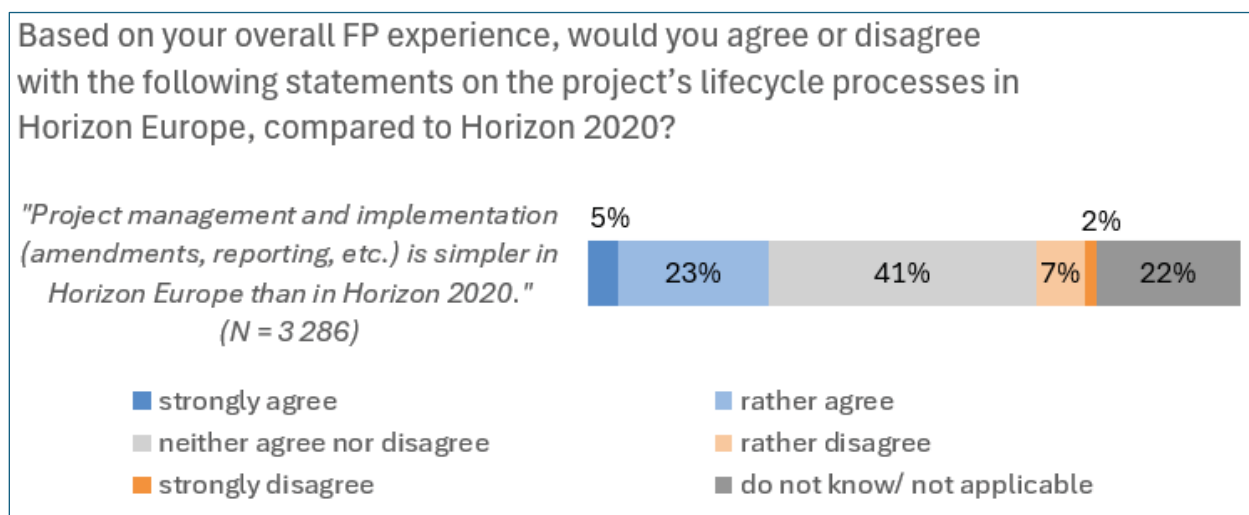


Source: Based on 6208 responses to question of targeted survey of Horizon Europe beneficiaries and applicants.

Beneficiaries have not experienced any substantial change in the effort involved in project management and implementation compared to Horizon 2020. 41% of Horizon Europe beneficiaries (1350 respondents) 'neither agree nor disagree' that processes have become simpler

and 23% (760) ‘rather agree’. Explicit disagreement (9%, 304), but also strong agreement (5%, 150) that processes have become simpler are less frequent (Figure 9).

Figure 9: Beneficiaries - project management and implementation compared to Horizon 2020



Source: Based on 3286 responses to question of targeted survey of Horizon Europe beneficiaries and applicants.

ii) Quantitative evidence on beneficiaries’ administrative costs

To better understand the size of the required administrative effort, the evaluation gathered **quantitative evidence on beneficiaries’ administrative costs relative to the total project costs** from **5 161 Horizon Europe beneficiaries responding to the targeted survey question**. Respondents were asked “What is the percentage share of your Horizon Europe project budget that is spent on administrative tasks (e.g. project reporting, project financial management, and similar)?” and could choose from cost the ranges: Less than 1%, 1-3%, 4-5%, 6-10%, 11-15%, 16-20%, More than 20%.

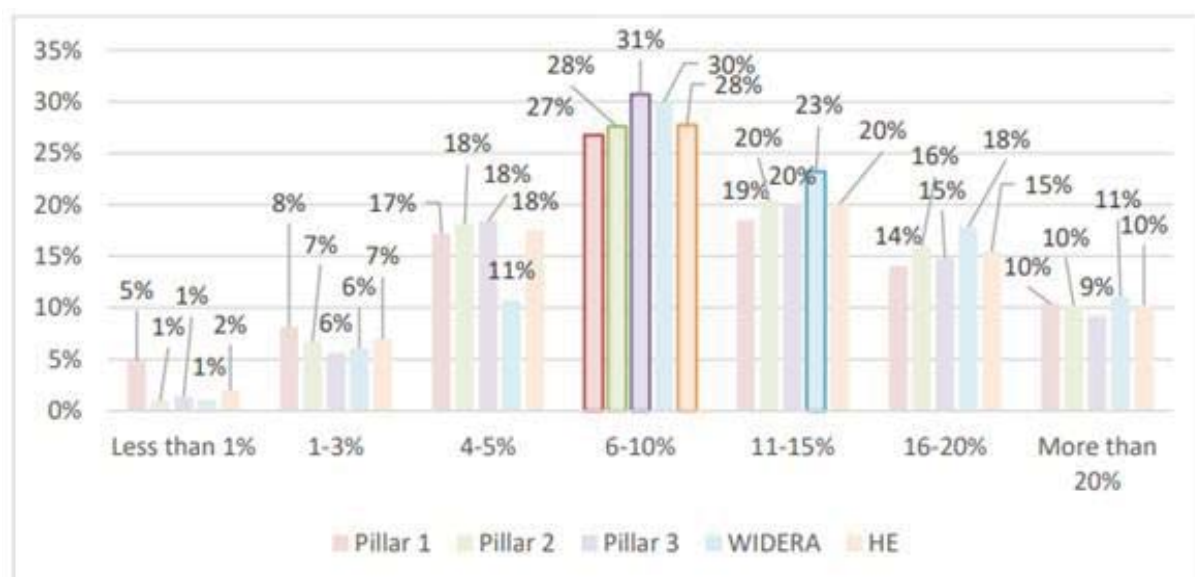
The survey data does not make it possible to assess the administrative *burden* of Horizon Europe in a strict sense: It is **not possible to determine which share of the cost covers administrative tasks (e.g. reporting obligations) that are additional to those that would have been associated with the running of the projects in any case**.

Responses suggest that for the different programme parts, with a few exceptions, the median and the most frequent responses indicate that **6% to 10% of the project budget are allocated to administrative tasks**. Depending on programme part, this response was chosen by 23% to 38% of respondents. In contrast, **EIC Accelerator** respondents most frequently indicated costs of 4-5% (29% of responses), **Research Infrastructures** respondents 11-15% (29% of responses), and the median response for **WIDERA** was higher and fell into the 11%-15% bracket.

The median cost range of 6%-10% also applies when only considering consortium-run projects. While the **median coordinator of a consortium**, when assessed separately, **reported a higher range of 11% to 15%**, although even here the most frequently indicated administrative cost (mode) fell into the range of 6%-10% of the project budget.

Looking at the shares of respondents, who indicated **very high administrative costs** of ‘more than 20%’ of the project budget by type of organisation, **Research funding organisations/agencies** (16% chose ‘more than 20%’, 15 responses), **Civil society/NGOs** (12%, 34) and **Universities/Higher Education institutions** (11%, 196) are in the lead. For most of the other types of organisations (SMEs, Public research centre, Private research centre, Start-Ups, Large Enterprises, External experts) 7% of respondents reported this very high administrative costs bracket.⁶⁵

Figure 10: Targeted survey responses to question: “In your estimation, what is the percentage share of your Horizon Europe project budget that is spent on administrative tasks (e.g. project reporting, project financial management, and similar)?”



Source: targeted survey of Horizon Europe beneficiaries and applicants, as reported in Evaluation Support study on Excellence Science, annex 7, Median value indicated by thicker line⁶⁶

⁶⁵ Complemented by respondents, whose organisations fell under “Other” (11%, 46) and “Not in survey” (5%, 61). One respondent who were *Incubator* and *Spin-Off* respectively selected the highest cost bracket.

⁶⁶ Due to a clerical error, Excellence Science Annex 7, p.271 quotes an incorrect survey question in the figure.

Table 6: Administrative costs of Horizon Europe beneficiaries by programme part.

Horizon Europe Programme Part	No. of total survey responses	Beneficiaries' administrative costs [% of project cost] (median)	Beneficiaries' administrative costs [% of project cost] (mode)
ERC	226	6-10%	6-10%
MSCA	879	6-10%	6-10%
INFRASTRUCTURES	169	11-15%	11-15%
Cluster 1	350	11-15%	6-10%
Cluster 2	324	11-15%	6-10%
Cluster 3	152	6-10%	6-10%
Cluster 4	678	6-10%	6-10%
Cluster 5	738	6-10%	6-10%
Cluster 6	710	6-10%	6-10%
Missions	319	11-15%	6-10%
EIC Accelerator	95	6-10%	4-5%
EIC Pathfinder	152	11-15%	6-10%
EIC Transition	24	6-10%	6-10%
EIE	66	6-10%	6-10%
WIDERA	279	11-15%	6-10%
Horizon Europe overall	5161	6-10%	6-10%

Source: Responses to targeted survey of Horizon Europe beneficiaries and unsuccessful applicants.

A regression analysis of the factors that increase administrative costs of beneficiaries⁶⁷ shows that for Pillar II, the **thematic cluster** plays a role. In particular, the share of **resources dedicated to administrative tasks tends to be lower in the thematic clusters 3, 4 and 5**, while the reporting process is perceived as **less proportionate in clusters 1 and 2**. This could reflect slight differences in project reporting requirements and management practices between clusters and associated managing entities. On the other hand, **no significant differences in (perceived) administrative costs is observed for coordinators, for participants with previous FP experience or for participants who outsource the project management tasks to a third party or department. No differences are found either when focusing on administrative costs by consortium size.** As shown in Table 7 below, beneficiaries spend around 6% to 10% of its project costs in administrative tasks, with median and mode values showing similar results in all categories.

⁶⁷ Methodology described in Annex 2, section 15. See also: Interim evaluation support study: working paper: analysis of factors affecting applicants' and beneficiaries' costs of project application and administration processes in Horizon Europe's Pillar II ([doi/10.2777/412609](https://doi.org/10.2777/412609)).

Table 7: Administrative costs by consortium size

<i>Administrative costs by consortium size</i>	Sample	Beneficiaries' administrative costs [% of project costs] (median by number)	Beneficiaries' administrative costs [% of project costs] (mode)
<i>Mono beneficiaries</i>	564	6-10%	6-10%
<i>2-14 participants</i>	2243	6-10%	6-10%
<i>15-30 participants</i>	1931	6-10%	6-10%
<i>31+ participants</i>	423	6-10%	6-10%

Source: Responses to targeted survey of Horizon Europe beneficiaries.

Estimate of total administrative cost of beneficiaries

In total, **all projects signed under Horizon Europe so far**, over their entire project lifetime, are expecting to spend **between EUR 4.7 billion and EUR 6.5 billion in administrative costs**. This corresponds to between 9% and over 12% of the total project cost so far. To estimate this total administrative cost of beneficiaries, the evaluation used monitoring data of the project costs, aggregated at the level of programme part. It then aggregated the survey responses at the level of programme parts and used the shares of respondents selecting each cost range as a weight, to be applied to the lower and upper bound (percentages) of each range, to then multiply them with the project cost total of the relevant programme part. Adding up over all cost segments generated the total range. As the answer 'more than 20%' does not express an upper limit, it was necessary to make an assumption. The estimate assumes that no beneficiary would engage in a project that allocated more than a quarter of the project costs to administrative tasks leads to an upper bound estimate of EUR 6.5 billion.

The Horizon Europe estimate of the total administrative cost is orders of magnitudes higher than that estimate of the Horizon 2020 final evaluation, which ranged between EUR 135 million to EUR 215 million over the entire framework programme. However, the **differences between the two estimates are likely driven by the change in the survey question design and the improvement in data quality, rather than actual underlying changes in beneficiaries' administrative costs**.

The Horizon 2020 estimate had used a median time cost of 4.5 - 7 person-days per month of project duration at programme level from the (not representative) **public consultation responses**. The **uncertainty around the Horizon 2020 estimates was very high**. The attribution to the framework programme requirements was similarly unclear at the time. The format of the previous question was not repeated in this evaluation, as it had been difficult to answer. The new question format may be easier to answer but, however, it is also much less granular (e.g. 0.1% of total project cost is equivalent to EUR 44 million) and may contribute to higher estimates.

4.1.2 Cost of applicants

Successful and unsuccessful applicants, the largest stakeholder group of Horizon Europe, incur **application costs** when preparing and submitting their proposals. Application costs are one of the framework programme's costs on EU Society and influence its value-for-money. They are partially unavoidable as quality proposals require effort up front to then allow for the most promising projects to be identified, which in turn maximises the chances of generating higher benefits for society. At the same time, they have the potential to introduce inefficiencies into the programme. **As the total number of applicants is very high and the vast share of applicants is unsuccessful, a small avoidable burden in the application process has the potential to introduce a sizeable inefficiency into the programme.**

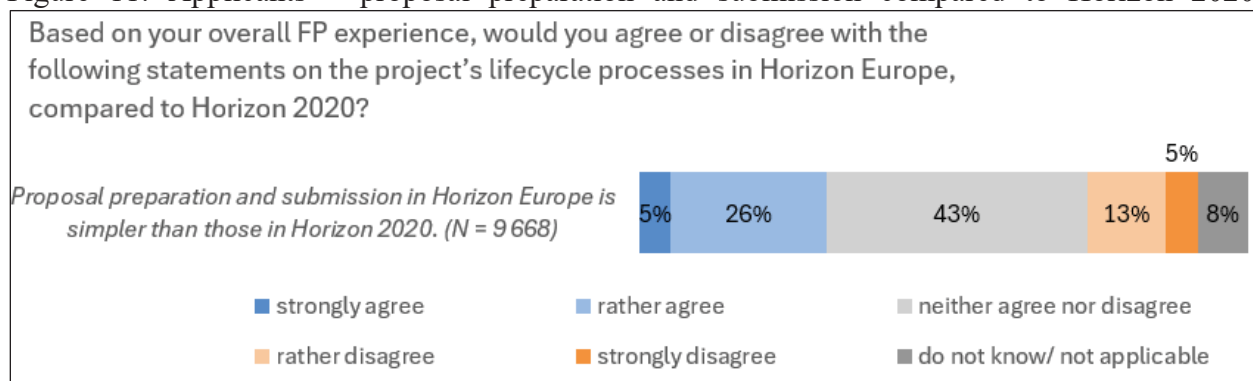
The evaluation's targeted survey of the population of applicants and beneficiaries collected a qualitative and quantitative evidence base from 17 254 respondents,⁶⁸ of which **64% (11 028) were unsuccessful applicants** and **36% (6 226) successful applicants**.

4.1.2.1 Costs of applicants – qualitative evidence

For 42% of respondents, the ‘overall effort to prepare a proposal was acceptable’ to a ‘large extent’ (32%, 5 443 respondents) or a ‘very large extent’ 10% (1733), while 32% were less supportive of the statement (‘moderate extent’) and **around a quarter of applicants effectively did not find the required effort acceptable**, of which 7% (1 264) ‘not at all’ and 17% (2990) ‘to a small extent’.

Applicants have not experienced any substantial change in the effort involved in proposal preparation and submission compared to Horizon 2020, with 43% of Horizon Europe applicants (4143 respondents) neither agreeing nor disagreeing that proposal preparation and submission have become simpler. The share of respondents who experienced some simplification (31%) is larger than the share who disagree (18%) that application processes have become simpler (Figure 11). This corresponds with the feedback that had been received in the public consultation⁶⁹ (Annex 5, Figure 74), in which 74% (1037) of respondents observed a “similar” application burden, while 17% (246) reported a “greater” burden.

Figure 11: Applicants – proposal preparation and submission compared to Horizon 2020



Source: Based on 9 668 responses to question of targeted survey of Horizon Europe beneficiaries and applicants.

⁶⁸ Excluding 121 responses of ‘cannot say’.

⁶⁹ Annex 5 Fig. 46 (%ages “cannot say” removed); Evaluation study on Innovative Europe, Annex 10.3.2.5, p.615.

Proportionality of the application costs

The targeted survey of the evaluation collected detailed feedback on questions about the proportionality of applicant costs, which makes it possible to assess proportionality relatively, against different points of comparison⁷⁰.

Relative to the complexity of the proposed projects, almost two in three applicants find the overall effort proportionate⁷¹ and few (13%) find it disproportionate⁷². (Figure 12, chart 3)

Over half of the applicants (58%⁷³) see the application effort as proportionate to the number of consortium partners involved, with again few (12%⁷⁴) finding it disproportionate. (Figure 12, chart 4).

Considering the size of the grant, around half of the applicants find their application cost to be proportionate⁷⁵, while only one in six applicants (17%) effectively disagree⁷⁶ that the total time and resources needed are in proportion with the financial support. (Figure 12, chart 2)

The pattern of the applicants' responses changes considerably, when the chances of success (securing Horizon Europe funding) are taken into account (Figure 12 chart 5). In this context, **only a third of applicants (34%⁷⁷) still rate their application effort as proportionate**, whereas about as many (40%⁷⁸) rate their application effort as no longer as proportionate.

Feedback from applicants to the **survey's open question** confirms and illustrates this finding. Around one quarter of the contributions⁷⁹ on the topic of application (45 out 189⁸⁰, 24%) **raise strong concerns that the total amount of effort spent on proposals is disproportionate to the chances of success**. The responses were sent by from applicants from a wide range of Horizon Europe programme parts.⁸¹ For instance, two respondents report i) difficulties to motivate employees to spend time looking for consortia and participating in proposals due to the disproportionate effort and ii) their decision to not apply anymore to the programme. (Cluster 4⁸²)

Taken together, the qualitative evidence on a lack of **proportionate application cost in light of the chances of success supports a strong finding, in particular given the increased success rates and budget of Horizon Europe**.

Some respondents to the survey's open question suggest measures to lower the effort involved in applications. For instance, at least 20 separate contributions, most of them from **ERC applicants**,

⁷⁰ The assessment treats and agreement "to small extent" as an expression of a disagreement to some extent, to account for potential bias introduced by the asymmetric answers.

⁷¹ 45% 'to a large' (7 801 respondents) and 15% 'to a very large' (2 596 respondents)

⁷² 10% 'to a small extent' (1 747 respondents) and 3% 'not at all' (536 respondents)

⁷³ 44% 'to a large' (5 337 respondents) and 12% 'to a very large' (1 495 respondents)

⁷⁴ 10% 'to a small extent' (1 180 respondents) or 2% 'not at all' (299 respondents).

⁷⁵ 40% 'to a very large extent' (6 885 respondents) and 13% 'to a large extent' (2 200 respondents).

⁷⁶ 12% 'to a small extent' (2 094 respondents) and 5% 'not at all' (778 respondents).

⁷⁷ 24% 'to a large extent' (4 051 respondents) and 10% 'to a very large extent' (1 759 respondents).

⁷⁸ 21% 'to a small extent' (3 652 respondents) and 18% 'not at all' (3 109 respondents),

⁷⁹ The application phase is the topic that received most specific and informative responses to the targeted survey's open question, of which most discuss potential for further simplification and are reported in Annex 4.5.3.

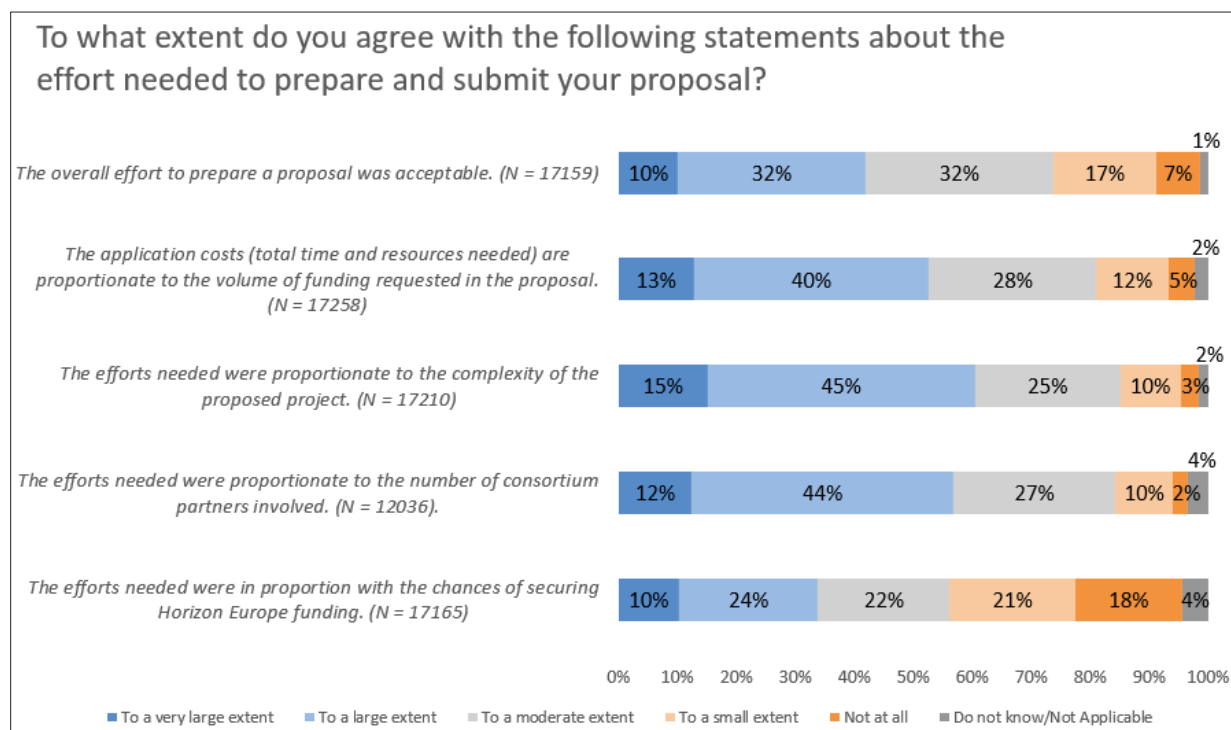
⁸⁰ 4849 responses to open questions, of which 189 reported in evaluation as particularly informative/sufficiently specific. Topics: application process (84), proposal template (42), web portals, guidance (35), use of consultants (37). See annex 4.5

⁸¹ MSCA PF: 2 MSCA DN:7, ERC: 6, INFRA: 1, C1: 4, CL2: 1, CL3: 1; CL4: 7, CL5: 8, CL6: 2, EIC Accelerator: 2, EIC Pathfinder: 2, WIDERA: 1, Mission: 1.

⁸² Examples from (one unsuccessful and one successful) Cluster 4 applicants.

suggest that the use of **two-stages application process** - where the second part must only be submitted if the first part is successful- should be applied (more widely) to reducing.

Figure 12: Proposal preparation effort



Source: Targeted survey of Horizon Europe beneficiaries and applicants. (2023) The assessment counts agreement “to small extent” as an expression of a disagreement to some extent, to account for potential bias introduced by the asymmetric answers.

A further breakdown of the **responses by programme part** (Figure 13) reveals relevant variation. In particular, **EIC and ERC applicants flag with most clearly that their application costs are not proportionate to the chances of securing funding**. The most concerning responses came from the **EIC Accelerator**, where just over half (52%)⁸³ of the responding applicants pointed at disproportionate application costs in chances of success, of which a particularly high share (29%) were very negative responses. A similarly strong signal comes from **EIC Pathfinder** applicants (45%429 respondents, of which 23% very strongly negative).

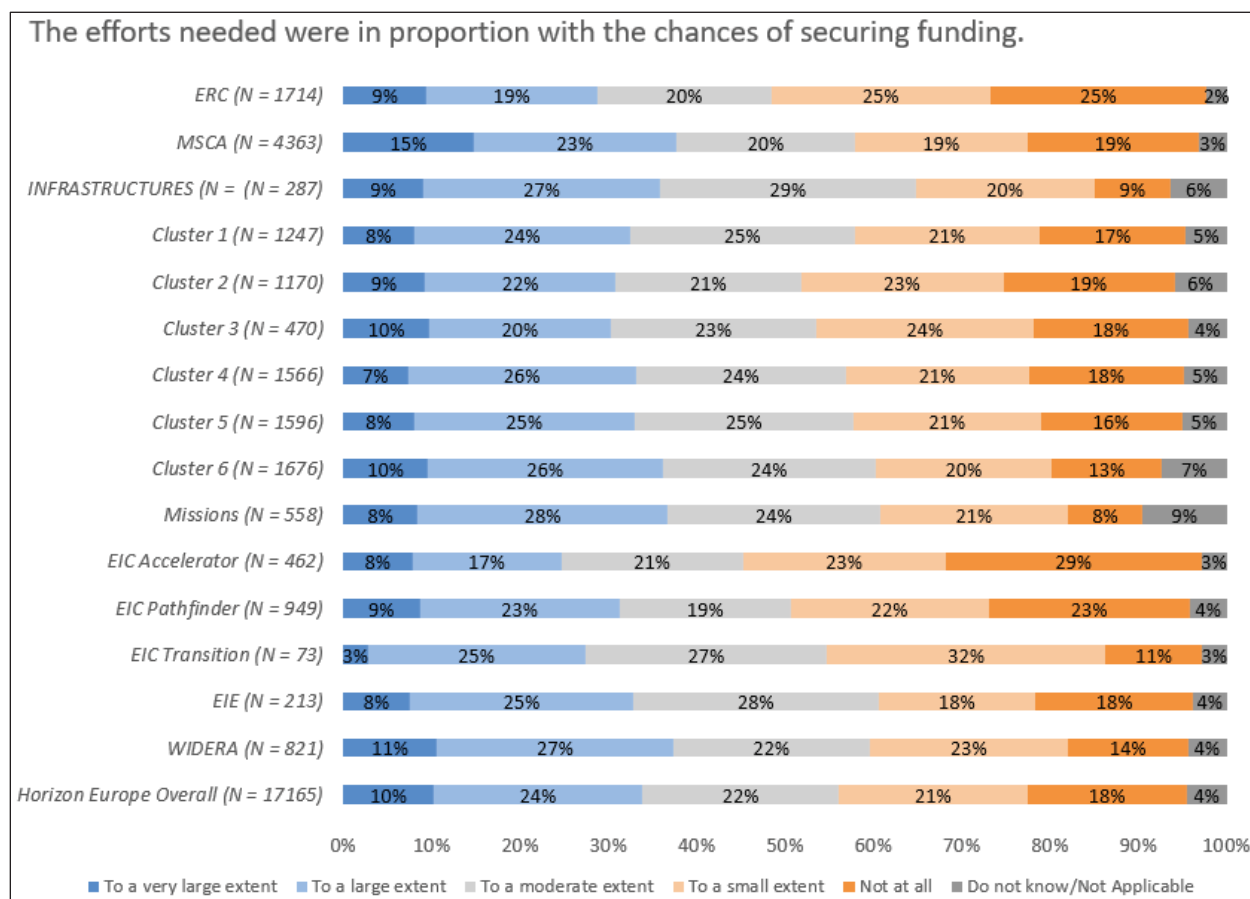
Some of this may be linked to the **EIC’s former application platform** with integrated AI (no longer in use). Five detailed responses from EIC applicants to the survey’s open question pointed to the platform adding to the applicants’ burden. One EIC Accelerator applicants reported: ‘*This was an awful experience in which we had to waste the consultant support to understand the web platform, instead of focusing on business or other more important aspects.*’ (See also Annex 4.5.3 on the potential for further simplification (application phase).

The concern about strongly disproportionate costs in light of success were further shared by **ERC** applicants (around 50%, 845 respondents, of which 25% strongly negative), and **EIC Transition** applicants (42%, 31 respondents). In the other programme parts, disproportionate application costs in chances of success were flagged by relatively large shares of applicants of **Cluster 2** (42%, 495

⁸³ i.e. either agreed ‘to a small extent’ (23%; 106 respondents) or ‘not at all’ (29%; 134 respondents)

respondents) and **Cluster 3** (42%, 198 respondents). Discontent among applicants on this topic correlates with proposal success rates, as programme parts showing the lowest success rates are exactly those showing the greatest discontent, namely Cluster 3 (13%), Cluster 2 (14%), EIC (14%) and ERC (14%).⁸⁴

Figure 13: Proportionality of applicant costs relative to chances of success - by programme part



Source: Targeted survey of Horizon Europe beneficiaries and applicants. (2023) The assessment counts an agreement “to small extent” as an expression of a disagreement to some extent, to account for potential bias introduced by the asymmetric answers.

4.1.2.2 Costs of applicants – quantitative evidence and total cost estimation

To obtain robust evidence on costs of applicants the targeted survey asked respondents to **report their organisation’s incurred application time costs under Horizon Europe**. The relevant question asked: ‘In your estimation, how many person-days did your organisation spend in preparing your Horizon Europe proposal?’ Respondents were offered the following options to answer: ‘Less than 5 person-days’; ‘6 to 15 person-days’; ‘16 to 25 person-days’; ‘26 to 35 person-days’; ‘36 to 45 person-days’; ‘46 to 55 person-days’; ‘56 to 65 person-days’; ‘More than 65 person-days’. The question had been chosen as it was considered as easy as possible for

⁸⁴ Proposals frozen dashboard as of 2 January 2025.

respondents to estimate. The answer options (bins) were based on evidence from the Horizon 2020 public consultation, which had used a similar question.

In contrast to earlier evaluation evidence on the costs of applicants, such as those from the public consultation and studies with narrower focus used in the Horizon 2020 final evaluation, the **survey responses of this evaluation’s targeted survey covered all applicants, all programme parts and were matched with data from the monitoring database (CORDA)**, which allowed the evaluation to understand, for instance, to which programme part the respondents had applied, whether they had met the quality threshold, had been funded, as well as other characteristic of their proposed project (e.g. duration, grant size, consortium size). **For the first time it is thus possible to quantify the costs associated with the preparation of proposals under the R&I framework programme in a robust way.** In the remainder of the section the findings are presented.

Proposal preparation costs of consortia (multi-beneficiary grants) combine the costs of coordinators, shouldering most of the effort, and those of contributing partners. Overall, the **median consortium coordinator spends between 36 to 45 person-days**, with a mode of **above 65 person-days**. The effort of **contributing consortium partners** is typically lower, with **16 to 25 person-days** per proposal (median and mode). The finding holds across most characteristics, but not for **consortia of > 30 partners**, where **contributing partners** spend on average less with **6 - 15 person-days per proposal** (median and mode).⁸⁵

Table 8: Application Cost: distribution of responses of coordinators and partners

Application cost	Consortium Coordinators		Consortium Partners	
person-days	successful (% from total)	unsuccessful (% of total)	successful (% of total)	unsuccessful (% of total)
< 5	24 (3%)	78 (6%)	358 (11%)	571 (13%)
6 to 15	34 (5%)	87 (7%)	991 (29%) mode	1 485 (33%) mode
16 to 25	50 (7%)	150 (12%)	847 (25%) median	1 089 (24%) median
26 to 35	117 (17%)	205 (17%)	572 (17%)	633 (14%)
36 to 45	115 (16%)	195 (16%) median	328 (10%)	386 (8%)
46 to 55	90 (13%) median	113 (9%)	138 (4%)	157 (3%)
56 to 65	76 (11%)	139 (11%)	71 (2%)	91 (2%)
> 65	197 (28%) mode	246 (20%) mode	100 (3%)	148 (3%)
Total responses	703	1 213	3 405	4 560

Source: Excellent Science evaluation study Annex 1.7.3.2, Table 54, p.250. N=9 881

Mono-beneficiaries - The median proposal preparation effort of **Pillar I and Pillar III** mono-beneficiaries was comparable to that of coordinators with **36 and 45 person-day**. While mono-beneficiaries do not have to coordinate partners during the proposal preparation phase, they are

⁸⁵ Resilient Europe evaluation study, Annex 1.32 p.45

nevertheless required to fulfil most of the same steps as coordinators. The finding is relevant, as some mono-beneficiaries are **worse affected by the same level of cost due to constrained resources**. For instance, this can be assumed to be the case of applicants to **MSCA PF**, who share the same median (and mode) cost range. However, mono-beneficiaries are not homogenous, and costs differ between actions (table below) For the **EIC Accelerator**, it is important to note that proposals apply for substantial grants and equity budgets, through pitching decks and full business plans, which can be used for investment commercialisation purposes beyond the EIC. This is also reflected in the comparatively high share (30%) of EIC Accelerator applicants, particularly successful EIC Accelerator applicants (40%), who reported very high application **costs of over 65 person days**, which is also the most commonly reported cost for this action.

Table 9: Application costs of Pillar I and Pillar III mono - beneficiaries

Application Costs Mono-beneficiaries	No. responses	Application costs - median [person-days]	Application costs - mode [person-days]
ERC STG	811	36 to 45 person-days	36 to 45 person-days
ERC COG	511	36 to 45 person-days	26 to 35 person-days
ERC ADG	324	36 to 45 person-days	More than 65 person-days
ERC POC	40	26 to 35 person-days	6 to 15 person-days
MSCA PF	2916	36 to 45 person-days	26 to 35 person-days
MSCA DN	1203	16 to 25 person-days	6 to 15 person-days
MSCA SE	189	16 to 25 person-days	6 to 15 person-days
MSCA COFUND	19	56 to 65 person-days	56 to 65 person-days; More than 65 person-days*
EIC Accelerator	335	36 to 45 person-days	More than 65 person-days

* MSCA COFUND application cost was bimodal for '56 to 65 person-days' and 'More than 65 person-days'. Source: Responses to targeted survey of Horizon Europe beneficiaries and unsuccessful applicants.

Consortium coordinator time costs vary by type of funding instrument.⁸⁶ While their median time cost for RIA, IA, PCP and COFUND actions is 46 to 55 person-days, those preparing CSA and MSCA(COFUND/DN/SE) proposals typically spend slightly less time, with 36 to 45 person-days, and even less on EIC⁸⁷ proposals, which take coordinators typically 26 to 35 person-days to prepare. The step down in costs is plausible, as the highest cost is associated with the group of instruments with the higher grant values (RIA, IA, etc;) suggesting that the higher expected return in case of success makes it worthwhile to spend more effort up front.

Proposals for longer projects take coordinators also longer to prepare. Projects lasting up to two years see coordinators typically investing 26 to 35 person-days in proposals, whereas those of two to four years typically take 36 to 45 person days. Coordinators of long projects, proposed to last four years or longer, typically incur even higher time costs of 46 to 55 person-days. For all but the shortest projects up to two years, coordinators most frequently chose the response of “more than 65 person-days”. The share of respondents choosing this mode also increases with project duration, suggesting that a substantial share of longer projects may require proposal preparation times from coordinators of well above 65 days.⁸⁸

Coordinators that prepared ultimately funded proposals typically spent more time than those of unsuccessful proposals.⁸⁹ The difference is particularly pronounced for projects with a duration of **at least three years**. This could be interpreted as an encouraging result, and a hint that the effort coordinators put into preparing their proposal matters, and that the proposal evaluation process rewards the effort. However, at the same time success is also correlated with the involvement of external contractors assisting with the proposal preparation, which in turn was also found to correlate with longer proposal preparation times.

Applicants who made use of, or were, consultancies took on average more time (about 10 person-days more for median respondents) to prepare a proposal, compared to the Horizon Europe average. This difference was not observed for coordinators who were themselves consultants, and who reported the same typical time costs as other coordinators. Contributing consortium partners, who were themselves consultants, reported (about 10 person-days) lower than average application time costs. The observed differences may be due to other characteristics of the type of projects for which consultancies are brought onboard, or be influenced by a combination of experience and coordination costs.

A regression analysis of the factors driving the application effort⁹⁰ shows that **consortium coordinators, as well as applicants with previous experience in the framework programme spend significantly more time (in terms of person-days) on the application process.** Coordinators typically lead the proposal, including aspects such as of establishing the consortium and determining the budget for each partner, which increases their application costs. Underlying

⁸⁶ Categories follow in parts those used in the Horizon 2020 Interim evaluation European Commission, Directorate-General for Research and Innovation, Interim evaluation of Horizon 2020 – Commission staff working document, Publications Office, 2017, Annex 1, p. 71 ([doi/10.2777/220768](https://doi.org/10.2777/220768))

⁸⁷ EIC Pathfinder and EIC Transitions. Based on 1916 responses over the three groups.

⁸⁸ Resilient Europe evaluation study, Annex 1.3.2, Figure16.

⁸⁹ Excellent Science evaluation study, section 4.1.2.

⁹⁰ Methodology described in Annex 2, section 15. See also: Interim evaluation support study: working paper - analysis of factors affecting applicants' and beneficiaries' costs of project application and administration processes in Horizon Europe's Pillar II ([doi/10.2777/412609](https://doi.org/10.2777/412609)).

reasons for higher application costs of organisations with previous framework programme experience are less clear. It might reflect an increased involvement in the proposal phase, as consortia tend to rely strongly on participants with more experience to develop the proposal. An alternative and complementary factor could be that experienced applicants invest more time in the proposal, as their first-hand experience with the programme has led them to have better information on the level of competition for funding. Finally, another measure of the application effort – the perception of the effort by the applicant, including the perception of the feasibility and the clarity of the call – is significantly influenced by the size of the consortium. **A higher number of consortium partners leads to a higher proposal effort for the coordinator**, which is an expectable and intuitive result considering coordination costs.

Consortium size was more strongly correlated with a higher effort of proposal preparation for coordinators than grant size and project duration.^{91,92} Coordinators of consortia with only **one partner** typically spend **26 to 35 person-days**, consortia with **2-14 partners** see coordinators typically investing **36 to 45 person-days** in proposals, while those of **15-30 partners** typically take **46 to 55 person days**. Above **30 partners** coordinators typically spend **56 to 65 person days** (median), with a higher mode suggesting a **large share** of coordinators⁹³ taking **well above 65 person-days**. Survey responses suggest that the required effort increases in steps, by **about ten person-days for every additional 15 partners**.

Estimation of the total application cost of Horizon Europe

The availability of detailed data on application efforts via the survey allows for a more robust quantification and monetisation of application costs at programme level. It is estimated that **the total cost of proposal preparation of all applications**⁹⁴ **to Horizon Europe so far ranges between EUR 1.9 billion and EUR 2.8 billion**. Divided by the total number of proposals submitted so far, this implies an average cost of proposal preparation in the range of EUR 21 000 to EUR 32 000. A previous estimate in the final evaluation of Horizon 2020 had arrived at an average proposal preparation cost of EUR 18 000 to EUR 37 000 for applicants. The difference between the two estimates is driven by a change in data source, with the newer estimate being the more robust one.

The estimate analysed the number of days dedicated to the application process and differentiated applicants based on their role and the size of their consortium. More specifically, applicants are grouped into five ‘sizes’, from mono-beneficiary applications, very small consortia with one additional partner, consortia with 2 to 14 partners, consortia with 15 to 30 partners, and consortia with over 30 partners. In addition, applicants from consortia are separated according to their role into coordinator or partner. Using these two stratification factors supports the robustness of the quantification exercise, as the analysis presented above points at their strong influence (consortium size and the role of the applicant as coordinator) on a proposal’s preparation time. The estimated

⁹¹ Resilient Europe evaluation study, Annex 1.3.2, Figure17, page 44 – 45.

⁹² Further, the size also dominated when looking at the variation in effort of proposal preparation in combination with grant size and project duration. Consortium size, grant size and project duration are strongly correlated, and the evaluation did not attempt to isolate the effect of consortium size on time costs.

⁹³ 44% of responding coordinators from consortia with above 30 partners chose the answer “56 to 65 person-days”, however, this share is only based on a total of 15 respondents.

⁹⁴ EIC Accelerator applications were excluded due to insufficient availability and quality of the data.

total application cost is then calculated by multiplying the number of days of each stratum (median response) - successively the lower and higher bound of the bracket - by the corresponding number of applicants to Horizon Europe so far, and then by the standard labour cost for administrative burden.⁹⁵

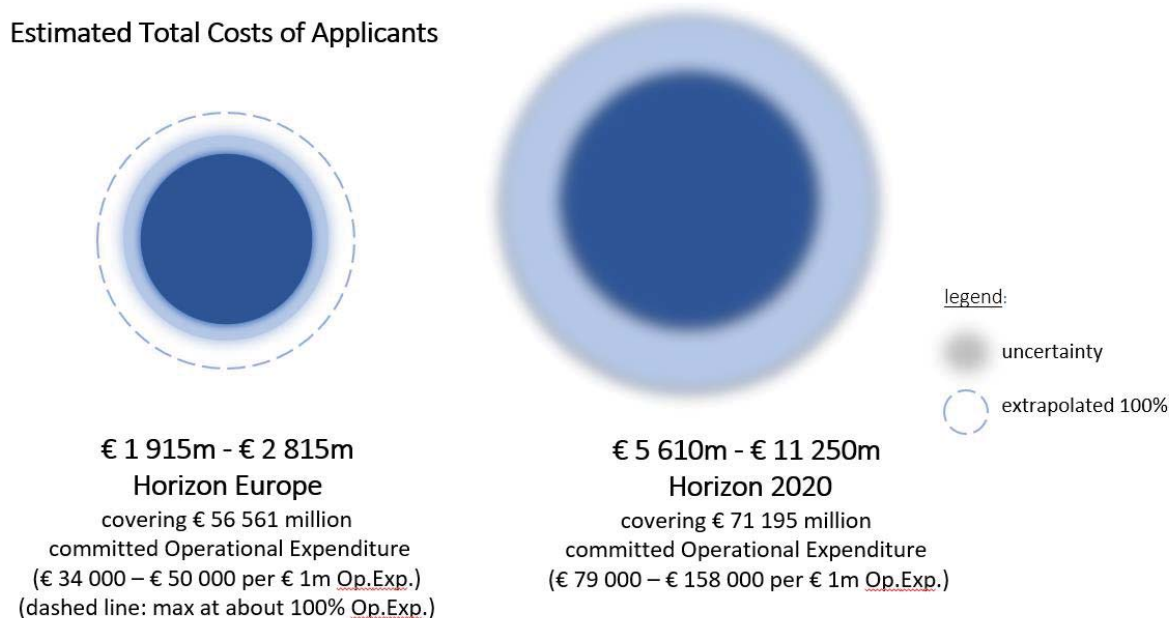
The above estimate represents the total cost of Horizon Europe's applicants up to now and does not cover all seven years. When scaled up to the entire framework programme period, using to relative sizes of the currently committed operational expenditure up to 2024 and the total operational expenditure available for Horizon Europe until 2027, the total application cost of Horizon Europe (2020-2027) is expected to range between **EUR 3.0 billion and EUR 4.4 billion, or EUR 34 000 to EUR 50 000 per EUR 1 committed million operational expenditure.**

In comparison, the **Horizon 2020** final evaluation estimated that the total application cost amounted to EUR 5.61 billion to EUR 11.25 billion over its entire programme period, which is **EUR 79 000 to EUR 158 000 per EUR 1 million of operational expenditure.** However, the confidence around Horizon 2020 estimate is very low due to its weak evidence base⁹⁶, which means that **the difference between the Horizon 2020 and Horizon Europe total application cost values is primarily the result of the improvement in data quality and the more granular estimation approach.** It is not possible to draw any conclusions on underlying change in the costs of applicants.

⁹⁵ Better Regulation tool #59 (One-In-One-Out calculator) Tariffs in EUR/hour. Eurostat Structure of earnings survey, Labour Force Survey data for Non-Wage Labour Costs. Calculations assume 8-hour working day.

⁹⁶ The Horizon 2020 estimate should be treated as a rough figure illustrating the order of magnitude of the total costs of proposals. See also discussion in, [Final Evaluation of Horizon 2020 \(2024\)](#), Annex 4, page 51.

Figure 14: Comparison of estimates of total costs of applicants (Horizon Europe and Horizon 2020)



Source: Internal analysis, Horizon Europe estimate based on survey to beneficiaries and applicants conducted May-June 2023 and CORDA data (6.1.2025). Horizon 2020 estimate: Horizon 2020 final evaluation (COM(2024) 49 final).

4.1.2.3 Applicants use of support for proposal preparation

Well over half of **Horizon Europe** applicants received support to prepare their proposals (possibly also with project implementation and dissemination) from a range of sources:

- **51%** (3688 respondents) indicated they received help from a **dedicated department** in their organisation.
- **29%** (2141) indicated that they had **not received any support**
- **19%** (1397) received support from a **National Contact Point (NCP)**; and
- **17%** (1252) commissioned support from a **consultancy firm/expert** (inside or outside the consortium).

Across the programme, different patterns in the uptake of support emerge: Comparatively high shares of applicants for **Pillar 3 (46%)**, in particular for the **EIC Accelerator (67%)**, and to some extent also for Pillar 2 Cluster 1 (28%; Pillar 2 average: 24%) made use of **consultancies**. Pillar 2 Cluster 3 stands out, in that a comparatively high share of respondents (**46%**; Pillar 2: average 29%) **did not use any sources of support** to prepare their application, presumably due to the sensitivity of the safety-related information in the applications⁹⁷. Those applying for

⁹⁷ The remaining responses support this as only 31% of Cluster 3 respondents received application help from an internal department (Pillar 2: 38%, HE 50.5%), and a very low share (13%; Pillar 2: 24%, HE: 17%) used external consultancies.

Innovation Actions most frequently use external consultancies, with a range of shares between **24% and 36%**.⁹⁸

There is considerable overlap between the users of consultancy services and those of NCPs. Above a quarter (27%) of all responding Horizon Europe applicants, who used consultancies or were consultancies themselves, also made use of the help offered by NCPs. Reversely, **26%** of NCPs-using applicants also employed/included consultancy services. In both cases the share is 8 or more percentage points higher than for Horizon Europe applicants in general. **The use of application support and the success of the application are correlated** for users of National Contact Points, as well as consultancies. However, the evaluation did not isolate the effect of receiving support (e.g. from consultancies) on the likelihood of success and the link is presumably driven by factors that influence both sides (e.g. financial resources).

The overwhelming majority (74% to 80%)⁹⁹ of Horizon Europe proposals reaching the quality threshold had been written without the involvement of external consultancies. 27% of quality proposals and 25% of proposals below the quality threshold were written with the help of consultancies. Also in these cases, a causal link may not exist.

The evaluation collected evidence on **fees paid to consultancies that assisted with proposal preparation.** The fees can be understood as a partial monetisation of application costs. **Successful applicants** reported on average a higher median **consultancy fee (EUR 10 000)** than **unsuccessful applicants (EUR 6 500)**.¹⁰⁰ The difference could be driven by success premium charged in case of the proposal is funded. 50 respondents to open questions shed light on the practices of hiring external consultancies and paying success fees. Some respondents stated that they paid a flat fee upfront and their agreement foresaw that a second fee would be paid if the proposal was successful. Information on the additional fee ranged from **3% to 7% of the project budget** and for fixed fees between **EUR 2 000 to EUR 5 000.**

The **median values of the consultancy fee**¹⁰¹ **for proposals** prepared with the support of an external consultancy were **EUR 7 500** for consortia, **EUR 2 000** for **mono-beneficiaries** and **EUR 12 000** for **EIC Accelerator** proposals.

4.2 Time-to targets (TTG, TTI, TTS, TTP)

In addition to the time-to-grant target (TTG), which represents the maximum allowable time for the evaluation and grant award process together, further targets set out expectations for the **proposal evaluation phase** (TTI / time-to-inform), the **grant agreement preparation phase** (TTS / time-to-sign) and the **time-to-pay (TTP)** is expressed as the **time to pre-finance** (target: 30 days)¹⁰². Horizon Europe has so far achieved an acceptable average time for **TTI of 130 days**

⁹⁸ Estimation in Resilient Europe study, Annex 1.3.3, p.63 CORDA data matched with survey evidence on median costs reported for three applicant groups: consortia, mono-beneficiary, and EIC Accelerator.

⁹⁹ Evaluation study on Resilient Europe, Annex 1.3.3p.58. (targeted survey responses, matched with CORDA).

¹⁰⁰ Result also holds for the mean.

¹⁰¹ Reported by 658 survey respondents to the question, “What was the total amount that your organisation paid to the consultancy firm/expert for the above services in project application/proposal writing?”

¹⁰² Payments are disbursed to beneficiaries in several instalments: pre-financing, interim payment(s), and final payment, with pre-financing paid within 30 days of the agreement’s entry into force, and interim and final payments made within 90 days of the respective report submissions.

(target: 153 days, H2020: 112 days) and an average **TTS of 95 days** (slightly above the target of 92 days; H2020: 76 days). As with Horizon 2020, this suggests that the grant agreement preparation phase remains the more challenging period of the two phases of the time-to-grant period. The achieved average **TTP** for prefinancing is 11 days, with 88% payments made on time, against a target of 30 days¹⁰³. This highlights a certain level of efficiency in providing beneficiaries with the necessary cash flow at project start.

Table 10: Achieved average Time-to-Inform, Time-to-Sign, Time-to-Grant and Time-to-Pay

	HE TTI	HE TTS	HE TTG	HE TTP
Target [average days]	153 days	92 days	245days	30 days (prefinanced)
Horizon Europe	130 ¹⁰⁴	95	240 (77%)	11 (88%)
Pillar I (excl. ERC)	147	70	239 (72%)	
Pillar I ERC			(See table below)	
Pillar I MSCA	149	68	239 (71%)	
Pillar II	108	125	244 (87%)	
Pillar III (excl. EIC)	148	86	240 (77%)	
Pillar III (EIC) -see explanation below	141	93	238 (67%)	
Widening and ERA	128	90	230 (88%)	

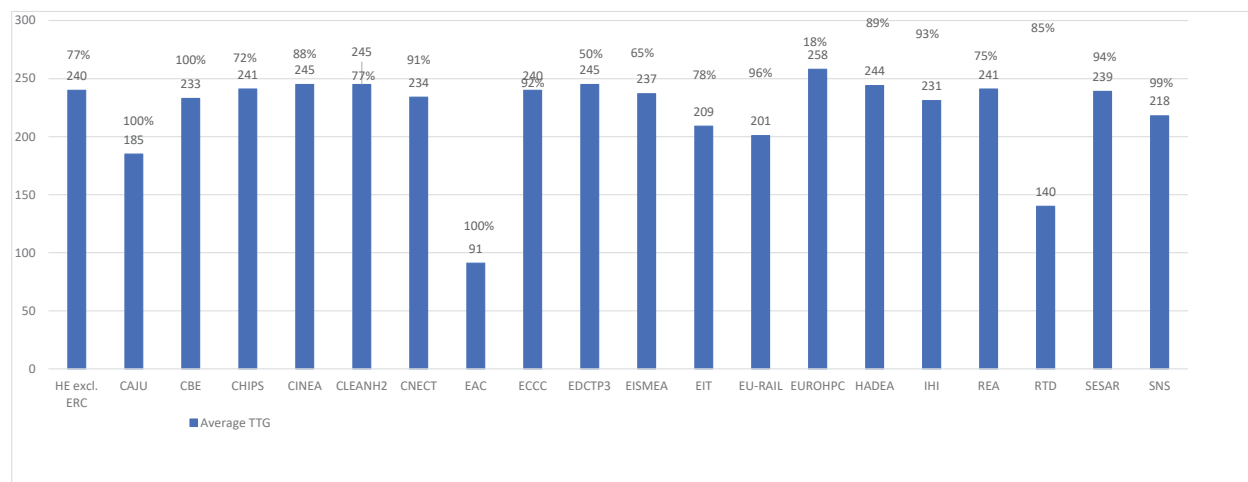
Sources: TTG, TTI, TTS, TTP Operational reporting, Time-to-Grant dashboard, 06.01.2025

The Horizon Europe monitoring system does not collect information on actual times-to-grant of grants the **EIT KICs** award under cascade funding to beneficiaries. The timing is only measured for the initial grants made to the KICs, which are processed by the EU Public Sector. The 17 KIC grants achieved the following averages: TTI of 69 days, TTS of 128 days and overall TTG of 197 days (82%). The achieved times-to-grant of cascading calls launched under the EIT KICs are not reported in the central database (CORDA). TTG values reported by EIT KICs can be found in the respective annexes 21 to 28.

¹⁰³ At the time of writing, the Time to Pay indicator based on the payments on target 90 days is not available in part due to ongoing transition between ABAC and SUMMA.

¹⁰⁴ Excluding ERC

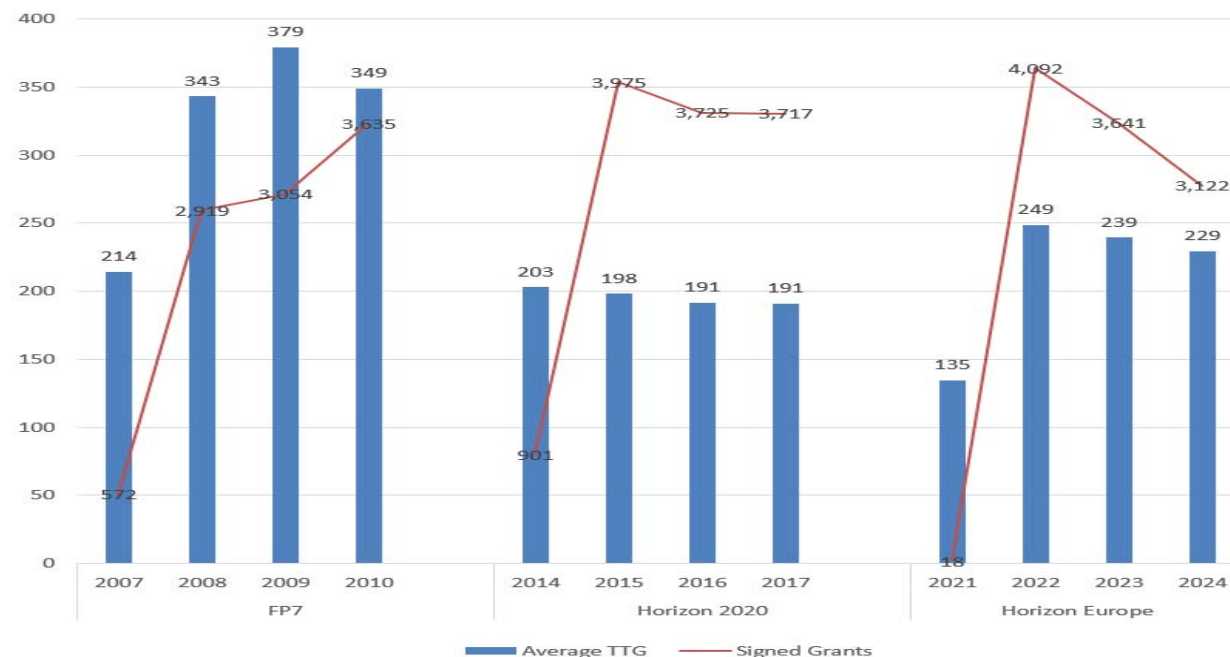
Figure 15: Horizon Europe average Time-to-Grant by organisational entity



Source: Operational reporting, Time-to-Grant dashboard, ERC excluded; as of 1 December 2024.

It must be kept in mind that the average periods reported above rise and fall throughout implementation. This is particularly true in the first few years where fluctuations tend to be higher. (see table below) The more limited the total number of grants the stronger the response to delays of any specific call. Values also capture set up or adaptation costs that will later average out once the adaptation phase has ended. The current time-to averages may therefore still provide limited information on performance trends of Horizon Europe as a whole.

Figure 16: Comparison of Horizon Europe, Horizon 2020, FP7 - Time-to-Grant of first 4 years



Source: Monitoring dashboard data of FP7, Horizon 2020 and Horizon Europe. Average TTG values (blue bars) and number of signed R&I support grants of FPs pooled, ERC excluded as of 2 January 2025

The **European Research Council** is exempt¹⁰⁵ from the eight-month time limit for finalising evaluations and grant decisions (TTG) as its evaluation process focuses on excellence and requires more time to ensure a rigorous peer-review process.¹⁰⁶ Instead, separate annual TTG targets, tailored to each ERC funding instrument, are annually defined in the ERC Work Programme. These thresholds account for the complexity and stages of evaluation specific to each instrument. The ERC reports its compliance with these thresholds in its Annual Activity Report (AAR).

Table 11: Average Time to Grant European Research Council by instrument for 2022-23¹⁰⁷

Instrument	2022 (completion rate ¹⁰⁸ 100%)		2023 (completion rate < 100%)	
	Targets	Results	Targets	Results
Starting Grants (StG)	450	387.8	424	356.9
Consolidator Grants (CoG)	441	404.4	429	312.4
Advanced Grants (AdG)	460	411.2	N/A	N/A
Synergy Grants (SyG)	503	468.5	511	391.9
Proof of Concept (PoC)	220	195	220	(1) 157

The evaluation looked into **international benchmarks** for administrative time performance measures, relevant to the context of processing proposals of funding programs for innovation funding, in particular for the EIC Accelerator, however, found that a comparison was difficult, due to the unique characteristics of the programme parts.

Qualitative feedback from Horizon Europe applicants on time-to targets

The targeted survey of Horizon Europe beneficiaries finds that beneficiaries are overall satisfied with the time-to targets of the programme. Concerning TTI, 68% of all Horizon Europe respondents indicated to be satisfied to a (very) large with the timeliness of the funding decisions. Lowest satisfaction is observed for EIC Accelerator and EIE, although satisfaction rates for both programmes are still at 58% and applicants are thus still overall positive.

¹⁰⁵ Article 31(3) of the Horizon Europe Regulation (EU) 2021/695.

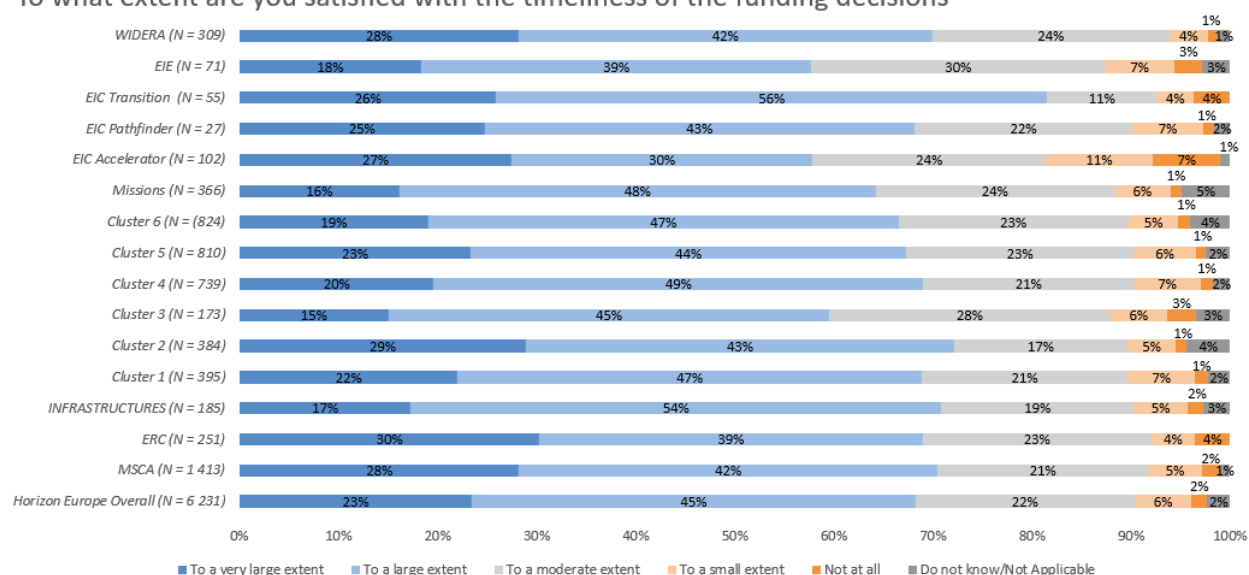
¹⁰⁶ Commission Decision approving the Annual Work Programme 2024 of the European Research Council Executive Agency. C(2024) 4524 final, Brussels, 3 July 2024. ANNEX.

¹⁰⁷ European Research Council Executive Agency. Annual Activity Report 2023

¹⁰⁸ Completion rate refers to the processing of the call evaluation.

Figure 17: Horizon Europe applicant satisfaction of the proposal evaluation phase

To what extent are you satisfied with the timeliness of the funding decisions

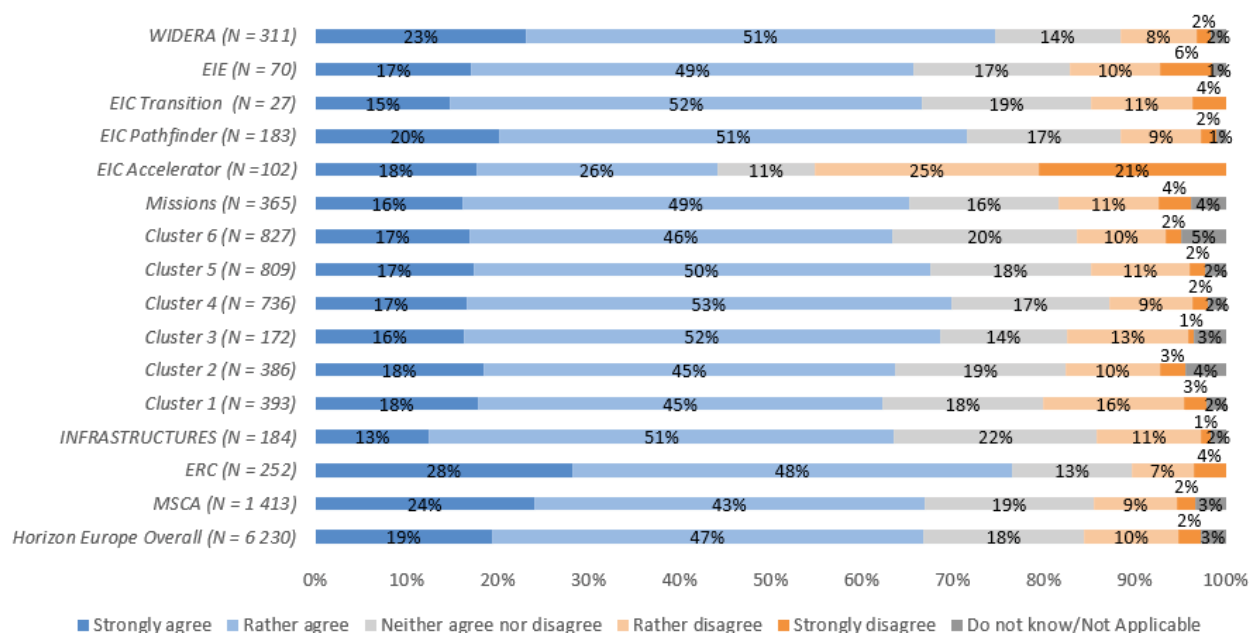


Source: Targeted survey of Horizon Europe beneficiaries and applicants.

Horizon Europe beneficiaries are also positive about the TTS of the programme, with 67% agreeing that the time the process takes up to the signature of the grant agreement is adequate. For the EIC Accelerator programme however opinions are divided, with 44% agreeing and 45% disagreeing that the time the process takes up to the signature of the grant agreement is adequate. For all other programmes parts beneficiaries overall indicate to be satisfied.

Figure 18: Horizon Europe applicant satisfaction of the grant agreement preparation phase

Would you agree or disagree that the time the process takes up to the signature of the grant agreement is adequate



Source: Targeted survey of Horizon Europe beneficiaries and applicants.

Seven respondents to the survey provided open-ended feedback on the evaluation and grant award process. These responses came from across Pillars I and II beneficiaries and were rather critical and contained suggestions for improvement. One Cluster 4 beneficiary suggests reducing time between convention of the evaluation panels (late January) and communication of the decision (middle of March). The same applicant mentions that, given that his proposal was submitted in November and the start date of the grant was October of the following year, the TTG is too long, as “*the context and even the technologies can change a lot in such a timeframe*”. An ERC COG and Cluster 6 beneficiary mention that the grant agreement preparation phase is actually too short and troublesome. An MSCA PF beneficiary on the other hand mentions the grant agreement preparation phase to be too long, causing a 2-month delay in employment.

4.3 Value-for-money of Horizon Europe

This annex provides additional information on the calculation of the benefit cost ratio. Table 12 below shows the costs and benefit values used in the calculation. The evaluation calculates a benefit cost ratio over **25 years (2021-2045)**. This period was chosen to allow time for the emergence of wider benefits of R&I investments.

Total Benefits: The expected GDP impact is used as the closest available proxy of the overall welfare benefits for EU society. The calculation uses two macro-economic forecasts from mid-2023 (Nemesis) and mid-2024 (Rhomolo). As model inputs, the Nemesis model used monitoring data on grants signed before mid- 2023, whereas the Rhomolo model took account of grants signed up to mid-2024. In both case, forecasts of the cumulative GDP impact of Horizon Europe over 25

years, from 2021 until 2045, were used. The estimates are adjusted for inflation, to be comparable with the expenditure of the respective years.

Total Costs: The EU Public Sector's committed operational and administrative expenditure, as well as the estimated cost of all (successful and unsuccessful) Horizon Europe applicants up to now (see Annex 4.1.2) are included in the total costs. Two sets of expenditure values have been used to match the respective data cut-off points of the two model. The same estimate of the total cost of applicants is added in both case. While the estimate of applicant costs is more robust than before (e.g in the Horizon 2020 final evaluation) it is still much more uncertain than the public expenditure data.

Table 12: Benefit Cost Ratio calculation

Costs of Horizon Europe		
(1) Operational Expenditure of EU Public Sector For Nemesis, expenditure committed by 06/2023 :	EUR 35.346 billion	
	For Rhomolo, expenditure committed by 06/2024 :	
(2) Administrative Expenditure of EU Public Sector For Nemesis, expenditure committed by 06/2023 :	EUR 2.383 billion	
	For Rhomolo, expenditure committed by 06/2024 :	
(3) Cost of applicants (Note: estimated on basis of survey responses and monitoring data, see Annex 4.1.2.1 for detail; used both for Nemesis and Rhomolo)	low EUR 1.92 billion	high EUR 2.82 billion
Total Cost Compared with Nemesis output (assessment mid- 2023):	low EUR 39.645 billion	high EUR 40.545 billion
	Compared with Rhomolo output (assessment mid- 2024):	EUR 51.895 billion

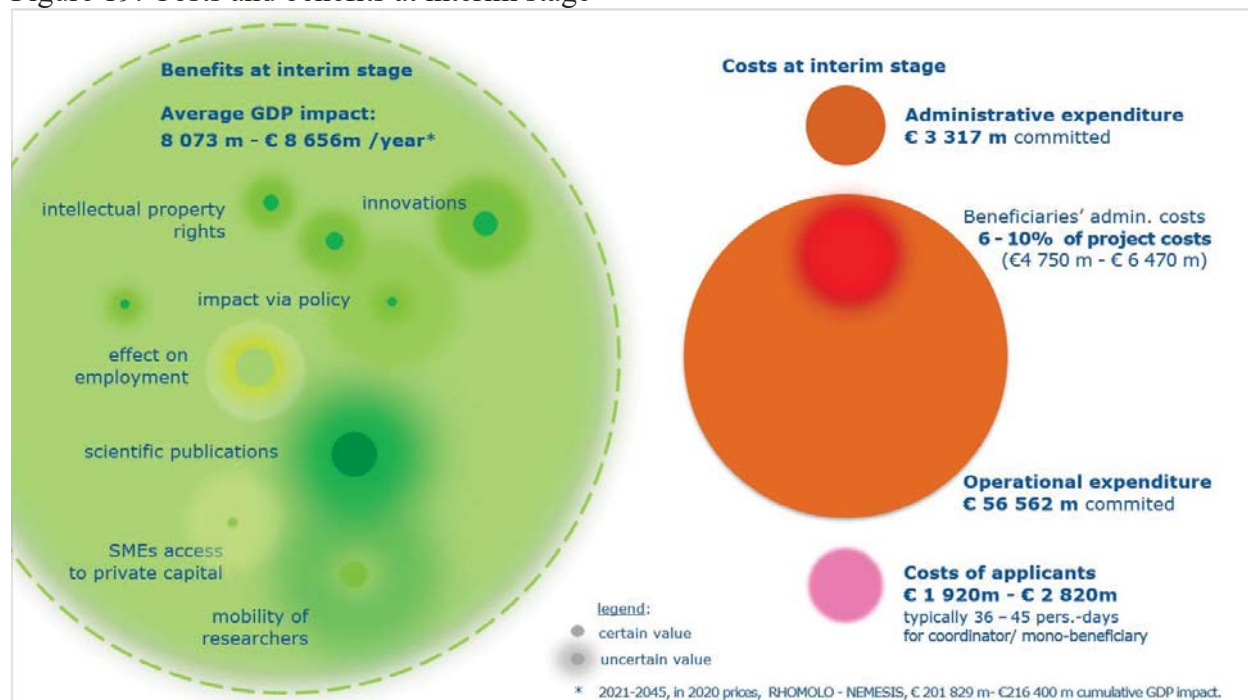
Benefits of Horizon Europe	
(1) Total Benefits of Horizon Europe (25 years) (Note: GDP impact 2021-2045, as proxy to welfare impact; Price base = year of assessment) Nemesis (assessment in mid- 2023):	NEMESIS - EUR 248.823 billion
	Rhomolo (assessment in mid- 2024):

Benefit Cost Ratio (BCR) – 25 years (2021-2045)	low	high
NEMESIS	6.1	6.3
RHOMOLO	4.6	4.7

The results suggest that the **benefit cost ratio (BCR) of Horizon Europe is 5 to 6, for a 25-year period**, which means that **one euro of costs to society associated with the programme**

(programme costs and costs to applicants) is expected to bring about at least five euros of benefits for EU citizens (measured through GDP impact) in the period up to 2045.

Figure 19: Costs and benefits at interim stage



4.4 Performance of simplification measures of Horizon Europe

4.4.1 Partnerships' administrative costs and rationalisation of partnership landscape

To shed light on the relative order of magnitude of the **costs of institutionalised partnerships**, particularly their administrative costs (or running costs), the evaluation brought together operational data of Joint Undertakings (JUs), Article 185 partnerships and EIT-Knowledge and Innovation Communities (KICs) covering the last 10 years (2014-2023). This data, while available for close to all partnerships,¹⁰⁹ is typically not aggregated as the level of total cost bringing together all sources that contribute to operational and administrative costs. It is also typically presented for shorter time spans (most commonly annually), during which costs are strongly affected by the setting up or winding down of the partnership. **The 10-year period was chosen to have data on a sufficiently long time span, which averages out particularities of single years and even single partnerships, with the aim to introduce some transparency into the cost structure of partnership types.**

Due to the time period, the data thus covers **activities under three framework programmes**. It stems from 20 JUs/Art.185 partnerships, which have been aggregated into 10 thematic groups and from 8 KICs. The JUs/Art185 partnerships have been thematically grouped together with their predecessors of previous framework programme in the following way: Innovative Health Initiative + Innovative Medicine, Clean Aviation + Clean Sky 2, Circular Bio-based Europe + Bio-based Industries, Clean Hydrogen + Fuel Cells and Hydrogen, Global Health (EDCTP3) + EDCTP2,

¹⁰⁹ EuroHPC has been excluded as costs could not be verified.

EMPIR + EPM, Chips + Key Digital Technologies + ECSEL, Smart Networks and Services, Europe's Rail + Shift2Rail Single European Sky ATM + SESAR. KIC Health, KIC Manufacturing, KIC Raw Materials, KIC Digital, KIC Urban Mobility, KIC Climate, KIC Food, KIC InnoEnergy.

Operational costs of institutionalised partnerships

Table 13: Operational costs of institutionalised partnerships

Type of partnership	Total Operational Costs [EUR /year] including EU contributions; validated IKOP; financial contributions to operational activities by JU partners; eligible project costs funded by non-JU members to project activities; and contributions from Member States and international organisations to project activities. (Data: 2014-2023)		
	average annual cost (pooled) ¹¹⁰	median of average annual cost ¹¹¹	range of average annual cost (lowest -highest) ¹¹²
JUs/Art.185	223 300 000	190 300 000	28 300 000 - 651 300 000
EIT KICs	66 900 000	65 300 000	34 300 000 - 83 600 000

The operational cost of JUs/Art185 partnerships varies substantially, by an order of magnitude between the partnerships, with a range of **EUR 28.3 million to EUR 651.3 million annually on average**. For EIT KICs, the **average operational costs are lower** than those of the JUs and also lie closer together, from **on average EUR 34.3 million to EUR 83.6 million annually**. The lower operational cost may be explained by the type of activities of the EIT KICs and the differing objectives as compared to JUs activities and their objectives, with a substantial share of its activities reflected in administrative expenditure, as illustrated below.

Administrative costs/ running costs of institutionalised partnerships

Table 14: Administrative costs (Running Costs) of institutionalised partnerships

Type of partnership	Total Administrative Costs (Running Costs) [EUR /year] including contributions from the EU and from sources other than the EU. (Data: 2014-2023) ¹¹³		
	average annual cost (pooled)	median of average annual costs	range of average annual costs (lowest -highest)
JUs/Art.185	5 200 000	4 300 000	1 300 000 - 9 700 000
EIT KICs	8 800 000	7 900 000	5 700 000 – 11 700 000

¹¹⁰ Average annual cost pools the 88 (JU/Art185) and 52 (KICs) verifiable annual operational cost values of partnerships, from 10 JU/Art 185 thematic groups and 8 EIT KICs respectively; rounded to nearest 100 000.

¹¹¹ The median of the averages (i.e. median of the average annual costs calculated by partnerships/partnership-groups taking into account their years of activity). Rounded to nearest 100 000.

¹¹² The lowest and highest average annual costs across partnerships/partnership-groups (taking into account their years of activity). Rounded to nearest 100 000.

¹¹³ The pooled average annual cost, median of the averages, and lowest to highest average annual costs in this table are calculated in parallel to those of the operational cost table. Values rounded to nearest 100 000.

The data suggests that, over the 10-year period **JUs spent on average 3.7%** (median 2.9%) **of their overall expenditure on running costs**. Pooling all administrative cost data of all JUs for the period of 2014-2023, the annual administrative cost (averaged over all years for which data was reported¹¹⁴) was around **EUR 5.2 million**, with the annual average cost of individual partnerships ranging between EUR 1.3 million and EUR 9.7 million.

KICs have higher running costs due to key features of their operational set up. KICs are pan-European networks with **numerous offices across Europe ('co-location centres')**. While the related overheads are spent on what could be considered an operational activity and underpin the KICs potential, they also render KICs more administrative cost intensive.

The shares of the KICs' running costs as a share of its overall costs (running costs + operational costs) are higher throughout, with no substantial differences observed between waves. **KICs spent around 12%** (average 11.9%, mode 12.2%) **of their overall costs on running costs**. Pooling the administrative cost data of all KICs for the period of 2014-2023, the **annual administrative cost** (averaged over all years for which data was reported¹¹⁵) was around **EUR 8.8 million**, with the annual average cost of individual KICs ranging between EUR 5.7 million and EUR 11.7 million.

Table 15: Administrative costs (Running Costs) compared to overall expenditure

Type of partnership	Total Administrative Costs (Running Cost) as share of overall cost (Total Running Cost + Total Operational Cost) (Data: 2014-2023) ¹¹⁶			
	pooled administrative cost share	average of partnerships' administrative cost shares	median of partnerships' administrative cost shares	range (lowest - highest) of administrative cost shares
JUs/Art.185	2.3%	3.7%	2.9%	0.6% ¹¹⁷ - 9.6%
EIT KICs	11.6%	11.9%	12.2%	9.6% – 14.4% ¹¹⁸

Due to their operational arrangement, **running costs of KICs and JUs cannot be directly compared**. A comparison of the running costs of the **KICs' headquarters (HQ)** with other partnerships would have been informative, however, KICs are free to take different approaches towards cost reporting and the data required for such a split is not available for all KICs.

Cost data available for 5 KICs for the years 2021 and 2022 (Table 16) illustrates the **effect of the network of offices (CLC) across Europe on administrative costs** and suggests that considering running costs of headquarters on their own lowers the **administrative cost share by about 30% percent on average**. Applied to the costs recorded for the period 2014-2023, this lowers the **average KIC's administrative cost share to around 8%** (instead of around 12%).

¹¹⁴ Number of partnership-years for which data was reported at least for administrative or for operational costs.

¹¹⁵ Number of partnership-years for which data was reported at least for administrative or for operational costs.

¹¹⁶ Based on same data as tables 1 and 2.

¹¹⁷ Minimum value stems from Smart Networks and Services (SNS) Partnership, which has just been set up. Administrative expenditure data on its predecessor 5G PPP is not available as the partnership was centrally managed by the European Commission. Excluding SNS results in a range of 0.8%-9.6%, median of 3.0% and average of 4.0%.

¹¹⁸ Split by waves, ranges are: 1st wave: 12.3% (both), 2nd wave: 9.6%-12.2%, 3rd wave: 11.2%, 4th wave: 12.1%-14.4%.

Table 16: Administrative costs (5 KICs; 2021 & 2022) comparing to HQ and HQ+ CLC offices

European partnership	HE Average for HQ+CLC	HE Average for HQ only
KIC Manufacturing	7,57%	4,92%
KIC Raw Materials	6,64%	3,74%
KIC Digital	8,58%	4,95%
KIC Urban Mobility	12,58%	9,26%
KIC Food	9,01%	7,58%

*for the other three KICs (EIT Climate-KIC, EIT InnoEnergy, EIT Health), administrative costs for co-location centres cannot be identified.

Benchmark and targets

There are no directly applicable performance benchmarks, targets, or explicit expressions of expectations around the partnerships' share of total administrative cost. Some indirect benchmarks do exist, such as the 5% administrative expenditure benchmark of the framework programme as a whole. Art 185 bodies/JUs on average clearly stay below 5 %, which is only exceeded by 2 of the 10 partnership-groups individually during the period of 2013-2024, as well as by the EIT KICs' average (and individual) annual running costs. However, the 5% administrative expenditure level was never meant to apply to partnerships (individually or as a whole) and is not directly suited for a programme-level evaluation.

A second type of target for Horizon Europe's institutional partnerships is set out in legislation¹¹⁹ in the form of the **maximum amounts the partnerships are allowed to spend on "administrative costs"** out of their **EU contributions**. In practice, running costs are also paid from contributions other than the EU. Within the legal limits¹²⁰ it is a strategic decision of each partnership to what extent to use EU contributions for operational or administrative expenditure, therefore the actually achieved share itself is not informative about a partnership's operational efficiency.

These legal, currently applicable **administrative expenditure ceilings for EU contributions** can be expressed as a percentage of the total EU contribution (see table below), even though these percentages are subject to change. For instance, the additional UK financial contributions from 2024 onwards will indirectly reduce the administrative cost share expressed in this way.

The evaluation observes that the currently imposed administrative expenditure ceilings on the different JUs are surprisingly varied, when expressed as a percentage and range from 1.5% to 7.5%.

If these limits had been set using a standardised approach, the **relative magnitude of the partnerships' administrative cost ceilings** could be interpreted as an indirect expectation on achievable *relative* administrative efficiency. However, the evaluation could not establish that this

¹¹⁹ Single Basic Act [Council Regulation 2021/2085](#) establishing the Joint Undertakings under Horizon Europe, Art.10.1 (*The Union financial contribution to the joint undertakings, (...), shall cover administrative and operational costs up to the maximum amounts specified in Part Two, provided that that amount is at least matched by the contribution of members other than the Union or their constituent or affiliated entities.*); Chips JU establishing Decision 2021/2084; as well as in legislation for EPM Art. 185 Partnership and EIT KICs..

¹²⁰ Council Regulation 2021/2085 Art.28 4(a) Partners are expected to match the administrative costs funded through EU contributions. For some partnerships derogations are in place. Calculated ceilings exclude UK financial contributions, which will reduce the administrative cost share.

was the case. Some values seem to reflect **previous ceilings of Horizon 2020 predecessors**¹²¹, others are likely the **indirect effect of an increase in EU contributions**¹²², others again may be the **outcome of negotiations** or and indirect expression of the expected ability of the partnership to obtain funds from sources other than from EU contributions.

Table 17: Administrative expenditure ceilings of Joint Undertakings /Art 185 partnerships

	Administrative expenditure ceiling of Horizon Europe JUs expressed as share of the JU's total EU contribution
EPM (EURAMET)	5% ¹²³
Chips JU	1.5% ¹²⁴
Smart Networks & Services	2.1%
Clean Aviation	2.3%
Circular Bio-Based Europe	2.4%
IHI	2.5%
Clean Hydrogen	3.0%
Europe's Rail	4.0%
SESAR	5.0%
GH-EDCTP 3	7.5%

In its Guidelines to KICs for their 2022 Business Plans, EIT has set out structured administrative cost ceilings that reflect each KIC's maturity in a given year given its launch date (wave). As of 2023, the **applicable administrative cost ceiling** of the **KIC** in scope of the evaluation is **currently 12%**.

Table 18: Administrative expenditure ceilings of EIT KICs (waves 1 to 4)

EIT KIC	Administrative expenditure ceiling of Horizon Europe EIT KICs expressed as share of the KIC's total EU contribution	
First wave KICS	EIT Digital, EIT InnoEnergy, EIT Climate-KIC	18% in 2016 15 % in 2017 12 % in 2018 and onwards
Second wave KICS (launched in 2014)	EIT Health, EIT Raw Materials	18% in 2017 15% in 2018 12% in 2019 and onwards
Third wave KICS (launched in 2016)	EIT Food	18% in 2019 15% in 2020 12% in 2021 and onwards
Fourth wave KICS (launched in 2018)	EIT Manufacturing EIT Urban Mobility	18% in 2021 15% in 2022 12% in 2023 and onwards

¹²¹ For instance, under Horizon 2020, EDCTP2 (Art.185) was allowed up to 6% of the Union's financial contribution to cover administrative costs. (Decision No 556/2014/EU, Art 2.3.) EDCTP3 now has a ceiling of a similar size.

¹²² E.g. Chips JU

¹²³ Running costs (paid for personnel, opening of calls, continuous monitoring of projects, etc) are not to be funded through EU contributions (Member State funding only), as per establishing Decision 2021/2084.

¹²⁴ Regulation 2021/2085, Art. 128 modified the EU contributions (EUR 4 175 million, of which EUR 2725 from Horizon Europe) and administrative cost ceiling (EUR 62 287 000).

4.4.2 Lump sum funding – removal of beneficiaries' financial reporting requirements

Lump sum funding, as a simplification measure, has the aim to **reduce a grant beneficiary's reporting costs**, and thus administrative costs, and to lower the elevated rates of **financial errors of R&I funding**. It also has the wider objective to shift the focus back onto a project's performance and content, away from financial controls, for grant beneficiaries and public administration alike.

Beneficiaries of standard (actual cost) grants have to prepare and submit detailed financial reports (in addition to other reporting requirements) each reporting period to unlock grant payments. In contrast, **lump sum grant beneficiaries are paid a previously agreed fixed sum (lump sum) for each delivered work package. Financial reporting requirements, which make up a substantial share of a beneficiary's reporting burden¹²⁵, fall away.**

In addition to the grants' beneficiaries, lump sum funding also has **effects on other stakeholder groups** involved in the programme:

- **Public administrators** no longer have to check financial reporting (simplification benefit, administrative cost of EU public sector) but have to adapt grant management practices to the shift of focus on the performance of the content (adjustment costs).
- **Applicants** for lump sum grants have to prepare and submit an additional budget table (application costs), **evaluators of the proposals** have to assess the additional budget table (administrative cost of EU public sector).

Under Horizon Europe, the use of lump sum grants has been gradually expanded, building on the previous, generally positive assessment of lump sum funding for R&I projects under Horizon 2020.^{126,127}

The use of lump sum grant in Horizon Europe

As of 1 January 2025, a total of 1 582 lump sum grants have been signed under and Horizon Europe, for a total value of EUR 3.03 billion. These belong to two types of grants.

706 ERC Proof of Concept lump sum grants have been signed over a total value of **EUR 106 million**, each with one reporting period and a grant value of EUR 150 000. PoC grants have exclusively used lump sum funding since its pilot in 2018 under Horizon 2020. Although simplification benefits from PoC lump sum grants are strictly speaking not additional under Horizon Europe, they are included in the quantitative estimate of the total simplification effect from lump sum funding in this evaluation.

876 lump sum grants (excl. ERC PoCs) have been signed, with an average of 9 consortium members, a median of 2 reporting periods (1 to 4 periods), and over a total value of **EUR 2.93 billion**.

A detailed description of the state-of-play of lump sum funding, covering the entire lifecycle of grants as of early 2024 can be found in the new assessment on lump sum published in September 2024.¹²⁸ Implementation data suggest that the signed lump sum grants closely match the

¹²⁵ The evaluation has no evidence on what share of the beneficiary's overall reporting cost is spent on financial reporting. One assumption is 25%, as a plausible value. This value is yet to be tested and not used in the assessment.

¹²⁶ [Assessment of the Lump Sum Pilot \(2018-2020\)](#), October 2021.

¹²⁷ See also Section 4.2.3 and Annex 4 of the [Final Evaluation of Horizon 2020](#) (2023)

¹²⁸ [Assessment of lump sum funding in Horizon 2020 and Horizon Europe](#), September 2024

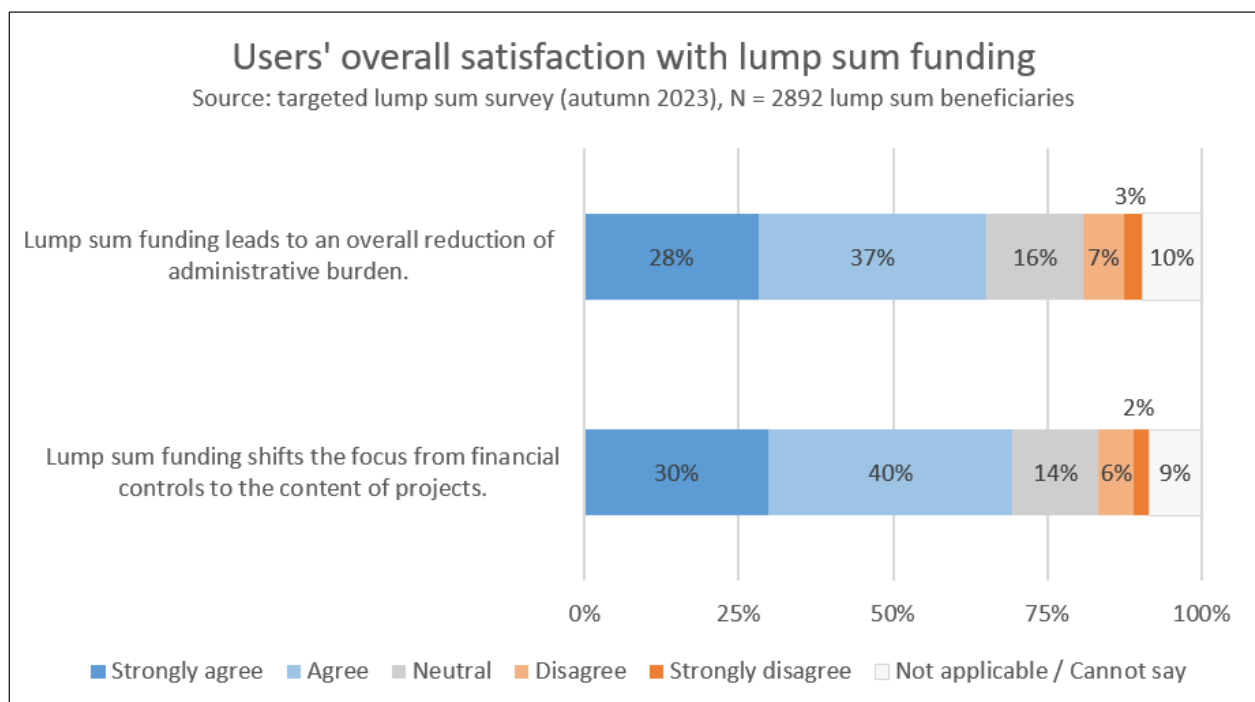
characteristics of Horizon Europe grants in general in terms of applying organisations,¹²⁹ average funding per participant,¹³⁰ participation rates of SMEs and newcomers¹³¹, as well as the average number of amendments to grant agreements.¹³²

Benefits of lump sum funding

Qualitative feedback on benefits

The 2024 internal assessment finds that lump sum funding continues to be **generally popular** with its users (see Figure 20), who, across all programme parts, **perceived an overall reduction in administrative burden** (65%, 1880 respondents), and an **improved focus on project content** (70%, 2024). Lump sum funding is not seen as interfering with the proper functioning of R&I projects.¹³³

Figure 20: Overall satisfaction with lump sum funding



Source: Based on 2892 responses of lump sum applicants/beneficiaries to targeted lump sum survey (Sept.-Oct. 2023).

When considering consortium and project size, **lump sum grants are particularly welcomed by beneficiaries of grants of up to EUR 10 million, and those with a consortium size up to 20 participants.**¹³⁴ At the same time, survey results did not suggest that larger grants are unsuited for lump sum funding or were associated with a substantially higher risk.¹³⁵ Of the 116 responding

¹²⁹ Ibid. figure 3, page 12.

¹³⁰ Ibid. figure 8, page 18.

¹³¹ Ibid. figure 10, page 20.

¹³² Ibid. figure 12, page 23.

¹³³ Ibid., page 5.

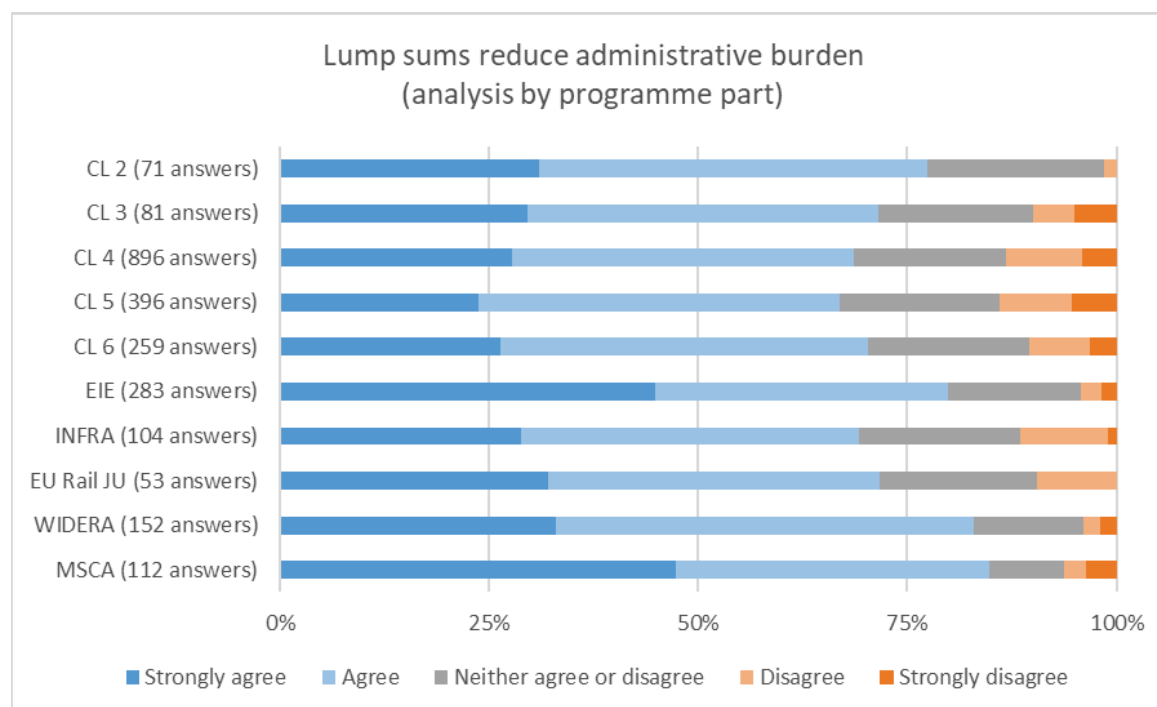
¹³⁴ Ibid., page 6.

¹³⁵ Ibid., page 6.

beneficiaries of lump sum grants **above EUR 10 million**, 70% (81) agreed or strongly agreed that lump sum grants reduced administrative burden.¹³⁶

Survey responses provided no indication that that lump sum funding could be unsuitable for any given **area of R&I**. Beneficiaries' responses on administrative burden savings from lump sum grants are relatively homogenous across programme part, with **MSCA** and **EIE** respondents showing particularly strong support. (Figure 21).

Figure 21: Lump sum participants' perception of administrative burden reduction



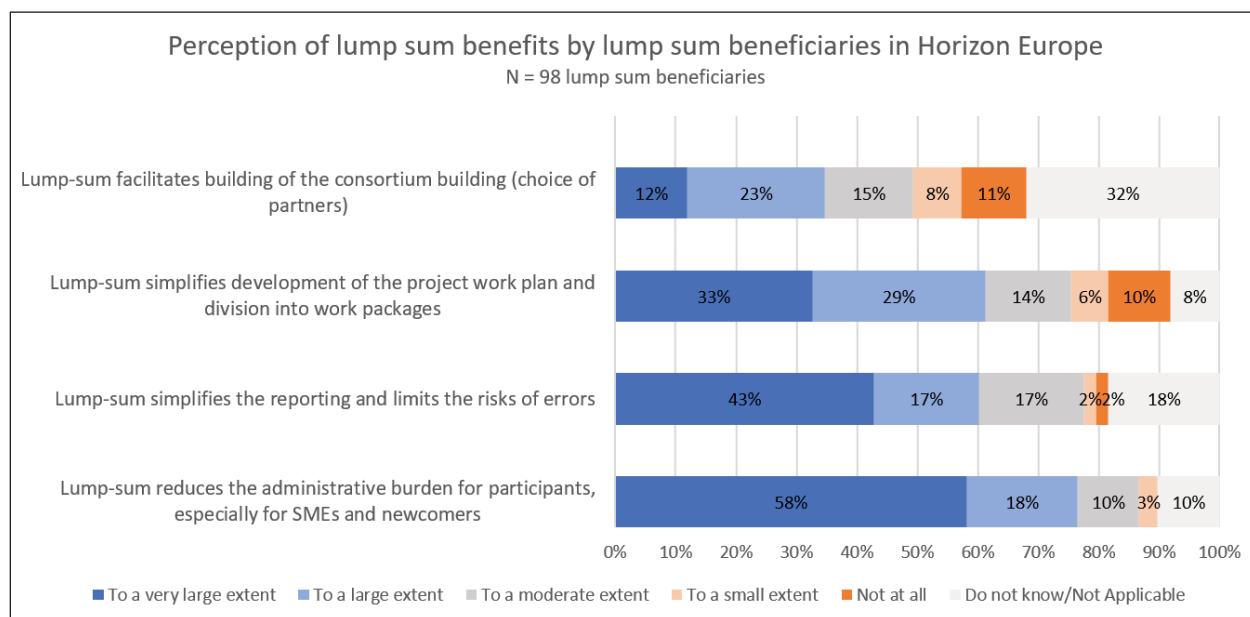
Source: 2407 responses (excl. 10% "Cannot Say") to survey of lump sum applicants / beneficiaries (Sept.-Oct. 2023)

The evaluation's targeted survey of Horizon Europe beneficiaries and applicants collected similar evidence, also in summer 2023 and from lump sum beneficiaries. The survey unsurprisingly confirms the general support for the rationale of lump sum grants, with high levels of strong agreement on the main benefits of lump sum funding.

Out of 98 responding lump sum beneficiaries, 74 (76%) agree to a large or very large extent with the statement that lump sum funding reduces the **administrative burden** for participants and 60% agree at least to a large extent that lump sum grants **simplify reporting and limits the risk of errors**. While 62% agree (at least to a large extent) that lump sum funding **simplifies the project work plan and the division into work packages**, beneficiaries' views are much less uniform, with a larger share who disagree (16% 'not at all' and 'to a small extent'). Views on the extent to which lump sum funding helps with consortium building are even more divergent, with only 35% perceiving the benefit at least to a large extent but 18% not in support (Figure 22).

¹³⁶ Ibid. figure 25, page 37.

Figure 22: Perception of lump sum benefits by lump sum beneficiaries in Horizon Europe



Source: Survey to Horizon Europe beneficiaries and applicants (May-June 2023), 98 responses from lump sum beneficiaries.

The **private sector** in particular supports the main rationale for benefits from a reduced administrative burden thanks to lump sum grants (see Annex 5, Figure 51) - 65% of responding companies and business associations agree that the use of lump sum reduces the burden on beneficiaries. At the same, the support for existing accounting practices of participants in the context of lump sum funding is judged as comparatively weaker. (see Annex 5, Figure 65)

Quantitative assessment of lump sum benefits

Evidence from applicants and beneficiaries makes it possible, for the first time, to shed light on the **magnitude of simplification benefits from lump sum funding from removing financial reporting requirements**. It suggests that the **typical financial reporting cost saving of lump sum grant beneficiaries amounts to between 6 to 8 person-days per reporting period and consortium member**.

The underlying **evidence** stems from **2 short surveys** (both ran 30 July and 9 September 2024), which **focused on lump sum funding and financial reporting costs**. They invited beneficiaries of lump sum grants under Horizon 2020 and Horizon Europe, as well as beneficiaries of actual cost grants across Horizon Europe, who, by July 2024, had already reported at least once on their projects.¹³⁷ The overall response rates were 21% (300 lump sum grant respondents) and 19% (1533 actual cost grants respondents), respectively.

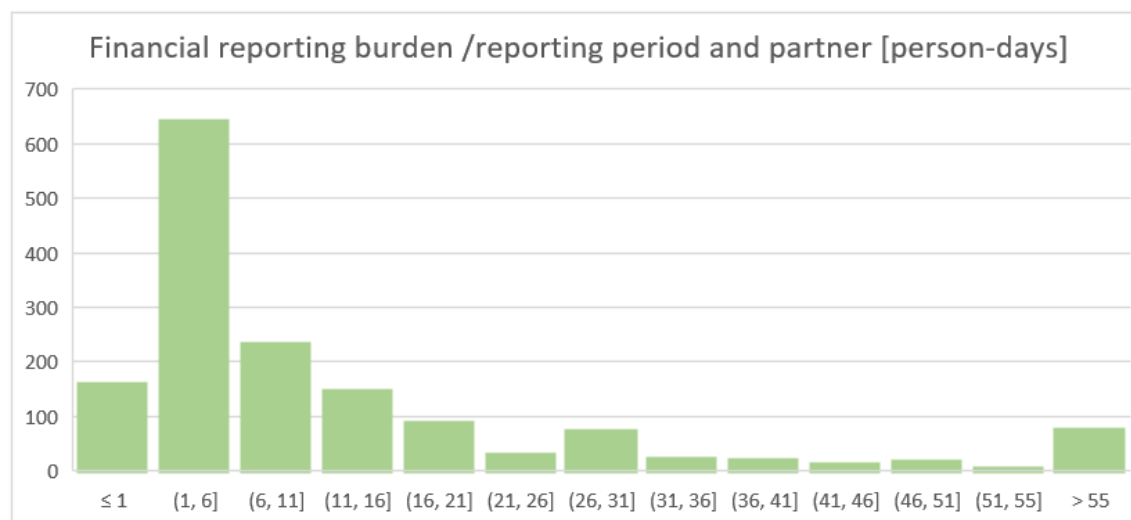
(1) A question on time savings in the first targeted survey asked 1451 beneficiaries of lump sum grants of Horizon 2020 and Horizon Europe (excl. ERC PoC). In response, **210 lump sum grant beneficiaries with past experience of actual cost grants** reported a median financial reporting

¹³⁷ The survey addressed to lump sum grant beneficiaries reused the list of beneficiaries of the related earlier targeted survey on lump sum funding from September - October 2023 as a starting point.

cost saving of **8 person-days per reporting period and consortium member**. 20 lump sum beneficiaries indicated they had experienced no savings,¹³⁸ the remainder reported savings between 0.1 and 150 person-days per consortium member per reporting period.¹³⁹

(2) To test and validate the lump sum beneficiaries' responses, a parallel, second survey approached 8082 beneficiaries (project financial signatories) of actual cost grants across Horizon Europe (excluding ERC), who had at least once submitted periodic reporting by July 2024. A survey question asked **actual cost grant beneficiaries** to estimate their **incurred financial reporting costs under Horizon Europe**. As financial reporting falls away under lump sum funding, the responses provide an **indirect estimate of savings that could have been achieved** had these grants been lump sum grants. The **1 529 responses** suggest a slightly lower, but fairly similar, median financial reporting cost of **6 person-days per reporting period and consortium member**, with a mode of 5 person-days and a range of 0.1 to 116 person-days, after excluding outliers.¹⁴⁰ When limiting the survey sample further to respondents, whose answers to more specific sub-questions on reporting burden are internally consistent with their indicated total financial reporting cost, the second survey also returns a median benefit of 8 person-days per reporting period and consortium member. However, this approach does not account for the fact that some of the more specific questions may have been more difficult to answer¹⁴¹ and it would exclude 35% of the respondents, which is why it has not been chosen as the central approach.

Figure 23: Distribution of responses - Actual Cost Grant beneficiaries: financial reporting costs



Source: 1529 responses, Horizon Europe actual cost grant beneficiaries, who had reported; X-axis shows the financial reporting costs in the unit of “person-days per reporting period and partner”. Y-axis shows the number of responses received that fell into each specific bracket of person-days. E.g. “(1, 6]” = from above 1 to including 6 person-days.

¹³⁸ 1 response reported a related cost increase from coordination efforts to ensure performance across the consortium.

¹³⁹ Excluding 4 outliers (2%, 300 - 870). It is assumed that respondents may have reported the total cost saving for all consortium members together, all reporting periods together, or even both. Reduces median by 0.5 person-days.

¹⁴⁰ Excluding 23 outliers (1.5%; > 2 SD). Same reasoning as for lump sum survey.

¹⁴¹ Many answers to the subsequent, more specific questions either repeat the response to the general one or return extreme values. This suggests that respondents may have had difficulties to answer the more specific questions, but it does not automatically devalue their response to the more general question on the overall financial reporting costs.

The evaluation used implementation data on lump sum grants (excluding ERC PoCs) signed until 1 January 2025, specifically the respective participants and reporting periods, to calculate the grants' time savings. This assessment suggests an estimated **median saving of financial reporting costs per grant for lump sum grant beneficiaries of between 96 and 128 person-days**. This median saving stems from a grant of just under EUR 2 million, a consortium of 8 participants and 2 reporting periods, which is reassuringly close to the median consortium size of 9 participants and median of 2 reporting periods that characterise non-POC lump sum grants signed so far. However, lump sum funding is going to be progressively rolled out in the remaining years of Horizon Europe and the composition of lump sum grants will change. As the share of lump sum grants with higher grant values is expected to rise, the typical time saving a (Type II) lump sum grant can achieve over its project lifetime is expected to increase in parallel. The final evaluation of Horizon Europe will be in a position to test this expectation.

At interim evaluation stage, only considering grants that have been signed up to 1 January 2025, **additional lump sum funding under Horizon Europe (excl. ERC PoCs) is estimated to have secured time savings of between around 129 000 and 172 000 person-days (financial reporting burden reduction) over their entire project lifetime.**

ERC Proof of Concept (Type I.) lump sum grant beneficiaries were not among the respondents of the surveys and some characteristics of PoC grants (mono-beneficiary, 1 reporting period, uniform grant value of EUR 150 000) substantially differ from those of the typical lump sum grants introduced under Horizon Europe. However, PoC grants do not differ substantially from the other lump sum grants in terms of the grant value per reporting period and participant (i.e. mono-beneficiary or consortium member).¹⁴² Under the **assumption** that the estimated time cost savings per reporting period and consortium member are therefore equally applicable to PoC grants, the estimated typical lump sum benefit of a PoC grant is **6 to 8 person days**. PoC lump sum grants signed so far under Horizon Europe are thus estimated to realise savings of between **4200 to 5600 person-days** in reporting burden reduction over the entire project lifecycle. For the interim evaluation of Horizon Europe, ERC Proof of Concept lump sum grants do not lead to additional simplification savings, as **ERC PoCs have been exclusively using lump sum funding since the last years of Horizon 2020 and are thus part of the evaluation's baseline**. However, PoCs have not been evaluated before and are assessed to complete the overall effect of lump sum funding as a simplification measure.

Monetisation

To **monetise the time savings**, the evaluation applies a **R&I sector-specific cost of labour** derived from a *median personnel cost* value from past grant applications. The sectoral value better **reflects the opportunity cost of the lump sum project team's time** than the EU average tariff associated with administrative costs (Better Regulation tool #59) otherwise used in the evaluation for monetisation. The median personnel cost, also in use in the 'lump sum dashboard', currently stands at EUR 5 500 per person-month and is updated at intervals. It includes wage costs, non-wage costs and overheads, reflects the geography of Europe's R&I sector and the mix of professional profiles of team members in R&I projects. The evaluation assumes that the

¹⁴² The median normalised grant value by consortium member and reporting period of non POC lump sum grants signed until 1 Jan 2025 is around EUR135 000.

composition of profiles is adequate for financial reporting activities that aggregate information from across the entire project team.

Applying the sector-specific labour cost, the time saving of a **typical lump sum grant** (excl. POCs) corresponds to a simplification benefit of around **EUR 33 200 and EUR 44 200 per grant**, equivalent to around **1.4% to 1.8% of the grant value, or 12% to 27% of the beneficiaries' administrative costs**.¹⁴³ Time savings for each of the ERC PC lump sum grants is estimated to correspond to around EUR 1 800 to EUR 2 500, 1.2% to 1.6% of the grant value, or 12% to 20% of the beneficiaries' median administrative cost.¹⁴⁴

The **lump sum grants (non-PoC and ERC PoC) signed so far** are therefore estimated to experience savings of between around **133 000 and 177 300 person-days** in reporting burden reduction over their entire project lifetime. This is equivalent to EUR 40.8 million – EUR 54.4 million, or **1.3% - 1.8%** of the total grant value. **The time saving thus is expected to eliminate 12% to 26% of the beneficiaries' administrative costs.**

In addition to the time saved on financial reporting, some lump sum grant beneficiaries also **no longer have to submit a certificate on the financial statements (CFS)** for EU contributions above EUR 430 000.

Survey responses (634 responses)¹⁴⁵ suggest that a **CFS typically costs EUR 4 500**.¹⁴⁶ Lump sum grants are estimated to so far have saved beneficiaries around **EUR 9.0 million**¹⁴⁷ on CFS in total in addition, equivalent to around **0.3% of the total grant value**.

In summary, at interim evaluation stage, only considering the lump sum grants (including ERC PoCs) that have been signed to date, lump sum funding is estimated to already have secured a reporting burden reduction for beneficiaries of between EUR 49.8 million and EUR 63.4 million over their projects' lifetime, combining administrative cost savings and avoided CFS certificates. This is equivalent to between 1.6% and 2.1% of the grant value, or a saving of 14% to 30% of the beneficiaries' administrative costs.

The use of lump sum funding under Horizon Europe is scheduled to broaden and pick up speed in the coming years. The future potential under Horizon Europe is discussed in annex 4.5.1.

Adjustment process of lump sum grant beneficiaries to realise benefits

Survey respondents shed light on the adjustment process of lump sum grant beneficiaries to the removal of financial reporting requirements. The overwhelming majority¹⁴⁸ of the lump sum grant respondents had discontinued at least “some of” the tasks that were no longer required, with over

¹⁴³ based on evidence presented in as per Annex 4.1.1, using the range of 6%-10% of project costs.

¹⁴⁴ of EUR 9000 to EUR 15 000 (project cost and grant value are identical for PoCs).

¹⁴⁵ Excluding zero values and cannot say.

¹⁴⁶ (mode) EUR 5000. 20% (125) of respondents within range of EUR 4500 to EUR 5000.

¹⁴⁷ Based on 2001; (01.01.2025) consortium members involved in the lump sum grants above EUR 430 000 signed so far, who would have had to submit a CFS certificates under the actual cost grant. Around 22% of the lump sum grants signed to far had CFS requirements.

¹⁴⁸ Based on 267 of 300 (89%) of lump sum grant respondents to the corresponding survey question, of which 11% (33) discontinued all of the financial management and financial reporting tasks that are no longer required under lump sum grants, 37% (111) continue “some of” the tasks, and 32 % (97) “most of” the tasks. 20% (59) still carry out “all of” the financial management and financial reporting tasks that are no longer required. Some respondents explained the underlying reasons for retaining the tasks.

half abandoning “most” or “all of” the non-required tasks. About a tenth indicated they had not changed their practices at all, which is also reflected in zero savings reported above. Underlying reasons to continue (some of) the practices include internal requirements or the fact that an organisation’s practice is dominated by their more numerous actual cost grants.

From the perspective of the assessment, the removal of financial reporting requirements already constitutes a reduction of beneficiaries’ administrative costs (imposed by the framework programme) as such, independent of the actual changes to beneficiaries’ financial management practices. This is because beneficiaries are free to organise themselves in the most efficient way, even if they choose not to (fully) adapt their financial practices, particularly in the short-term.

The **framework programme should ensure that no conflicting requirements are imposed on lump sum beneficiaries by other areas of the framework programme**, in order not to hinder the simplification effects to take effect. One respondent to the survey’s open question pointed out that their **membership obligations as part of a Joint Undertaking** prevented them from realising the savings from a removal of financial reporting obligations. Their organisation still had to provide audits of the total costs (EC grant and IKOP) as assurances and checks to the Financial Signatory, who were still required to sign off their financial submission on the Funding & Tenders portal. Based on the information provided in the comment, the evaluation was not able to firmly establish whether the obligations could reasonably have been expected to disappear under lump sums funding. However, the comment highlights the **risk of clashing requirements** in some areas of the framework programme, which can stand in the way of an effective implementation on lump sum funding and will need to be monitored and addressed.

The uncertainty around the internal adjustment processes to the changed requirements has the potential to delay adaptation. **Beneficiaries may therefore benefit from an exchange of experience on how to tweak internal practices to maximise savings.**

Costs and side-effects of lump sum funding

The simplification measure introduces additional requirements for i) **applicants** and ii) **proposal evaluators**. It also changes the iii) processes of the programme’s **implementing bodies** (EU public sector administration). In addition to the topic of application costs, stakeholder feedback, has raised concerns about iv) **potential side-effects on the financial risk of beneficiaries and on amendments to grant agreements**.

i) Lump sum applicants' costs - quantitative and qualitative evidence

All Horizon Europe applicants, regardless of funding model, must base their proposals on detailed budget estimates, which they are also required to keep on file.¹⁴⁹ **Applicants to lump sum calls have to submit an additional budget table together with their proposal, as supporting information on their proposed lump sum.** This requirement does not exist for ERC PoC lump sum grants, where the sum is predetermined. Aggregating the budget information for the table is not an additional task but included in the baseline cost of applicants. What changes for lump sum proposals is that **applicants must enter and submit their figures into a specific template, currently in the form of an excel spreadsheet, instead of keeping the information at hand in a format of their choice under actual cost grants.** Any additional time spent by applicants on reformatting the information is categorised as an administrative cost of the simplification measure, while any experienced nuisance in handling the document counted as 'hassle cost'.¹⁵⁰ The size of any additional cost to applicants strongly depends on the user friendliness and lay-out of the template itself. The cost may be reduced over time through adaptation and optimisation of the IT tools and template.

Survey responses of lump sum beneficiaries and unsuccessful applicants¹⁵¹ (excluding ERC PoC) suggest that, at least so far, for most applicants the additional application costs do not raise any concerns or are even negligible. The median response indicates that lump sum beneficiaries spend 16 to 25 person-days preparing their proposal¹⁵², less than applicants to other types of grants where the median is 26 to 35 person-days. The difference is particularly visible among European Innovation Ecosystems (EIE) participants, which is in line with the findings from the targeted survey on the beneficiaries' perception of a net-administrative burden reduction induced by lump-sum (see figure in section 4.4.2), which is the highest for EIE beneficiaries (and MSCA), and slightly lower among Pillar 2 participants. However, respondent numbers were low, due to the early date of the survey. As there is no reason why lump sum funding should lower the cost of applicants, **the observed below-average costs are likely driven by the composition of the still low number of lump sum grants that had been signed at the time of the survey.**

Table 19: Targeted survey of interim evaluation - Lump sum beneficiaries application costs.

	Lump sum beneficiaries		Non-lump sum beneficiaries		All lump sum beneficiaries	Horizon Europe minus lump-sum beneficiaries
	Cluster 2	EIE	Cluster 2	EIE		
Median	16 to 25 person-days	16 to 25 person-days	16 to 25 person-days	26 to 35 person-days	16 to 25 person-days	26 to 35 person-days
Mode	6 to 15 person-days	6 to 15 person-days	16 to 25 person-days	16 to 25 person-days	6 to 15 person-days	16 to 25 person-days
Total responses	31	202	1161	13	233	17103

Source: internal analysis, based on 17 336 responses to a targeted survey of Horizon Europe applicants (May-July 2023).

Qualitative evidence collected from lump sum beneficiaries confirm that the cost increase for applicants has been limited. The survey to Horizon Europe beneficiaries and applicants shows that

¹⁴⁹ [Get prepared - Online Manual - Funding Tenders Opportunities](#), "The budgeted costs should be based on a detailed and accurate estimation of your estimated project costs (...) Keep your estimates on file - you may be required to produce them later on."

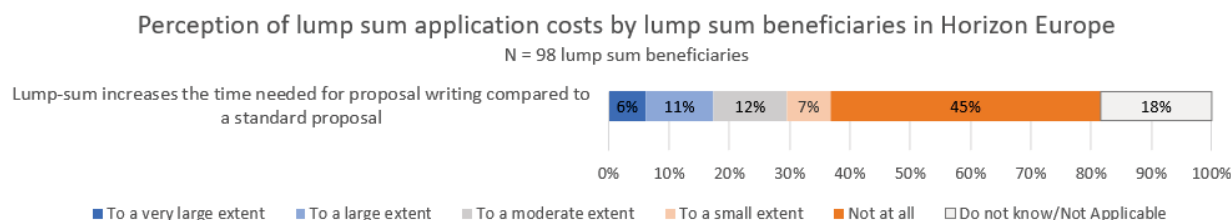
¹⁵⁰ European Commission, Better Regulation Toolbox (2021), Tool 56. Sec 2. Categories of Costs and Benefits. While they exist, hassle costs are typically not quantified in evaluations to keep the assessment proportionate.

¹⁵¹ The evaluation's comprehensive targeted survey, summer 2023.

¹⁵² 'In your estimation, how many person-days did your organisation spend in preparing your Horizon Europe proposal?'

the largest group of respondents among lump sum beneficiaries (45%) do not perceive at all an increase in the time needed for proposal writing (compared to a standard proposal), as shown in the figure below. In comparison, 17% agree to a large or very large extent that lump sum funding does increase the proposal writing time.

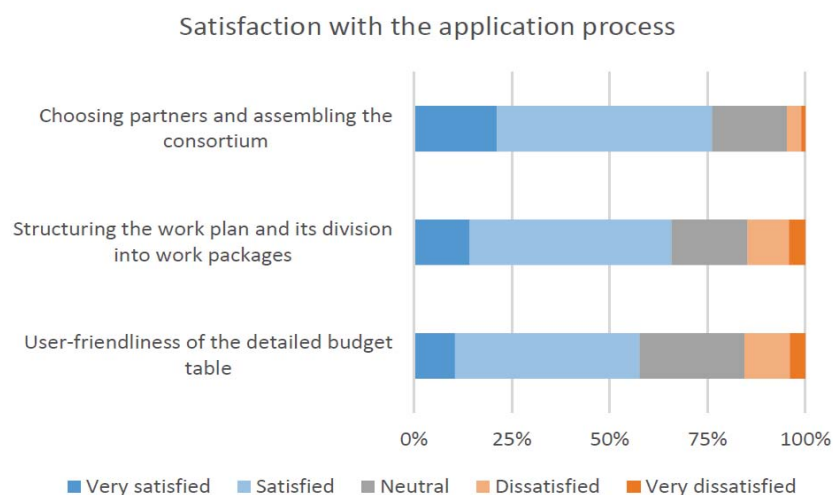
Figure 24: Perception of lump sum application costs by lump sum beneficiaries in Horizon Europe



Source: Survey to Horizon Europe beneficiaries and applicants, conducted in May-June 2023, 98 responses from lump sum beneficiaries

The targeted survey to lump sum beneficiaries (Sept. -Oct. 2023) also shows satisfaction from the participants in regard to the application process, with more than half satisfied or very satisfied with respectively the choice of partners and assembling of the consortium (76%), the structure of the work plan and division into work package (65%), and the user-friendliness of the detailed budget table (57%). In the follow-up survey of 2024, 3 respondents report in their open answers that while lump-sum grants require a slight extra effort at the proposal stage (compared to a standard proposal), it is compensated by the reduced administrative burden overall, or corresponds to the budget planning effort in standard grants.

Figure 25: Satisfaction of lump sum beneficiaries and applicants with the application process



Source: Targeted survey to lump sum beneficiaries and applications, conducted in September-October 2023, 2982 answers from lump sum beneficiaries and applicants¹⁵³.

¹⁵³ European Commission 2024. Assessment of Lump Sum Funding in Horizon 2020 and Horizon Europe.

In the **position papers** submitted as part of the open consultation on Horizon Europe mid-term evaluation, several stakeholders covered the topic of application costs of lump sum funding. At least 14 position papers (out of 216 position papers submitted) raised concerns of a **shifting workload from the project implementation stage to the proposal stage**, issued by a series of European (and one national) networks of research centres, four universities or universities associations, one RTO, one national research agency and one national research centre, and one large company.

While the currently available evidence on lump sum application costs provides no cause for concern and no indication of average additional costs borne by lump sum beneficiaries, costs may change in the future and should be monitored as a potential source of side-effects.

ii) EU Public Sector – Proposal evaluation costs

Evaluators of proposals for lump sum grants have to assess an **additional detailed budget table**, on which the lump sum calculations are based and which is submitted with the proposal.

The evaluators are external professionals with scientific and technical expertise in the specific field of the call or call topic. The implementation of lump sum funding uses the **assumption that evaluators have acquired all necessary skills for the assessment of the additional lump sum budget in the context of their regular professional experience**. At the time of the interim evaluation, insufficient evidence is available to test this assumption,¹⁵⁴ which is relevant to ensure a fair and high-quality evaluation of lump sum proposals.

Evaluators draw on **specific guidance**, in particular on guidance on **benchmark itemised costs** (maintained on the basis of past R&I framework programme project data).¹⁵⁵

Evaluators are remunerated for the additional task of assessing the budget table. The **additional compensated workload per evaluator of a lump sum grant proposal is equivalent to 2 ‘points’ of complexity** per lump sum grant.

In addition, **more experts are involved** in the evaluations of each lump sum proposal. Instructions foresee the involvement of **at least 3 experts per lump sum proposal**. In practice, the numbers vary, with some Executive Agencies involving **4 to 5 experts** per lump sum proposal, which may indicate an adjustment process during which services gather experience. The exact number of evaluators involved is decided by the implementing body on a case-by-case basis. **The evaluation could not establish the total number of additional evaluators involved in lump sum proposal evaluations under Horizon Europe**, relative to how many would have been involved if the

¹⁵⁴ Based on the distribution of roles, e.g. in academic institutions, not all who are qualified in terms of their scientific and technical expertise may also have sufficient experience in putting together budgets for projects. The assumption, however, only requires that those experts, who are chosen as evaluators using the key words such as ‘project management’, ‘financial and budgetary analysis’, and ‘cost estimation analysis’, are sufficiently skilled to assess the lump sum budget information with the help of the specific guidance and benchmark data, such as the Horizon dashboard for lump sum evaluations.

¹⁵⁵ See detail on Horizon dashboard for lump sum evaluations in footnote above (monetisation of lump sum benefits). Benchmark level costs act only as guidance. Proposals with costs that exceed these levels can also be funded, where they are justified. Responses to the evaluation’s targeted survey open questions revealed a lack of awareness of this possibility.

proposals had been for actual cost grants. The total cost of evaluators is an additional administrative cost of the EU Public sector.

iii) EU Public Sector – administrative costs of Horizon Europe Implementing Bodies

The use of lump sum funding requires an adaptation of internal administrative processes in implementing bodies, such as Executive Agencies and Joint Undertakings. The changes alter Public Sector **administrative costs** and generate **adjustment costs** in the short run. **Financial reporting documents no longer have to be processed**, which generates cost savings from simplification. At the same time, a greater emphasis is placed on the content of the supported projects, **some workflows have to be adjusted, and staff have to become familiar with changes** to the implementation practices.

In autumn 2023, the management of six **European implementation bodies** (five Executive Agencies and one Joint Undertaking) were asked for (qualitative) **feedback on their experience with lump sum funding** so far.

Their feedback was collected at a relatively early stage when services still had **limited experience with the funding model** under Horizon Europe. This may explain, why **not many EU Services had yet formed clear views on the measure's net-effect on public resource**. In response to the statement, 'The cumulative effort [of the service] for managing lump sum projects, over the entire project lifecycle, is lower than for actual cost projects.', three services indicated they 'neither agreed nor disagreed', two services 'agreed' and one 'disagreed'.

Overall, the feedback suggested that the pace of introduction was not seen as disruptive, lump sum funding was generally welcomed, and some concerns around implementation existed. Four of the six EU services 'agreed' or 'strongly agreed' with the statement that 'lump sum funding was introduced at a pace that allowed their organisation and staff to adapt without disruption', while two gave a neutral response. Four EU services 'agreed' or 'strongly agreed' that the introduction of lump sum funding in Horizon Europe is welcomed by the service, while one service 'disagreed', and one gave a neutral response. Three of the six EU services were 'satisfied' with how lump sum funding is implemented, two were 'dissatisfied', with again one neutral response.

The EU Services also submitted **concrete suggestions** for the implementation of lump sum funding, which **centred on the adjustment phase**. These included, for instance, to further clarify guidance and templates, and to review the IT workflows and tools with the specificities of lump sum funding in mind.

The introduction of lump sum funding is accompanied by a **responsive organisational setup** that has the potential to **minimise adjustment costs** and **reduce implementation costs**. The suggestions on implementation were discussed in the context of the **lump sum practitioners' group**, where all Executive Agencies and Joint Undertakings are represented. In early 2024, as a follow-up, the internal lump sum guidance for EU staff and the external guidance for applicants and beneficiaries were updated to provide additional information on how to design and describe the work packages. In addition, the Excel file template for the lump sum budget table was updated to clarify instructions and improve its compatibility with the IT environment for the submission of proposals. The group accompanies the further introduction of lump sum funding and continues to act as a forum for the exchange on best practices and lessons learned from managing lump sum topics and grants, and to discuss potential improvements.

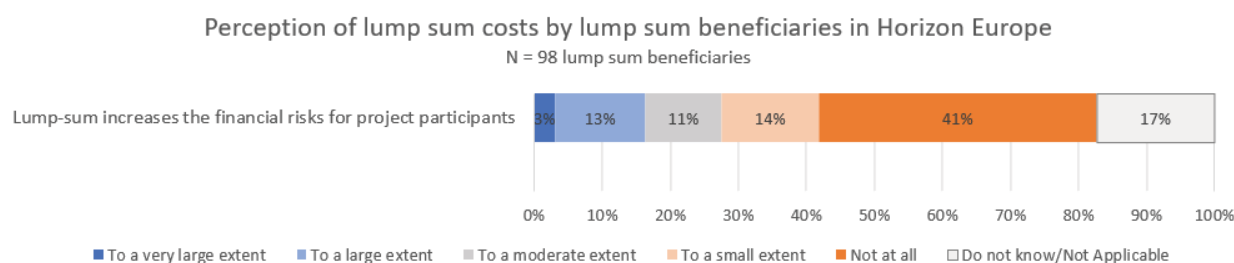
iv) Stakeholder concerns on unintended side-effects of lump sum funding

In addition to concerns around application costs, stakeholders also raised concerns on **higher financial risks and uncertainty** for lump sum beneficiaries compared to standard grants. Based on the open answers to the targeted survey to lump sum beneficiaries conducted in summer 2024, lump sum funding is perceived by five respondents (out of 301) as increasing the risk of incurring a reduction of budget due to partners' underperformance, or as creating costs to prevent such situation to happen. Position papers received in the context of the public consultation for the mid-term evaluation of Horizon Europe raise similar concerns: at least 8 large beneficiary organisations (including three (national) research centres or network of research centres, and five universities or networks of universities, and one large enterprise) are worried about the financial risk of lump sum funding in large consortia, where the liability is shared with many partners, and potential negative consequences on collaboration and mitigation costs. It should be noted that these concerns relate to the use of lump sum funding for large and complex (non-linear) projects, while the use of lump sum funding for small-scale projects, and for Coordination and support actions (CSA), is supported.

Horizon Europe implementation data does not support these concerns. The rate of grant reduction in closed lump sum grants so far¹⁵⁶ has stayed under 1%, irrespective of the budget size of the grant. This is an indication that beneficiaries' actual, realised risk of not completing a lump sum project remains low. Lump sum funding does not change the joint responsibility of consortia to deliver on the project milestones, and the pre-financing and payments are handled in the same way in lump sum and actual costs grants¹⁵⁷.

In addition, the survey to Horizon Europe applicants and beneficiaries shows that among lump sum beneficiaries, 45% report that lump sum funding does not increase at all the financial risks for participants, compared to 16% who agree to a large or very large extent that it does. The targeted survey to lump sum beneficiaries (2023) find similar results, with a large majority of respondents agreeing that the schedule of payments is adequate for the cash flow, and that the financial risk does not increase in lump sum projects (see figures below).

Figure 26: Perception of lump sum financial risk by lump sum beneficiaries in Horizon Europe

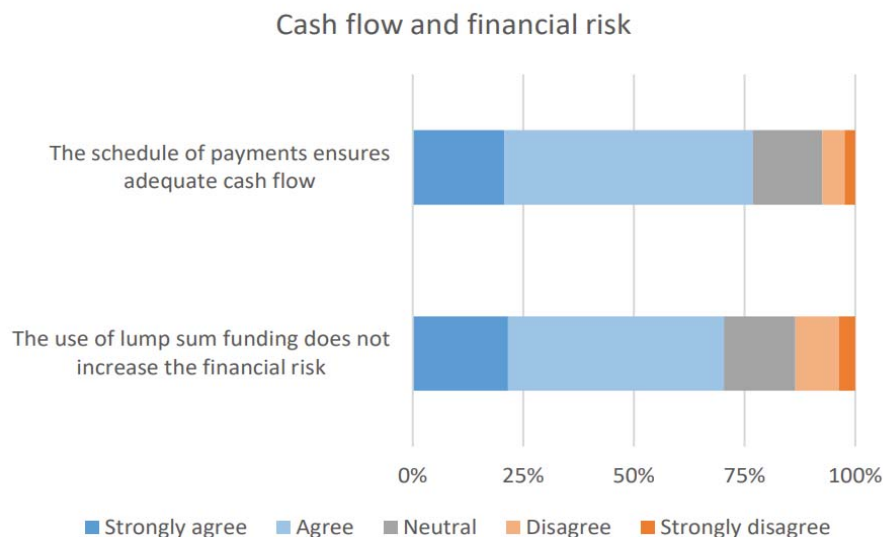


Source: Survey to Horizon Europe beneficiaries and applicants, conducted in May-June 2023, 98 responses from lump sum beneficiaries

¹⁵⁶ Commission internal assessment, based on implementation data (CORDA)

¹⁵⁷ European Commission 2024. Assessment of Lump Sum Funding in Horizon 2020 and Horizon Europe.

Figure 27: Opinion of lump sum beneficiaries on cash flow and financial risk



Source: Targeted survey to lump sum beneficiaries, conducted in September-October 2023, (cash flow n =1022; risk n= 1020 ; ‘cannot say’/‘not applicable’ excluded)answers from lump sum beneficiaries¹⁵⁸

Another concern raised in position papers (and by one respondent of the targeted survey to lump sum beneficiaries) is that the **multiplication of work packages** in lump sum grants leads to artificial work plans with isolated responsibilities and heavy amendments. This was mentioned in the position papers of two networks of research centres and RTOs, one national research centre, one RTO, and two universities. However, the targeted survey to lump sum beneficiaries shows that the majority of lump sum beneficiaries (65%) are satisfied or very satisfied with the structure of the work plan and its division into work packages (see Figure 27 in the section above). No significant difference was observed between the two funding models in terms of the **number of amendments**. At the same time, controls have been effective and lead to some reductions at evaluation and payment stage, which is reassuring with regard to safeguarding public finances.

Finally, some beneficiaries of lump sum still need to comply with more traditional cost-based rules under their national financing and/or as participant to other Horizon projects. According to the answers to the targeted survey’s open question to lump sum beneficiaries (2024), **working under different funding schemes appears to create confusion and extra administrative burden** for some beneficiaries (2 respondents, out of 301), or at least to limit the benefits of lump sum grants for others (8 respondents out of 301). In one position paper (written by a network of research centres) and three open answers, beneficiaries suggest leaving the choice to applicants on whether to apply lump sums or not.

In view of these concerns, the costs and benefits of lump sum grants will continue to be assessed, including in the Horizon Europe final evaluation. **While lump sum funding is a key part of the simplification of the Framework Programme, it will not be generalised blindly, but be used when it is the most appropriate tool, based on thorough monitoring and assessment.**

¹⁵⁸ European Commission 2024. Assessment of Lump Sum Funding in Horizon 2020 and Horizon Europe. Page 32.

Monitoring of Horizon Europe

Lump sum funding has an effect on the way some monitoring indicators of the framework programme can be collected. Please see Annex 2 point 15 for details.

4.4.3 Blind Evaluation of Proposals Pilot

All two-stage calls in the Horizon Work Programme 2023-24 (with the exception of one call in Widening) participated in the pilot (16 calls) and all of its 2100 proposals were evaluated in a 'blind' fashion. For these calls, an additional '**admissibility criterion**' was introduced, stating that applicants submitting a proposal must **not disclose their organisation names, acronyms, logos nor names of personnel** in the technical description (part B) of their first-stage application template. The second-stage application was not part of the blind evaluation pilot and evaluated as usual.

For the blind evaluation to be effective, expert evaluators must not know the consortium structure nor the applicant(s) involved. **Applicants received additional guidance**, as part of the application template's part B, on how to anonymise the template, including practical examples.

Before the blind evaluation could be carried out by **evaluation experts**, all part B's of the submitted proposals had to be checked, not only for direct identification, but also indirect identification of the participants (e.g. through links to web pages or through references to their role and previous experience). This work was carried out by the **call coordinators** in Executive Agencies.

Outcome of pilot

The pilot's main aim was to test whether a **blind evaluation of proposals was feasible within the legal framework and the operational context of the R&I framework programme**, which was confirmed by the successful implementation of the two-stage calls. The pilot also collected **comprehensive feedback from internal and external stakeholders** involved and **monitored the distribution of the geographical coverage of participants and of the gender of project coordinators**.

The feedback collected through an online questionnaire from **applicants, evaluation experts and NCPs** was predominantly positive, particularly that from NCPs of widening and third countries. **Evaluators** signalled that the guidance they had been given was clear and that they experienced only an insignificant increase in workload as consequence of the measure.

Call coordinators raised concerns about the additional effort to perform 'admissibility checks' of the proposals, with feedback ranging from strong disapproval to moderate agreement. Comprehensive checks of whether an indirect identification was possible were particularly time consuming.

Looking at the **geographical coverage** of the proposals, it was observed that for all calls (blind and non-blind evaluations) the overall share of participants from widening countries was lower in the retained proposals than in the evaluated ones. While in non-blind evaluations the share between

submitted and retained proposals decreased by 9.4%¹⁵⁹ (from 19.1% to 17.3%), a smaller decrease was observed in the blind evaluation, by 3.3% (from 21.2% to 20.5%).

The pilot also monitored the **gender of project coordinators** (contact persons). For non-blind evaluations the share of female coordinators increased by 4.7 percentage points from evaluated to retained proposals, while it remained stable under the blind evaluation.

The observed differences in characteristics between blind and non-blind evaluations may be caused by factors other than the use of blind evaluations. Although the connection is plausible, it is not the only possible explanation¹⁶⁰.

The analysis of the pilot will be completed once the evaluation of the second stage proposals of all participating calls is finalised, which will allow for further insights in the funding decisions of calls that have been evaluated blindly.

4.4.4 Reformed Ethics Appraisal Process– reducing the burden for applicants and beneficiaries

The Ethics Appraisal Process of the framework programme was reformed under Horizon Europe. The simplification aims to limit the workload of ethics-related requirements of participants by focusing it on projects involving serious and/or complex questions of ethics. The overall level of compliance with fundamental ethics principles in Horizon Europe research projects is to be upheld.

Ethical research conduct entails the application of fundamental ethical principles to scientific research. Since Horizon 2020, projects have been required to undergo an ethics assessment as part of the Ethics Appraisal Scheme. The process includes a self-assessment at proposal stage, followed by an ethics review procedure, and ethics checks, reviews, and audits during implementation. The purpose of this procedure is to uphold ethics and integrity in research and innovation, which are seen as a prerequisite for achieving excellence.¹⁶¹

The step of ethics screening aims to identify proposals involving serious or complex ethics issues. If any such serious and/or complex issues are identified, the proposal is subject to a full ethics assessment, as a result of which ethics requirements are likely to be defined. Conversely, if a proposal does not appear to include serious or complex elements as regards ethics, it is cleared unconditionally.

In a shift towards a trust- and risk-based approach,¹⁶² the new process relies as much as possible on the national frameworks for oversight of research, to avoid unnecessary burden for both beneficiaries and agencies. This is in line with Article 19,¹⁶³ which states that actions carried out

¹⁵⁹ A group of non-blind and predominantly first-stage evaluations was put together for comparison. As the blind evaluation had been applied to all but one two-stage calls in the Work Programme (WP) 2023-24, the control group was constructed from other, similar calls of WP2021-22 and WP 2023-24. To increase the chances that the relevant characteristics were as similar as possible, the cluster and area of research were given priority in the matching, over the number of stages of the calls (some single stage calls were included). Research area and cluster are assumed to have the stronger effect on the change in characteristics of applicants and evaluation experts.

¹⁶⁰ The pilot's design (non-random allocation of treatment, design of control group) means that observed effects may be due to correlation.

¹⁶¹ COM(2021) 407 final. Proposal for a Council Recommendation on a Pact for Research and Innovation in Europe.

¹⁶² Evaluation support study on Horizon Europe's contribution to a Resilient Europe, page 124.

¹⁶³ Regulation (EU) 2021/695.

under the Programme must comply with ethical principles and relevant Union, national and international law, as well as relevant Charters.¹⁶⁴

The new approach to the ethics appraisal process contains new elements (listed below) that have the aim to streamline and clarify the application and implementation process, reducing the administrative burden for the parties involved, whilst preserving high ethics and integrity standards.

- Guidance documents include references to the European Code of Conduct for Research Integrity.¹⁶⁵ Similarly, references have also been introduced in the Model Grant Agreement. Applicants must formally declare that their activities are compliant with the Code.
- The Guide for proposal submission and evaluation provides guidance for (potential) applicants is more extensive compared to the 2015 version, and it includes, among other things, a reference document on the consistent use of GDPR in the processing of personal data for research purposes.
- The ethics self-assessment is now included in part A of the proposal as a form generated by the IT system. Supporting documents can be provided in part B only if the application contains considerable issues or risks. This is a major change compared to Horizon 2020, where this type of supporting information had to be provided regardless of the nature of the proposal.
- The screening process in Horizon Europe adopts a clearer approach to identifying projects with serious and/or complex issues, therefore limiting unnecessary administrative burden for applicants and agencies.
- Applicants are required to confirm at application stage that their research has an exclusive focus on civil applications, or that it meets relevant legal requirements if it falls under the ‘dual use’ domain. Research that could have implications for security is no longer covered under the Ethics Appraisal Scheme (instead, it is examined as part of a specific security review). Guidance has been developed to this extent.¹⁶⁶

Beneficiaries, responding to the **targeted survey**, are overall satisfied with the new ethics self-assessment: 37% (239 respondents) reported that their experience with the ethics self-assessment was positive ‘to a large extent’ and without issues, 27% (173) said it was positive ‘to a moderate extent’, since they had encountered minor challenges, and 3% (20) having a rather negative or negative experience (with some issues or significant issues).¹⁶⁷ Additionally, ethics and integrity were considered important topics by Public Consultation respondents: more than half (54%, 1 037)

¹⁶⁴ European Commission (2024). Evaluation study of the European framework programmes for research and innovation for an innovative Europe – Report phase 2 (support study for the interim evaluation of Horizon Europe), page 660. Available at: <https://op.europa.eu/en/publication-detail/-/publication/6aeb2414-64e8-11ef-a8ba-01aa75ed71a1/language-en>.

¹⁶⁵ All European Academies (2023). The European Code of Conduct for Research Integrity Revised Edition 2023. Available at: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/european-code-of-conduct-for-research-integrity_horizon_en.pdf.

¹⁶⁶ For example: European Commission (2021). How to handle security-sensitive projects. Available at: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/how-to-handle-security-sensitive-projects_en.pdf.

¹⁶⁷ Evaluation support study on Digital & Industrial, page 531.

indicated that ethics and integrity should be ‘essential’ or ‘high priority’ themes to be elaborated further in the Strategic Plan 2025-2027, with 26% (497) considering them a ‘medium’ priority.¹⁶⁸

In the targeted survey’s **open question**,¹⁶⁹ some successful applicants’ comments pointed to the fact that the ethics process is still resource-intensive (although it is not always clear whether this refers to the application phase, implementation phase, or both). For instance, a beneficiary noted that clinical trials are already subject to external ethics committees, and therefore appointed an ethics advisor may be redundant; another noted how ethics and gender planning could be integrated into a single document. More generally, other beneficiaries deemed the workload for ethics requirements throughout the implementation phase excessive.

4.4.5 ‘Feedback to Policy’ - targeting EU public sector transaction costs

The delegation of the R&I framework programme implementation to executive agencies (and other implementation bodies) introduced an organisational separation into the EU Public Services working on the programme. This brought with it the risk of increased transaction costs when sharing information. In response, the **‘Feedback to Policy’ mechanism was introduced as an internal efficiency measure to manage transaction costs and facilitate the flow of information within the EU services.**

Feedback to Policy (F2P) within the Horizon Europe framework programme is a key tool to ensure that information stemming from R&I Research Projects is available for the programme cycle and policy development, this is, that the insights gained from research are effectively used in activities such as the preparation of work programmes, the creation and revision of new legislation and directives.

Based on internal information, the evaluation found that F2P can be a very effective channel for cooperation, particularly where the involved parties have had some **time to gather experience with the mechanism**. The process is at different levels of maturity, depending on the implementation history of each programme part. Challenges of the F2P mechanism include the **need for clearer communication between and consistent implementation across Commission services and agencies**, as well as the need to balance information needs originating from operational and from strategic objectives.

One specific hindering factor in the functioning of F2P is the **mismatch in the timing of the policy cycle and the research framework**, particularly where information is used in legislative contexts. A potential helping factor could be a more **user-friendly IT and data tools**, including the application of AI for data retrieval.

A more streamlined, strategic, and collaborative F2P process lowers the transaction costs of leveraging research findings, which improves the implementation of the framework programme as a whole, enables evidence-based policymaking, and increases the strategic impact of research initiatives.

¹⁶⁸ European Commission (2024). Synopsis Report - Looking into the R&I future priorities 2025-2027, page 37.

¹⁶⁹ Surveys of applicants carried out as part of the supporting studies.

4.5 Potential for further simplification

This section contains additional background on an approximate **ex-ante assessment of the effects of lump sum funding** in the remainder of the programme.

It also brings together **responses to the open question of the evaluation's main targeted survey of applicants and beneficiaries** had relevant remarks on several topics. Responses have been thoroughly screened to focus on the most concrete and specific contributions, out of the large number received. Although the numbers are small in absolute terms, they do not have to be large or representative to count as a source of evidence in their own right. Contributions are collected in this Annex as a record of evidence for programme development.

4.5.1 Implementation phase - Lump Sum funding potential under Horizon Europe

Lump sum funding has additional simplification potential beyond what has been achieved so far. As Horizon Europe's primary measure to reduce beneficiaries' administrative burden, it is expected to contribute substantial savings in the remaining years of framework programme. Its use is scheduled to broaden and pick up speed, on a trajectory to cover **half of the annual call budget by 2027**. The evaluation uses current assumptions on this trajectory of: A total of EUR 2.7 billion of the Work Programme (WP) 2024¹⁷⁰ to be spent on lump sum calls; and further lump sum call budgets of EUR 4 640 million (40% assumed share in WP 2025), EUR 4 455 million (45% in WP 2026), EUR 5 000 million (50% in WP 2027).

The evaluation's estimate of achieved lump sum benefits so far (see annex 4.4.2) can be translated into a relationship between expected benefits to total grant value, of around EUR 16 700 to EUR 21 300 savings per EUR 1 million grant value.

Combining this relationship with the expected call budget of lump sum calls, suggests that **simplification from lump sum funding in the remaining years of Horizon Europe is expected to generate an additional EUR 276 million to EUR 351 million in reporting burden reduction.**

This estimate is not robust and should be read as an order-of magnitude figure. The estimate assumes a constant average ratio of lump sum benefits to grant value. It is sensitive to several assumptions on a) future roll out of lump sum funding under Horizon Europe, b) future uptake of lump sum call topics by applicants, c) the characteristics of the lump sum grants that will be signed, as well as the uncertainties around d) the survey evidence on reporting cost savings. In particular, the lump sum grants signed so far may not be representative of those that will be signed under Horizon Europe overall. The proportion of very small grants will likely decrease. This will change the composition of time savings and the share of grant participants who save on expenses for CFS certificates. **The final evaluation of Horizon Europe will be in a position to assess the achieved simplification ex-post.**

4.5.2 Implementation phase - Beneficiaries' feedback and suggestions

The following section collects relevant contributions from targeted survey responses to the open questions under the structured questions on cost. Out of the vast total number of responses, a number of respondents reported on their experience with the grant implementation process,

¹⁷⁰ Parts of the lump sum call budget for the work programme 2024 will be spent in 2025.

touching on issues relevant to questions of administrative burden. This smaller number of respondents has been selected for relevance to the topic.

21 contributions state that the **administrative burden is far too high** (e.g. ‘*exceedingly high*’) **to the detriment of the scientific output of the project**¹⁷¹. For instance, five respondents complain about unclear and/or incomplete information on questions of grant implementation, which led them to lose time on administrative tasks to the detriment of the project itself.¹⁷² (*‘It is very difficult to know what I should do from the homepage. The manual is not helpful because it is a general manual and not optimized to the [call]’*. MSCA)

- A **concrete suggestion** was submitted that an **EU training session or recorded webinar** would be highly beneficial to on-board new grantees, as much time is lost to understanding the grant (at the same time as the beneficiary is supposed to be working, moving countries and institutions, etc.).

Other contributions gave feedback that the **number of deliverables** that have to be submitted is too high overall.¹⁷³

- A Cluster 5 beneficiary suggests that deliverables, such as **data management plan, ethics and gender planning should be integrated in one document**. Alternatively, a template could be used for these topics to reduce the project manager’s time spent on this activity that ‘tends to be a long document which is mostly “copy paste”.’
- **Project manager rate calculation / single rate** should be simplified for **SMEs** as financial accounting is otherwise too burdensome.

A Cluster 5 beneficiary states that, from FP7 to Horizon 2020 and now to Horizon Europe, the administration **burden has increased**. In their view, it was now more difficult for new entrants and relatively small institutes to compete, not because of a lack of innovation skills or research capabilities, but because of a lack of experience with the proposal and grant agreement preparation and implementing such a project.

A Cluster 2 applicant perceives that a **separate ethics work package for every task** in the project is “*ridiculous*”. A MSCA PF beneficiary states that, instead of researching and incorporating new skills, they spent ‘*almost all of the two years*’ doing paperwork linked to ‘*CDP, DMP, ethics, ongoing report, open access, etc.*’.

- Two ERC Consolidator Grant beneficiaries ask for the requirement to fill out timesheets to be removed.
- A Cluster 5 applicant suggests for coordinators to have a **helpdesk or a help-line for the administrative procedures** (*‘like updated action calendar, reporting actions, event organisation guidelines, etc.’*).

Further contributions on the topic of **Internet interfaces / web portals** are reported in Annex 4.5.3.

¹⁷¹ Applicants from CL6 (5), followed by ERC (4), MSCA (4), CL5 (3), CL1 (3), and CL4 (2).

¹⁷² MSCA PF (2), MSCA SE (1) and ERC STG (1)

¹⁷³ Specifically raised by 5 respondents from CL4, CL 5 and CL 6.

4.5.3 Application phase - Applicants' feedback and suggestions

Responses to the open question of the evaluation's main targeted survey of applicants and beneficiaries had relevant remarks on several topics that point at issues in the application process. This topic area attracted most comments.

Proposal template

40 respondents pointed out issues with the proposal template. 22 of these highlighted an **imbalance between the maximum permitted length of the proposal and the amount of information requested in the application**. 9 respondents commented that the number of pages in the template is too low compared to the amount of information requested in the application¹⁷⁴. Respondents mention that **the lack of space compromises the scientific quality of the proposal**, and that the page limit is “counterproductive to expose complex disruptive projects”. One Cluster 6 respondent in particular applauds reducing the number of pages from 70 to 45, but ‘finds it strange that the same amount of questions and information is then asked’. 4 respondents state that the proposal template is too long¹⁷⁵. Two contributions referred to **other funding agencies that required shorter proposals for similar support** (CZI mentioned by INFRA applicant; Danish funding system mentioned by MSCA DN applicant).

Respondents suggested **concrete improvements to the proposal templates**:

- The tables in the **proposal template** take up too much space, **forcing repetition of information in text and tables**, that fonts are not correct in several sections and suggests **reducing size of headings in some tables** to allow more space in the scientific explanations. (EIC Pathfinder respondent)
- The **three separate tables in the application template should be joined into a single table with 3 columns** and be **available in word format** and not just rtf with the correct heading formatting. (Cluster 6 respondent)
- Where AI is used by Horizon's submission platform it should be limited to a role as a guiding tool and support, while the **actual submitted document** should be in the form of a **rich text document that can be edited by the applicant**. (EIC Pathfinder respondent)

Application guidance

A total of 35 respondents provided feedback on the guidance for the proposal writing process. Applicants mentioned that they **would have appreciated more support throughout the application process** from both Horizon Europe, NCP's and the applicants' own institutes.

Two concrete suggestions on how to improve the guidance material were received:

- An **anonymous repository of previous evaluations/comments for MSCA PF applicants would be helpful** to have an overview of what applicants tend to miss. (MSCA PF applicants)
- It would greatly help to **split the application guidance by call, as the 100+ page guide is daunting** (MSCA PF applicant)

¹⁷⁴ Close to half of these applicants being MSCA PF applicants, but also CL 3, CL4- 6 and EIC pathfinder applicants.

¹⁷⁵ 1 INFRA, 1 Cluster 1, 1 Cluster 6 and 1 MSCA Doctoral Networks applicant.

Internet interfaces / web portal

Complaints focused particularly on the **web portal via which proposals and reports are submitted**. (examples in italic)

- Users criticise the **portal's design** and characterise it as confusing to navigate, not user friendly, too complicated/complex and point out that this substantially adds to their **stress and costs**. The design is also perceived as **slow** and **outdated** (*'so many windows opening all the time'*).
- Several contributions highlight the portal's **lack of reliability/stability**. The Funding and Tenders portal regularly **loses information** that has been entered, in particular, *'in Form A'* and *'when two or more people are editing the "forms",* and that it is **unclear whether content was saved** and at what point *'when switching between different parts (budget-personal data).'* The **unreliability hinders collaboration** between applicants contributing to a proposal. (*'If the commission wants to encourage consortia with a large number of partners, it should make it so that we are not dependent on only being one partner on the portal at the time.'*)
- Users report the portal being **frequently under maintenance** and it being **not fit for purpose**. (*'The system had lots of bugs and kept crashing, and the submission deadline was eventually extended. The system did not allow the correct input of all the required information, which we were eventually told to ignore. Communication was poor throughout.'*; ERC STG)
- The web **portal's language** is experienced as **unclear**. (*'The website was (...) verbose, (...) it was hard to learn and keep track of the various different terms to know I was following the correct links, in the proper section, etc.'*; MSCA PF)
- 5 detailed responses raise complaints with the **EIC's** (former and now redundant) application platform and highlight a **lack of coherence** of the **documents generated via the platform's Artificial Intelligence**. (*'When you finally produce the Business plan it is not clear and much of the inputs are repeated in multiple parts.'*, EIC Accelerator; *'does not enable systematic and coherent information to be presented,'*, EIC Pathfinder; *'makes it really difficult to present the project in a coherent way'*.)
- "My project management" sends out **inefficient** and **indirect communication about updates** via generic, insufficiently targeted emails that then required logging into the portal to find out whether the update is relevant for the receiver of the email.
- Funding and tender opportunities portal (**SEDIA**) is experienced as **lacking flexibility** *'compared to its previous version'* It also poses technical challenges during the submission process. (INFRA applicant)
- The user experience of the online **grant agreement preparation platform** is flagged as negative, due to **user-unfriendly, overly complicated** design and a lack of integration of relevant **guidance**. (*'a PAIN'*, *'at least some design review should be mandatory, because it is astonishing how much time is wasted in understanding how to navigate and use such a platform.'*, both Cluster 4)

Apart from a **general review and redesign** of the inefficient and ineffective parts of the portals, concrete **suggestions for improvements** included:

- When **errors** occur during the validation of a form (in particular researcher information form), the **error message should indicate which partner causes the error**, to enable a follow up.
- There should be an **option to indicate that a consortium partner does not have any researchers in the project** (e.g. industry partners), so that the coordinator is not unnecessarily warned about this fact when the application is validated.
- Information on the applicant's department, etc. should be **stored for later use in the system**, so the information does not have to be entered again each time.

Use of consultants (for consultant fees, see Annex 4.1.2.3 to application cost)

A total of 35 applicants commented on the use of consultants during the application process, 25 of which mention that the **high complexity** and '**excessive bureaucracy**' of the application is **creating a market for consultants**. Respondents came from across the programme parts, with **EIC applicants** being the most numerous (10 of 25).¹⁷⁶ Applicants are concerned the use of consultants creates an **unfair advantage** for applicants that can afford hiring consultants, compared to applicants that don't have the funds to do so.

One unsuccessful EIC Accelerator applicant comments the process's complexity has created an **industry of consultants and grant writing agencies**, which might not always serve the EIC's best interest, as these agencies try to work in the system and **please the evaluators rather than create solid businesses**. The applicant suggests simplifying the process to a more **accessible**, using a **industry-standard approach**, and so making it more manageable for a broader range of startups.

Another unsuccessful EIC Accelerator applicant comments that for a small **SME** applying takes a substantial investment (EUR 20 000 in addition to time). In the applicant's view it was **impossible to compete without experienced experts/consultants on board**. The applicant mentions not being able to afford to spend more money on re-submitting a second time.

A Cluster 4 applicant stressed that the proposal preparation process is too complex and expensive for an **SME**, particularly of "**peripheral countries**", with "**the real beneficiaries of Horizon Europe**" being "**the consultants**".

4.5.4 Proposal evaluation phase - Applicants' feedback and suggestions

Responses to the open question about the proposal evaluation process raised relevant points on the **quality of the evaluation and of evaluators (21 responses)**.

i) A perceived inconsistent quality of evaluations (final ranking points): **Proposals, which had been amended according to previous evaluation comments and resubmitted, received (much) lower scores when resubmitted**. This was raised in 14 comments, of which 10 came from MSCA PF applicants¹⁷⁷. For instance, one 2021 MSCA PF applicant reported they obtained a score of 75% for a resubmitted, improved proposal, down from 92.4% for the previous submission. For context, **15 400 proposals** were submitted to the **2021 and 2022 MSCA PF calls**, which were almost all evaluated, and out of which 2994 responded to the survey. Seen in this light, 10 MSCA PF proposals are not many. However, open questions intend to collect **anecdotal evidence**, which

¹⁷⁶ 6 EIC Accelerator; 4 EIC Pathfinder; 3 Cluster 4; 3 Cluster 6; 2 Cluster 5; 1 Cluster 1; 3 MSCA DN; 2 EIE; 1 ERC COG.

¹⁷⁷ as well as 1 MSCA DN, 2 ERC COG and 1 ERC STG.

does not need to be representative (across the population of applicants) to be useful. It is a **starting point for follow up actions** to establish whether a more general problem exists or not.

ii) Perceived inadequate quality of evaluation expert: Several comments centred on a perceived insufficient scientific expertise of the evaluator and the bias of the evaluators. (5 responses)

Partial randomisation (lottery) in evaluation process

Ten respondents suggest that **lotteries/ partial randomisation** should be introduced in the Horizon Europe evaluation process. Responding applicants came from across the programme¹⁷⁸. The reasoning of all respondents is similar and revolves around the following rationale: The evaluation process is vulnerable to/ subject to the bias of evaluators, because it is difficult to objectively differentiate between proposals of (very) high quality. A partial randomisation might help overcome this bias by, for instance, introducing lotteries, as currently also tested by other funding programs.

Concrete suggestions included two ways of applying lotteries:

- Lotteries could be used for **all highest ranked proposals above a certain percentage threshold**. One MSCA DN applicant suggested that “*It would be better, as other funders are beginning to introduce, if every proposal above a certain threshold (e.g, 85% or 90%) was entered into a lottery for funding*”, as “*there simply is no objective way to differentiate between highly ranked proposals.*”
- Lotteries could be used for **proposals ranked just below the score of actually funded proposals** (e.g. proposals awarded with the Seal of Excellence).

Communication about award

Five applicants commented that the **communication of the outcome of their application was either too slow or unclear**. In an extreme case, one MSCA PF applicant reports spending nearly one day to understand that the project had been selected for funding.

Another MSCA PF applicant mentions that the **grant invitation letter** was addressed to the supervisor of the project and not the researcher, which **prevented the researcher to obtain a visa** based on research excellence.

Interview process

19 applicants raised issues concerning the interviewing process, seven (all of them ERC applicants) mentioning underperformance of the online format due to technical issues. Two applicants specifically mentioned that technical glitches and failure of Webex contributed to stress and inability to appropriately answer questions. Another applicant mentions that a fully online format would be a better interview format.

¹⁷⁸ 1 MSCA PF, 1 MSCA DN, 1 ERC COG, 1 ERC STG, 1 ERC ADG, 2 CL2, 2 EIC Pathfinder and 1 EIC Transition.

4.6 Annex 4 - Summary Tables

Table 1. Overview of costs and benefits identified in the evaluation

Table 1. Overview of costs and benefits identified in the evaluation									
		Citizens/ EU Society		EU Public Administration		Horizon Europe Beneficiaries		Horizon Europe Applicants	
		Quantitative	Comment	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
I. BENEFITS									
1. Indirect long-term welfare benefits for EU society from scientific impact & related benefits to participants	one off	Direct scientific output with EU society	Horizon Europe creates knowledge, strengthens EU human capital in R&I, fosters diffusion of knowledge in the public sphere (open science), and addresses global challenges through R&I.			KIP 1: 6 922 peer reviewed scientific publications (H2020*: 2827 peer reviewed publications)	Direct scientific output of Horizon Europe (benefit to researcher)		
		48.68% of the projects with EU citizens' or end-users' contribution	In the long run, the supported activities are expected to lead to sizable and wide-ranging welfare benefits to EU society (economic, social, and environmental benefits)			KIP 4: 9 463 publications linked to SDGs	linked to expected long-term welfare benefits from scientific impact (Number as of 6 January 2025)		
		KIP 3: 86.8% of publications are Open Access				KIP 2: 95 156 researchers benefitting from upskilling activities			
		KIP 3: 72.8% of datasets are Open Access				KIP 2: 8 307 MSCA researchers benefited from mobility grants (dashboard)	*) Note: all figures referred to as "H2020:" provide baseline figures of the first 3 years and 3 months of the programme, unless indicated otherwise. If no metric is stated for H2020, no comparable		
		KIP 3: 54.1% of software applications are Open Access				KIP 2: 1 662 ERC researchers benefited from			

			Data as of 6 January 2025			mobility grants (dashboard)	metric was available.		
2. Indirect wider economic benefits for the EU economy from diffusion of innovation & related benefits to participants	one off	KIP 9: total expected GDP impact €14 billion (2021-2033) (H2020* final evaluation: €287 billion to €420 billion over 17 years (2014 -2030) KIP 8: 39 543 FTEs created or maintained in organisations H2020: 17 365 FTE Total FTEs created or maintained: 63 000 (2021-2034)	Horizon Europe fosters innovation-based growth, created jobs and leveraged investments in R&I. (NEMESIS model, 'medium' scenario) *Note: H2020 final evaluation range/sensitivity using QUEST, NEMESIS Indirect impact on employment (Kip 8: monitoring data, as of 6 January 2025) (forecast NEMESIS model)			KIP 7: 124 IPR outputs, including patent applications, trademarks, and utility designs (H2020: 5 IPR applications) KIP 4: 3 570 innovative outputs linked to SDGs KIP 7: 3 703 innovative products, processes, or methods produced and reported by the projects 550 deep tech start-ups and SMEs supported by EIC Accelerator (01 December 2024) 90 start-ups created by students from EIT programmes (end of 2023)	Number as of 6 January 2025, unless indicated otherwise		

						346 start-ups as a result of EIT innovation projects (end of 2023) 5 806 start-ups received support from EIT KICs (end of 2023)			
II. COSTS									
		Citizens/ EU Society		EU Public Administration		Horizon Europe Beneficiaries		Horizon Europe Applicants	
		Quantitative	Comment	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
1. Direct economic cost of R&I funding to EU society	one off	Paid: € 30 883million (35%) Committed: € 56 561million (64%) Op. exp. budget: € 88 322 million (H2020: 38% of the total Horizon 2020 budget (incl. admin. exp.) had been committed in first 3 years)	Operational Expenditure as of 31/12/2024 (Percentage share of op. exp. budget) (Percentage share of op. exp. budget) (2021-2027. as of 31/12/2024) (No direct comparison with % of operational expenditure budget possible)						

2. Administrative costs of implementing the R&I framework programme to EU Public Sector	one off		Costs of administrating Horizon Europe are incurred by the public sector at European level but are ultimately a cost on EU Society.	Paid: € 3 174 million (56%) Committed: € 3 317 million (59%) Adm. exp. budget: € 5 623 million 4.01% Target: 5 %	<u>Administrative Expenditure</u> as of 31/12/2024 (Percentage share of admin. exp. budget) (Percentage share of admin. exp. budget. No point for comparison with H2020) Administrative Expenditure as percentage of overall expenditure (as of 21/11/2024) (as per definition: only budget in legal basis, only indirect research, i.e. excl. JRC)				
3. Beneficiaries' administrative costs of participation	one off					€ 4.75 billion to €6.47 billion (1/1/2025) (H2020*: € 135 million to € 215 million over entire FP) Level of confidence in Horizon Europe estimate is medium/high.	Total beneficiaries' administrative costs over project lifetime of all projects signed under Horizon Europe so far, as of 1/1/2025) *H2020 final evaluation; estimate not robust)		

						(Difference between HE and H2020 estimate likely driven by data quality and survey question.) € 7.41 billion to €10.10 billion 6% to 10% of the project budget	Total expected administrative costs of beneficiaries over entire HE programme Administrative cost of project (median respondents) (5 161 survey responses of beneficiaries)		
4. Application costs of successful and unsuccessful applicants	one off							€ 1.92 billion to € 2.82 billion (1/1/2025) H2020 (total) *: € 5.61 billion to € 11.25 billion € 21 000 to € 32 000 (1/1/2025) H2020*: €18 000 to €37 000	Total cost of applicants (robust) *H2020 final evaluation; estimates not robust) Average cost / proposal

								No substantial change of application cost between HE and H2020 36 to 45 person-days 16 to 25 person-days 36 to 45 person-days	Qualitative evidence: (4051 survey responses successful & unsuccessful applicants) Time cost (median respondent) coordinator consortium partner mono-beneficiary

TABLE 2: Simplification achieved and further potential**PART I: Simplification and burden reduction (savings already achieved)**

*Simplification, burden reduction and cost savings **achieved already** by Horizon Europe, including points of comparison where available.*

	Citizens/ EU Society		EU Public Administration		Horizon Europe Beneficiaries		Horizon Europe Applicants	
	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
Administrative cost savings for beneficiaries through removing all financial reporting requirements (due to lump sum funding), thus reducing a beneficiary's reporting burden (administrative costs). Lump sum grants also help to avoid financial errors and contribute to a shift of focus during the grant implementation stage, away from financial controls, back to a project's content. The measure changes the administrative costs of the EU public sector (implementing bodies) and a potentially negative effect on applicant costs (current evidence suggests insignificant).								
One-off (change from Horizon 2020 to Horizon Europe)			n/a	Cost savings from no longer having to process financial reporting documents [qualitative feedback] Additional costs* per evaluator of a lump sum grant proposal due to increased complexity (e.g. assessing a budget table) [qualitative feedback] Transition costs* due to adjustment of workflows, familiarising with changed implementation practices [qualitative feedback on experience]	6 to 8 person-days per reporting period and consortium member 96 to 128 person-days per (non-ERC PoC) lump sum grant, or € 33 200 - € 44 200 per (non-ERC PoC) lump sum grant	median financial reporting cost savings of lump sum grant beneficiaries median reduction in time spent on financial reporting per grant, over the project's lifecycle, excluding ERC proof-of-concept grants (POCs)	Low (no cause for concern so far. Will have to be monitored)	Cost of applicants of lump sum calls (including hassle cost) from having to submit budget information in an additional 'budget table' format, instead of keeping it on file [qualitative evidence from 2 surveys 2023; see Annex 4.4.2 - Costs and side-effects of lump sum funding]

				with lump sum funding so far] *Costs and side-effects of lump sum funding	6 to 8 person-days, or €1 800 to € 2 500 € 4 500 per certificate € 49.8 million to € 63.4 million	burden reduction per ERC PoC mono-beneficiary, over the project's lifecycle savings on certificate of the financial statements (CFS) for EU contributions above € 430 000 Total savings over a lump sum project lifecycle, including savings on CFS, for grants that have been signed by Jan 2025 (including ERC POCs)		
Type of cost savings? Blind evaluation of proposals to improve evaluation process through safeguarding it against possible biases of the evaluating expert. Costs of implementation, mainly for public administration. Benefits for applicants								
Recurrent (change from Horizon 2020 to Horizon Europe)			Non-negligible increase in some cases (Some call	Implementation Bodies: more time* spent on 'admissibility checks' by call coordinators to make sure that applicants			Some extra effort but measure viewed as a general	Benefit of fair treatment & Extra effort* anonymising

			co-ordinator: “roughly three times longer”)	could not be identified in the proposals, additional workload [qualitative feedback] *Costs and side-effects of blind evaluation			improvement; Observed: more ‘widening’ country applicants that passed first stage (correlation only)	proposals , [qualitative feedback] *Costs and side-effects of blind evaluation
Administrative cost savings for applicants and beneficiaries due to reformed ethics appraisal process								
One-off (change from Horizon 2020 to Horizon Europe)							n/a	Reduced workload for proposals that involve neither serious nor complex ethics questions [qualitative feedback] 91% of the Horizon Europe proposals so far cleared without any further conditions or requirements linked to ethics, 9% given specific ethics conditions H2020: 44% and 55% of

								proposals respectively

PART II: Potential simplification and burden reduction (savings)

Identified further potential simplification and savings **that could be achieved** with a view to make the initiative more effective and efficient without prejudice to its policy objectives¹⁷⁹.

	Citizens/ EU Society		EU Public Administration		Horizon Europe Beneficiaries		Horizon Europe Applicants	
	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
Application of unsuccessful applicants are an area with a potential for efficiency savings for the framework programme. The evidence base of the evaluation does not allow to specify any new simplification measures to the extent, that they could be assessed in terms of their expected costs savings'. Potential existing measures that could be extended include: a targeted, carefully tested and designed use of the two-stage evaluation processes; and any measures that prevent the loss of the value inherent in successful-unfunded proposals (proposals above the quality threshold but that remained unfunded due to the budget constraint) and allow it to be captured for alternative funding applications at EU or national level. This may include the Seal of Excellence measure, after a detailed <i>ex ante</i> assessment.								
One-off			n/a	Public sector administrative expenditure related to proposal evaluation costs are an area with a potential for efficiency savings, to the extent that a duplication of an evaluation can be avoided.			n/a	Application costs of unfunded proposals are an area with a potential for efficiency savings for the framework programme overall.
Lump sum funding involves the paying out of pre-agreed lump sums (that were specified in the proposal by the grant beneficiary) after the completion of a work package. It renders obsolete the financial reporting (by beneficiary) and the checking of financial reports, as well as the reimbursement of detailed eligible costs by the EU public administration). The evaluation of the lump sum pilot suggests that a wider use of lump sum funding likely has some simplification potential to reduce <u>beneficiaries' administrative costs</u> and address the persistence of frequent <u>financial errors</u>, highlighted by the European Court of Auditors. The net effect on costs depends on details of implementation.								

One-off	n/a	The use of lump sums has the potential to reduce financial errors by removing financial reporting and the reimbursement on the basis of eligible costs (both sources of financial errors in R&I funding). The extent to which a reduction of errors can be achieved, and a reduction of the error rate can be observed, depends on details of implementation, including that of <i>ex post</i> project reviews and any changes to the audit strategy. While the rationale of lump sum funding supports the assumption that financial errors will overall be reduced, the piloted projects have not yet generated any <i>ex post</i> evidence to allow for a validation of this assumption and an <i>ex ante</i> estimation of	n/a	Public sector administrative expenditure is expected to change due to multiple factors. The direction of the net effect on public sector costs depends on implementation details that determine the additional workload of proposal evaluators and possible adjustment costs for project officers. The net effect will also be affected by beneficiaries' strategic behaviour (unintended effects) in response to the measure over the medium-term. The currently available evidence base is insufficient to assess the	€ 276 million to € 351 million	Potential simplification from lump sum funding under Horizon Europe during 2025-2027, based on the ratio of benefits-to-grant-value and current assumptions about future roll out (based on data as of: 1 January 2025)	n/a	Application costs may increase, as proposals have to submit an additional budget table for the project, to justify the lump sums. The cost of generating the budget information is not fully additional but to a large extent part of the baseline: Project management best practice and existing requirements of the programme mean that applicants are assumed to calculate the project budget at proposal stage already. However, adapting the budget to the format, structure and level of detail requested in the proposal template and filling in the template gives rise to additional costs. Any change will be affected by details of implementation, including the

¹⁷⁹ This assessment is without prejudice to a possible future Impact Assessment.

		future simplification effects.		direction or magnitude of the net effect on public sector administrative costs.				availability and user friendliness of guidance for applicants. The currently available evidence base is qualitative and does not allow a quantification of the expected effect on applicants.
Potential of the “ Personnel unit costs ” measure to reduce financial reporting burden on beneficiaries of actual cost grant. This optional method allows participants to calculate and report personnel costs using a single daily rate that applies to all staff that is agreed upfront for all future grants of the beneficiary.								
One-off						The use of personnel unit costs has the potential to remove the burden of calculating personnel costs per staff member, which typically takes about 2 person-days per consortium member and per reporting period		

Annex 5 Stakeholder consultation

In support of this evaluation, a broad range of consultation activities were conducted: the call for evidence, the public consultation, interviews, surveys of participants and beneficiaries as well as targeted consultations and a dedicated workshop meant to complement the findings of the public consultation held on 29 June 2023.

To ensure that all possible views are well reflected and to ensure transparency and accountability, consultations with various categories have been held in the frame of the interim evaluation of Horizon Europe. The consultation process did not start from zero, as the Commission based its work on the consultations that took place in 2016 for the interim evaluation of Horizon 2020¹⁸⁰ which provided useful information on the mapping, priorities and views of all major interested parties.

Stakeholder mapping

Stakeholder groups that are concerned by Horizon Europe can be broken down into the following categories: academia, businesses (including small and medium-sized enterprises), National Contact Points¹⁸¹ and public authorities as well as non-governmental, research and umbrella organisations.¹⁸²

Beyond that, the following Institutions have in the past contributed to the evaluation of the Framework Programme:

- the Council conclusions¹⁸³ on the Interim Evaluation of Horizon 2020, adopted on 01/12/2017,
- the European Parliament, which reported on the assessment of Horizon 2020¹⁸⁴ and the implementation in line with the interim evaluation,¹⁸⁵
- the European Economic and Social Committee that provided recommendations for the interim evaluation of Horizon 2020¹⁸⁶, the ex post evaluation of Horizon 2020¹⁸⁷ as well as an exploratory opinion on results and experiences of efforts to close the innovation gap in the EU in the light of Horizon 2020 and Horizon Europe¹⁸⁸,

¹⁸⁰ Results of the Horizon 2020 Stakeholder Consultation, 2018, <https://op.europa.eu/s/yXBt>

¹⁸¹ National Contact Points (NCPs) are independent organisations of different nature (e.g. Ministries, Academies of Science, Research agencies) that act as information providers to applicants in their native language. They are based in all EU countries and Associated States as well as in some non-European countries.

¹⁸² So-called ‘umbrella organisations’ are industry-specific associations of EU public interest.

¹⁸³ Council conclusions 15320/17 <https://www.consilium.europa.eu/media/31888/st15320en17.pdf>

¹⁸⁴ Briefing: Interim evaluation of Horizon 2020 [https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/614771/EPRS_BRI\(2018\)614771_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/614771/EPRS_BRI(2018)614771_EN.pdf)

¹⁸⁵ European Parliament Report on the assessment of Horizon 2020 implementation (A8-0209/2017) https://www.europarl.europa.eu/doceo/document/A-8-2017-0209_EN.pdf

¹⁸⁶ European Economic and Social Committee recommendations: interim evaluation of Horizon 2020 <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/information-reports/interim-evaluation-horizon-2020>

¹⁸⁷ European Economic and Social Committee Information report: ex post evaluation of Horizon 2020 <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/information-reports/ex-post-evaluation-horizon-2020>

¹⁸⁸ European Economic and Social Committee exploratory opinion: results and experiences of efforts to close the innovation gap in the EU in the light of Horizon 2020 and Horizon Europe <https://www.eesc.europa.eu/sl/our-work/opinions-information-reports/opinions/results-and-experiences-efforts-close-innovation-gap-eu-light-horizon-2020-and-horizon-europe-programme>

- the Committee of the Regions and the European Research Area and Innovation Committee which is a policy advisory body whose main mission is to provide strategic input on any research and innovation issue relevant to the development of the European Research Area.¹⁸⁹

Next to the consultation activities that were accessible via the [‘Have your say’ portal](#), targeted consultations in the forms of workshops, interviews and a joint survey were conducted under the remit of the various external evaluation studies, specifically addressing applicants, participants national and regional authorities as well as business representatives.

Interviews

The main objective of conducting interviews was to gather evidence from different actors concerned by the Framework programme, offering the possibility to give an objective assessment by taking into account the different views. Interviews were particularly used in case studies as well as international benchmarks. Beyond that, interviews were conducted to confirm and complement data collection to support the drafting of findings and conclusions.

In total, 1 049 interviews¹⁹⁰ were conducted in support of this evaluation – these interviews do include same actors on different topics by gathering large amounts of qualitative data among Member States’ and associated countries’ representatives, EU officials (in the Commission, in Executive Agencies and European Partnerships) as well as various other stakeholders (such as Programme committee members, expert group members and industry representatives (e.g.), along with other relevant stakeholder groups explored in the stakeholder mapping section.

Surveys

A joint targeted survey was conducted in support of the five evaluation studies which explored the views of beneficiaries and unsuccessful participants in Horizon Europe which was conducted between May and July 2023.

Contractors developed and administered nine online questionnaires to gather evidence on the needs and motives for engaging with Horizon Europe, perceptions of expected project outcomes and impact as well as obstacles encountered throughout application and project implementations. The survey programme encompassed all three pillars of Horizon Europe.

For beneficiaries, it included five different questionnaires to account for different programme parts, namely:

- 1) MSCA Postdoctoral Fellowships beneficiary researchers,
- 2) ERC beneficiary Principal Investigators,
- 3) Beneficiary organisations under collaborative actions (Pillar I, II and III as well as WIDERA),
- 4) the EIC Pathfinder and Transition grants, and
- 5) the EIC Accelerator grants.

For unsuccessful applicants, it included three questionnaires:

- 1) MSCA Postdoctoral fellowships & ERC,
- 2) Horizon Europe’s collaborative actions and

¹⁸⁹ European Research Area and Innovation Committee,
<https://www.eumonitor.eu/9353000/1/j9vvik7mlc3gyxp/vh7ej5swwyh>

¹⁹⁰ This included 210 interviews in the frame of the Resilient Europe study, 140 in view of Digital and Industrial Transition, 208 on Excellent Science, 217 on Innovative Europe and 274 in view of the Green transition study.

3) EIC accelerator grants.

Policy workshops

In the frame of the five evaluation studies, each of them held two policy workshops with the exception of the Digital & Industrial Transition study which held five workshops in total.

Call for evidence

The ‘[call for evidence](#)’ opened on 1 July, 2022 and closed on 29 July 2022. The overall number of responses submitted was 54. This number includes two identical contributions from organisations from the same stakeholder group, which is likely to be an organised campaign. Moreover, four organisations and one individual submitted the same response to the call for evidence on the final evaluation of Horizon 2020 and the interim evaluation of Horizon Europe. Finally, five responses to the call of evidence referred to the position paper attached. 16 position papers were received. However, three of them concerned the evaluation of Horizon 2020 and were considered out of scope. The findings from the feedback received during call for evidence were taken into consideration in the survey design for the public consultation. In view of content moderation, no feedback had to be unpublished as all contributions were in line with the content moderation rules.

Who contributed?

The stakeholder groups which contributed the most to the call for evidence were academic or research institutions and non-governmental organisations. Each of them accounted for around a quarter of the responses received. Six responses were received from individuals, five from business associations, companies or business organisations and other groups. Four responses were received from public authorities, three of which came from the same national authority. The other response from a public authority came from a local authority. The national authority provided three reports analysing some implementation aspects of Horizon 2020 – notably on participation, proposals and evaluation of proposals. The local authority’s feedback focused on a specific initiative: the mission for 100 climate-neutral and smart cities.

Figure 28: Type of respondents (N= 54)

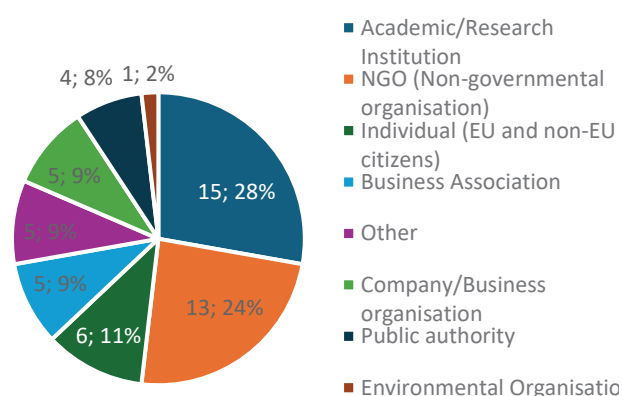
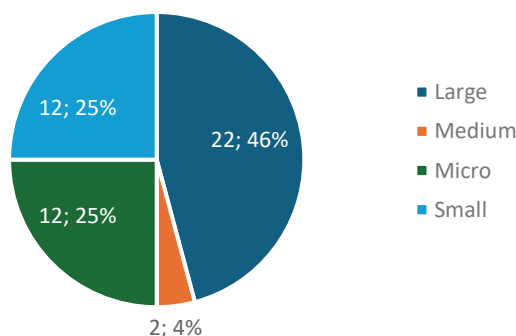
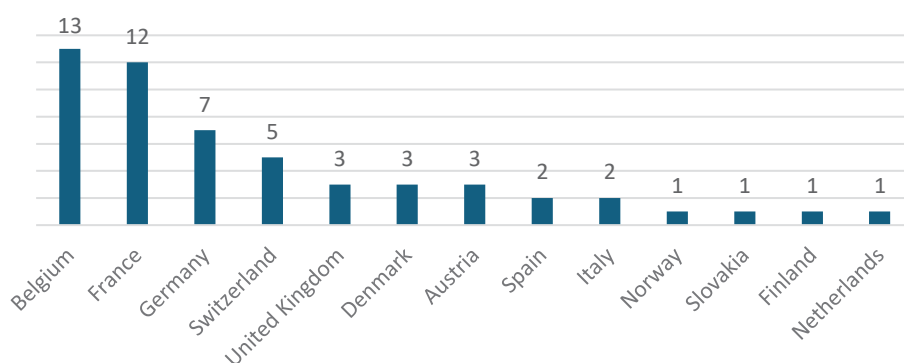


Figure 29: Organisation size (N= 48)



As for the geographical distribution of the responses received, around a quarter were from organisations – mainly business associations and NGOs based in Belgium and active at the European level. 12 responses came from France, half of which are from academic or research institutions, 7 from Germany and 5 from Switzerland.

Figure 30: Country of origin (N= 54)



What aspects are addressed and what are the views and concerns?

The following section summarises the views and comments received. Contributions encompassed several aspects and topics on the Programme's design, its implementation, participation, alignment with the EU priorities and complementarity with other initiatives. Suggestions on aspects that should be considered by the evaluation were also provided.

Horizon Europe design

General comments: Respondents addressed Horizon Europe as an ambitious programme, which has brought novelties and simplifications compared to Horizon 2020. The Framework Programme is seen by stakeholders as a crucial source of funding in the European R&I landscape, for individual and collaborative projects. However, some stakeholders expressed concerns about the complexity of the Programme' structure, with calls from multiple sources such as clusters, partnerships, and missions. In their view, it is essential to ensure good coordination and complementarity of funding within the framework of the various initiatives or programmes, to avoid scattering resources and to maximise the impact.

Horizon Europe Missions. Respondents welcomed the new approach but underlined some issues in the implementation (e.g., delays, the complexity of the calls, and the need to diversify the stakeholders involved in the governance processes). Some stakeholders remarked on the need to include actors such as regions, local authorities and civil society to tackle such public policy challenges.

Horizon Europe Partnerships. Partnerships were seen as an effective means to increase coherence in the R&D activities of private and public actors. The new approach to partnerships was considered a major simplification of Horizon Europe. However, there are concerns about their implementation, due to the delays and the inadequate timing of initiatives designed to support the implementation of the partnerships. There is still unclarity about the role of research organisations and industrial partners – whereby the calls are open to anyone. Two respondents addressing specifically the Partnership on Clean Aviation reported that the process of setting it up was cumbersome and complex. The focus on large projects has implied that the number of participants has decreased compared to the previous Clean Sky 2 Programme.

Technology Readiness Levels (TRL) coverage. Respondents from academia and research institutions expressed the need to balance the TRL coverage to ensure that the Framework Programme continues supporting basic research below TRL 4 as well as applied research at medium TRL. A shift from Research and Innovation Actions to Innovation Actions with high TRL was pointed out. The need to fund replication in the industry and society in addition to technology development was mentioned by a company.

Work programmes. The feedback received concerns several aspects: from the process of co-creation (e.g., extending the time allowed for national representatives to consult national stakeholders) to the duration of the work programme (e.g., increasing it from two to three years) to the structure of the work programmes (e.g., including more information in the main body of the document instead of the Annex). It was also requested that the Commission publishes the draft of the work programmes to avoid the circulation of unofficial drafts among some interested parties.

As for the content of the work programmes, it was observed that often the topics are proposed in a single call rather than being repeated in different years, with implications on the breadth and sustainability of the impact. Some stakeholders asked to introduce calls dedicated to specific research topics (e.g., paediatric cancer, infertility and Medically Assisted Reproduction, Lyme disease, venous thromboembolism, AI-powered speech technology, heating and cooling technologies, assistive technologies, and others).

According to some stakeholders, the fragmentation of the budget into several topics means that often each call provides funding for only one or two projects. In this way, it is not possible to have cross-fertilisation between projects of the same call. Furthermore, the multiplication of instruments and work programmes, with various timeframes and deadlines and overlap on the covered topics, has been detrimental to adequate participation as it created competition between calls.

Approach for topics/calls for proposal. There are contrasting views on the opportunity to adopt a bottom-up (i.e., open to any idea or research topic as in the ERC or MSCA) or a top-down approach (i.e., allocating budget to predefined research topics). In the case of a top-down approach, it was observed that when the topic is too broad, the calls are heavily oversubscribed, and the quality of the proposals is lower. In addition, it was suggested to focus top-down efforts on key areas for the strategic autonomy of Europe.

One respondent questioned the choice of adopting a “portfolio approach”, selecting the proposals to be funded considering how they fit within the portfolio of the specific programme – specifically for the European Innovation Council.

Horizon Europe Implementation

Timing and communication on the calls for proposals. Several stakeholders expressed their concerns about the short time frame between the publication of the call for proposals in the EC portal and the submission deadline, which creates difficulties for potential applicants. According to some contributions, communication about the calls’ opening should be improved to increase their visibility.

Template for proposals and IT tool. While the new template for proposals is considered more comprehensive than the one of Horizon 2020, the reduced maximum length of the proposals and the lack of flexibility among different parts are considered problematic, especially for big projects. The guides, documents and webinars to support proposal preparation are appreciated but, according to some contributions, they are published too late in the process and the webinars are often scheduled within a short time. Clarifications on specific aspects such as the “Do not significant harm” principle, the gender and open science aspects under the Excellence criterion are needed. Respondents reported frequent technical problems with the Funding and Tenders portal (e.g., difficulties in adding affiliated entities in the proposal, impossibility to change the order of partners in the list of participants).

Using lump sums to fund collaborative research projects. While simpler rules for financial reporting are appreciated, stakeholders from academia and research institutions nevertheless

raised concerns about this funding model since it has some drawbacks to collaboration within the consortia. In particular, it was mentioned that i) it creates risk-averse approaches in both the choice of partners and the envisaged deliverables and results, ii) it limits flexibility during the project implementation, iii) it creates a tendency for smaller work packages with as few involved partners as possible endangering collaboration and knowledge transfer; iv) it shifts significant administrative and financial planning effort from the project implementation phase to the proposal phase, with a possible deterrent effect on potential applicants, especially newcomers.

Evaluation process. According to some stakeholders, the evaluation process could be improved by asking the applicant to select keywords in order of priority, to ensure that the relevant expertise is included in the review panel. The quality of the Evaluation Summary Reports (ESRs) was criticised by some respondents, pointing to the need to adapt the evaluation assessment to the new proposal template (e.g., the reduced length implies that fewer details can be provided in the proposal). The implementation of the “Right to react” tool needs to be improved.

Widening participation

Participation from EU-13 countries. The issue of lower participation from EU-13 countries was underlined. Mentioned barriers to their involvement include factors such as understaffed support offices, insufficient support in the project preparation phase, the need for experienced support staff and additional well-tailored funding, slow decision-making processes compared to the flexibility and short reaction time often required in projects, and the Programme’s focus on a few big actors instead of the wider ecosystem. The strengthened support from the NCPs for widening participation was appreciated.

Lack of association agreement with the UK and Switzerland. Several stakeholders, especially those based in Switzerland, pointed out the negative repercussions of excluding Switzerland and the UK from the Associated countries on the implementation of Horizon Europe.

International collaboration. Openness to international collaboration is seen as an important element of the Programme. The Africa initiative of Horizon Europe was mentioned as a good example that should also be replicated in other regions (e.g., Latin America, ASEAN).

Alignment with the EU priorities and complementarity with other initiatives

According to several respondents, the choice of the research topics in Horizon Europe is well aligned with the EU priorities and it contributes to the digital and green transition. Some suggestions on how to further increase the contribution of Horizon Europe to the twin transition were provided by stakeholders specialised in relevant fields (e.g., distinguishing between Carbon Capture and Storage (CCS) and Carbon Dioxide Removal (CDR) and tracking the support for the two fields).

Further synergies with the Euratom programme were encouraged by some respondents working on nuclear energy. As for the other EU programmes, some contributions suggested using the funding from other programmes (e.g., the European Regional Development Fund) to support the Missions, since they tackle broad societal challenges.

Suggestions for the evaluation

It was suggested that the interim evaluation of Horizon Europe should explore the following areas:

- the effects of changing the Programme' structure (merging KETs and societal challenges)
- the distribution of single beneficiary instruments and multi-beneficiaries (i.e., collaborative projects)
- the coverage of different TRLs and the balance between funding of basic science and innovation
- the impact of the new instruments such as missions and the new widening measures
- the impact of the new capping of budgets on partnerships
- the effects of using lump-sums
- the access, participation, contribution and added value of associated countries and non-associated third countries to the various parts of Horizon Europe
- the consequences of changing the list of associated and non-associated countries compared to Horizon 2020, particularly in terms of opportunities and collaborations
- the efforts towards simplification and streamlining of instruments
- the impact of the funded thematic research, considering the introduction of missions in addition to challenges
- first effects and impact of the introduction of Gender Equality Plans.

Public consultation: scope and objectives

In line with the Better Regulation guidelines and toolbox¹⁹¹, the public consultation on Horizon Europe forms part of a combined consultation and evaluation exercise.¹⁹² It aimed to explore stakeholders' views regarding the key aspects of the past and the present as well as the future of the EU Framework Programme for Research and Innovation, notably for the ex-post evaluation of Horizon 2020 (2014-2020), the interim evaluation of Horizon Europe (2021-2023) as well as to receive inputs from stakeholders to be used for the definition of strategic orientations for the Horizon Europe Strategic Plan (2025-2027).

The reason for conducting a joint consultation is the relatively short time span between the legal obligation for the Horizon 2020 ex-post evaluation (published on 29/01/2024) and the legal obligation for the Horizon Europe interim evaluation. Additionally, another reason for conducting a joint consultation instead of reaching out to the broad public on three separate instances was to counter stakeholder fatigue, also bearing in mind that all three dimensions concern the same group of stakeholders. Nevertheless, it is important to note that this public consultation was geared towards anyone with an interest in the EU R&I Framework programmes, not only towards beneficiaries and the main stakeholder groups delineated in the section above but also unsuccessful applicants as well as independent experts.

¹⁹¹ Better Regulation Toolbox, notably Tool #52.

¹⁹² Better Regulation Toolbox, Tool #50, p. 434.

The combined public consultation was accessible in English, French and German on the Have Your Say web portal from 01/12/23 until 23/03/23. Respondents had the possibility to submit their replies in any official EU language resulting in 2 788 responses and 265 position papers in total. For the section on Horizon Europe, 1 663 responses were submitted along with 136 position papers. The factual summary report, along with all contributions to the three dimensions covered in this public consultation as well as position papers are accessible on the [Have your Say portal](#). Findings in this consultation did not only feed into the analysis presented on the following pages as well as highlighted in the respective sections in the main Staff Working Document but also form basis for the development of the 10th Framework Programme for Research and Innovation.

Methodology used for the analysis of the responses received through the public consultation

Quantitative analysis

Quantitative analysis was conducted by means of descriptive statistics, differentiating and comparing responses of different groups of respondents. Correct representation and interpretation of results are fundamental to drawing coherent conclusions which is why the number of respondents has been shown along with percentages. Linkages between answers and respondents' characteristics such as participation in the programme, country affiliation and type of respondent (e.g. Member State and business organisation representatives, researchers). When evident, correlations between answers given in closed questions have been explored. The summary statistics were bundled in .xml format which allowed for swift cross-comparison among the various dimensions covered in the public consultation survey.

Qualitative analysis

Key messages were extracted from qualitative contributions, primarily position papers and open questions present in the public consultation survey. Same holds true for the analysis of the feedback contributions received for the call for evidence. Contributions were clustered by topics and specific aspects raised in both position papers and open questions by means of using Excel, presenting findings in a contribution matrix.

Content moderation according to Better Regulation Tool #54¹⁹³

In view of content moderation, only three contributions were unpublished: all three were taken into consideration content-wise, however in two cases GDPR-related concerns led to unpublishing on the Have your say portal. Another respondent reached out to the support team of the public consultation via the indicated functional mailbox asking to unpublish the contribution as a wrong attachment was uploaded as a position paper – for the analysis, the newer position paper was taken into account.

Identification of campaigns¹⁹⁴

Responses have been reviewed manually to identify campaigns and potential duplicates among submitted position papers as well as open questions. Overall, 24 campaigns were identified

¹⁹³ Better Regulation Tool #54, p. 478.

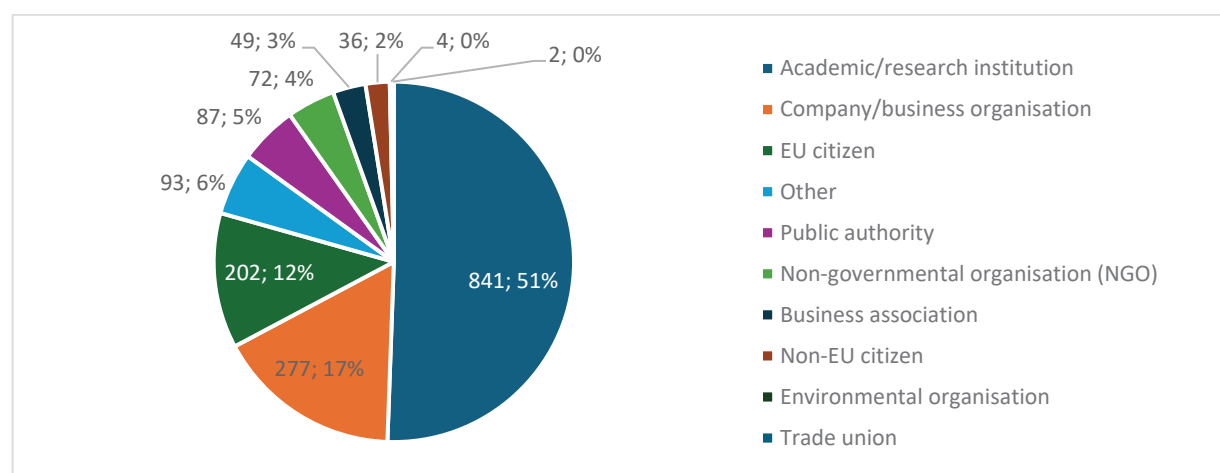
¹⁹⁴ Better Regulation Tool #54, p. 476.

which contained between 2 and 9 identical contributions each. The campaigns account for 88 (or 5% of) responses.¹⁹⁵

Public consultation & Horizon Europe Public Event: Participants

In total, **1 663** respondents chose to complete the section of the consultation on Horizon Europe programme. **Contributions were received from a wide range of actors.** 51% (841) of the respondents were part of academic or research institutions, 17% (277) were companies or business organisations, and 14% (238) were citizens (EU and not EU). The remaining respondents (18%; 307) included different types of stakeholders: 87 were **public authorities**, 72 were **NGOs**, 49 were **business associations**, 4 were **environmental organisations** and 2 were **trade unions**. 93 respondents selected the category “other”¹⁹⁶. Among the 87 (5%) public authorities that contributed to the section on Horizon Europe, 35 worked at the national level, 28 at the international level, 15 at the regional level and 9 at the local level¹⁹⁷.

Figure 31: I am giving my contribution as... (N=1 663)



59% (988) of respondents provided personal views, while 38% (633) contributed as a member of an institution or organisation and 3% (42) did not provide this information.¹⁹⁸ More than half (61%; 872) of the organisations that contributed were large, whereas 16% (226) were medium size, 12% (173) were micro and 11% (154) were small¹⁹⁹.

¹⁹⁵ For additional information, please consult the factual summary report for the interim evaluation of Horizon Europe on https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13460-Horizon-Europe-interim-evaluation/public-consultation_en

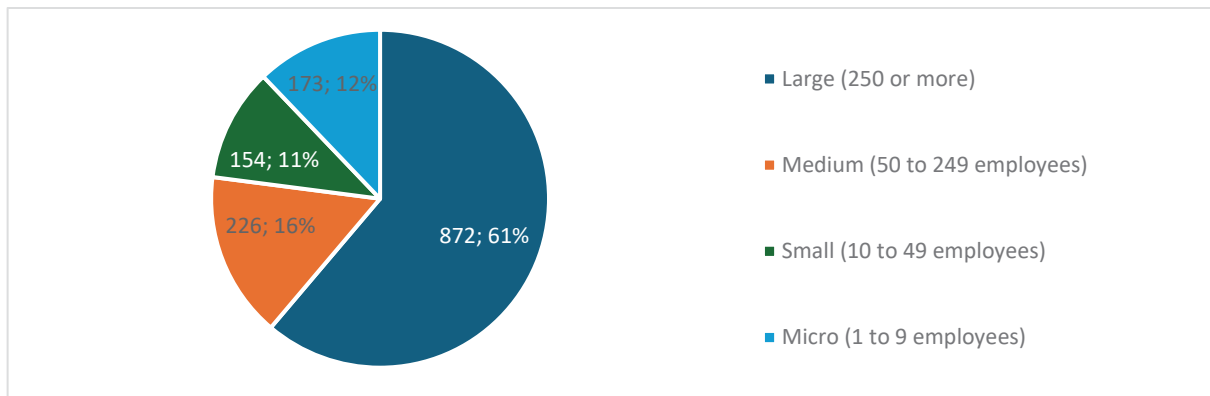
¹⁹⁶ Question: “I am giving my contribution as...”

¹⁹⁷ Question: “Scope”.

¹⁹⁸ Question: “Are you providing your personal views or the views of an institution/organisation?” – not obligatory to be answered

¹⁹⁹ Question: “Organisation size”.

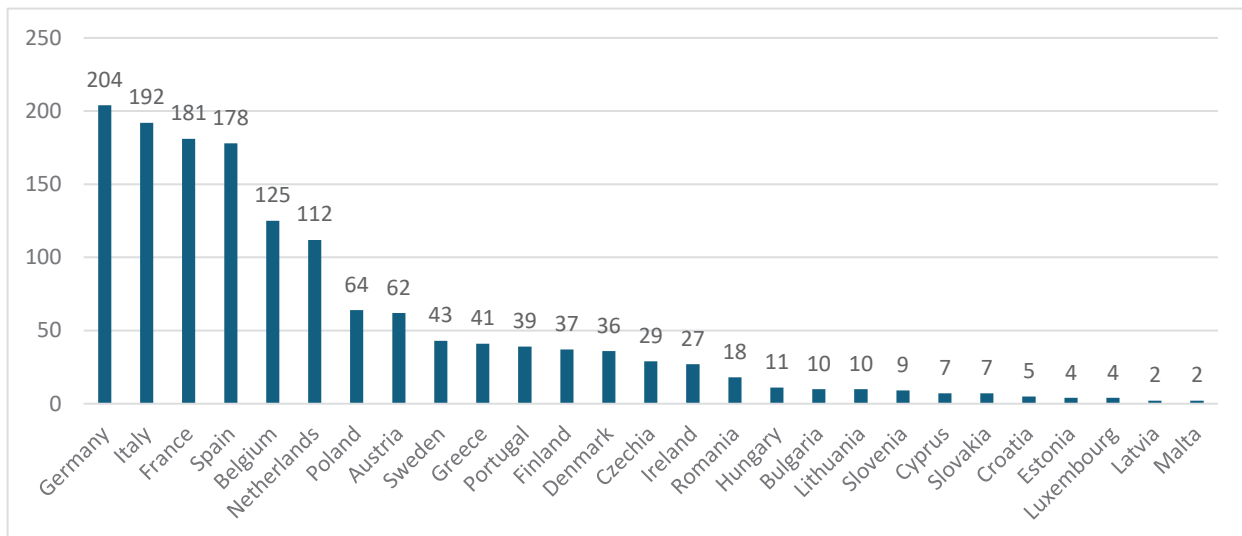
Figure 32: What is the size of your organisation? (N=1 425)



Geographical coverage

The consultation gathered responses from **61 countries, including all 27 EU Member States**. 88% (1 459) came from EU27 countries, 5% (87) from the Horizon Europe Associated Countries²⁰⁰, and 7% (117) from Third Countries²⁰¹. The countries with the largest number of respondents were Germany (204), Italy (192), France (181) and Spain (178). Looking at non-EU countries, the largest number of contributions came from the United Kingdom (43), Switzerland (42), Norway (37) and Türkiye (26).

Figure 33: What is your country of origin? – EU 27 Member States (N=1 459)



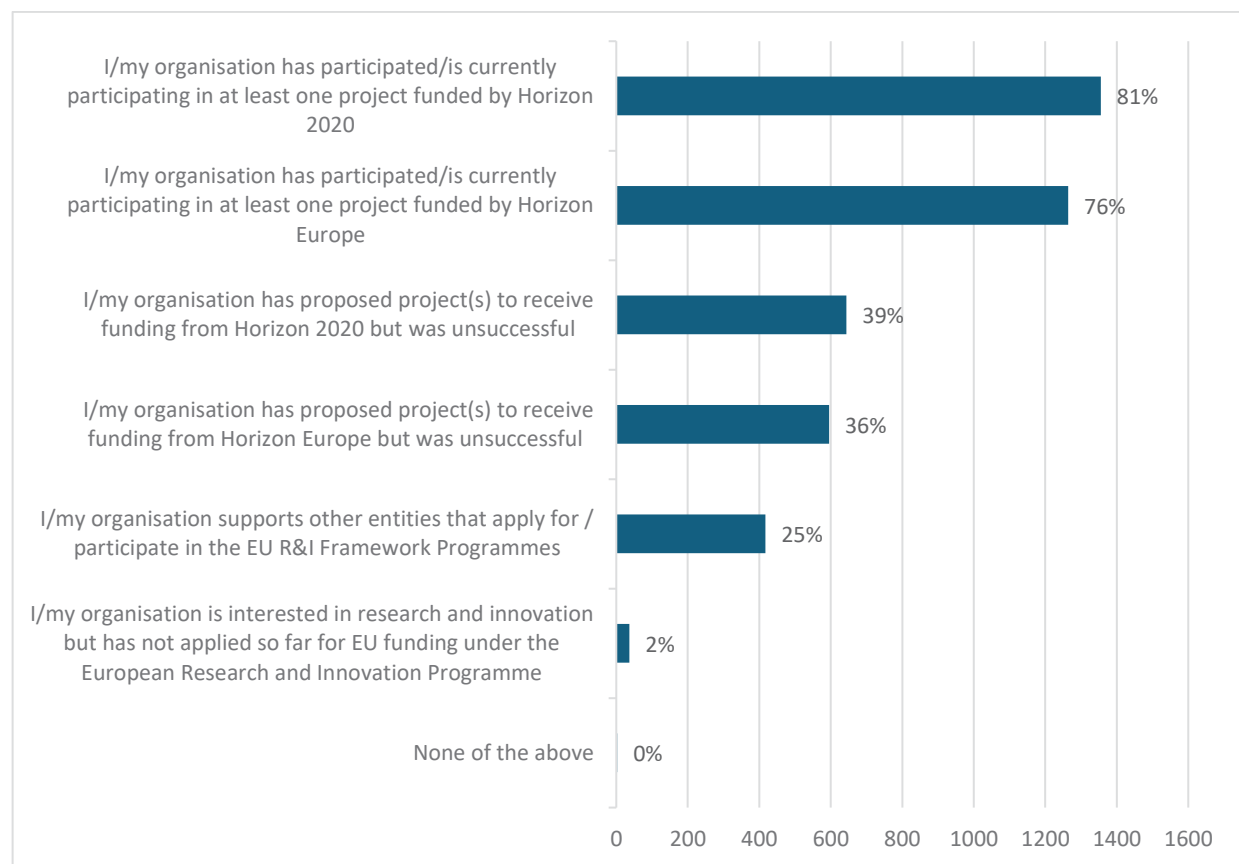
Experience with the framework programmes

²⁰⁰ Horizon Europe Associated Countries include Norway (37), Türkiye (26), Israel (6), Ukraine (6), Bosnia and Herzegovina (2), Georgia (2), North Macedonia (2), Albania (1), Serbia (1), Iceland (1), Moldova (1), Faroe Islands (1), and Tunisia (1). No responses were received from Armenia, Kosovo and Montenegro. List of Horizon Europe Associated Countries and countries with provisional arrangements: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/list-3rd-country-participation_horizon-euratom_en.pdf

²⁰¹ United Kingdom (43), Switzerland (42), United States (5), Brazil (3), China (3), Colombia (3), India (2), Canada (2), Venezuela (2), Argentina (1), El Salvador (1), Philippines (1), New Zealand (1), Mexico (1), Ethiopia (1), Australia (1), Azerbaijan (1), Bangladesh (1), Japan (1), Jordan (1), Uruguay (1), South Africa (1).

The respondents were asked to select one or more options describing their experience with Horizon 2020 and Horizon Europe.²⁰² 81% (1 355) of all the respondents that contributed to the part of the consultation on the evaluation of Horizon Europe had **participated in Horizon 2020**²⁰³ and 76% (1 264) of them were **Horizon Europe beneficiaries**²⁰⁴. 36% (595) of respondents stated that they “proposed project(s) to receive funding from Horizon Europe but were **unsuccessful**”. However, considering that the same respondent could select multiple options, 7% (109) of respondents applied for Horizon Europe funding and were never successful²⁰⁵. Respondents also included **organisations supporting other entities** that apply for or participate in the EU R&I framework programmes (25%; 417) and **organisations that have never applied** for funding but are interested in R&I (2%; 37).

Figure 34: Please select the option(s) that best describe(s) your experience with the European Research and Innovation programmes (N=1 663; multiple answers possible)



²⁰² “Please select the option(s) that best describe(s) your experience with the European Research and Innovation programmes). The question allowed multiple answers. Therefore, the same organisation could be, for instance, a beneficiary of both Horizon 2020 and Horizon Europe, or an unsuccessful applicant of Horizon 2020 but a beneficiary of Horizon Europe, or both an unsuccessful applicant and a beneficiary of Horizon 2020, if it submitted multiple proposals with different outcomes.

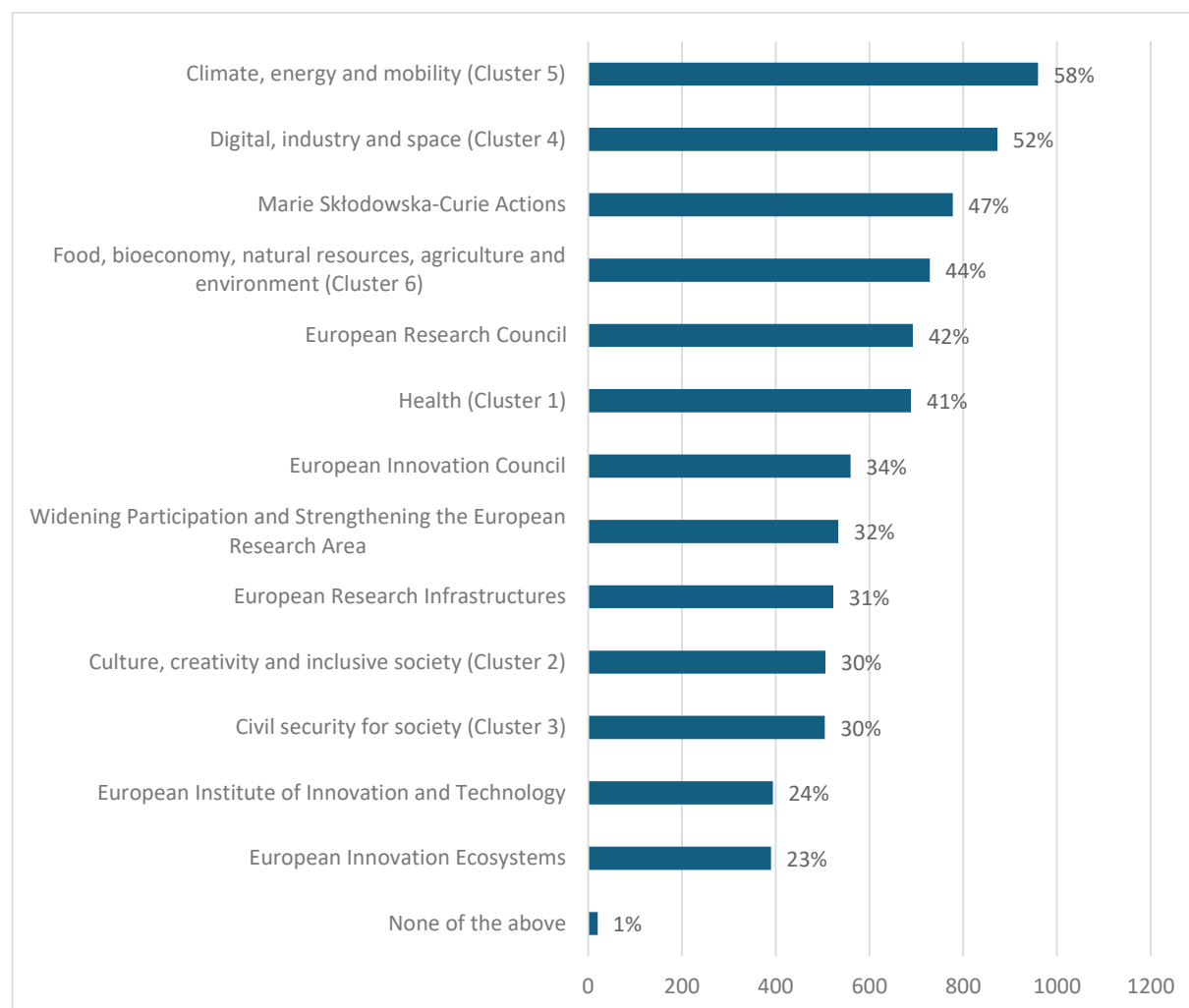
²⁰³ They selected the response option “I/my organisation has participated/is currently participating in at least one project funded by Horizon 2020 (2014 – 2020)”.

²⁰⁴ They selected the response option “I/my organisation has participated/is currently participating in at least one project funded by Horizon Europe (2021 – 2027)”.

²⁰⁵ They selected the response option “I/my organisation has proposed project(s) to receive funding from Horizon Europe but was unsuccessful” alone or with other response options, but they did not select “I/my organisation has participated/is currently participating in at least one project funded by Europe”.

The respondents were active or interested in all the parts of Horizon Europe²⁰⁶. The highest number of respondents were interested in **cluster 5** “Climate, energy and mobility” (58%; 960), **cluster 4** “Digital, industry and space” (52%; 873), **Marie Skłodowska-Curie Actions** (47%; 778), **cluster 6** “Food, bioeconomy, natural resources, agriculture and environment” (44%; 729), and the **European Research Council** (42%; 693)

Figure 35: In which of the following areas of Horizon Europe are you or your organisation mainly active / interested in? (N=1 663; multiple answers possible)



Overview of position papers

136 position papers uploaded in response to this consultation included content relevant for the evaluation of Horizon Europe. Among the 136 position papers, 59 had been sent in by academic or research institutions, 16 by non-governmental organisations, 16 by public authorities, 15 by business associations, 5 by companies or business organisations, one by a trade union, one by an EU citizen and 23 by respondents who did not identify with any of the previous categories of stakeholders. The largest number of position papers came from Belgium (31), France (19), The Netherlands (15) and Germany (11). The high number of position papers from Belgium is due to the presence of many organizations with pan-European or EU scope that maintain an office in Brussels.

²⁰⁶ Question: In which of the following areas of Horizon Europe are you or your organisation mainly active / interested in? Please select all that apply.

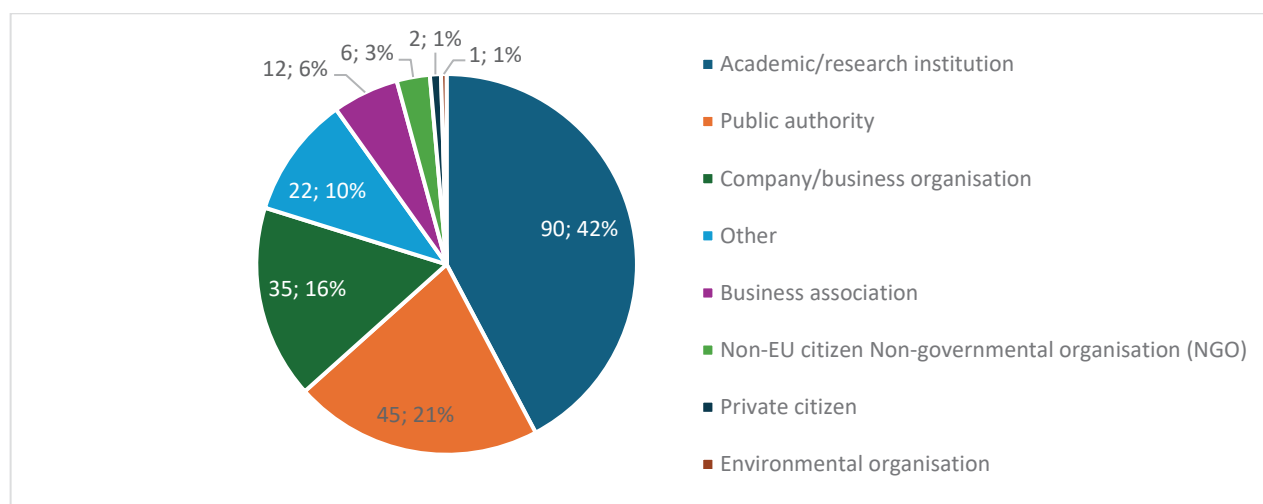
Public Event on Horizon Europe

An **online public event** was held on 29 June 2023 to complement the public consultation process and gather more comprehensive feedback on specific topics of Horizon Europe. The event focused on key themes that emerged prominently in the survey results, namely:

- Proposal preparation and project implementation in Horizon Europe
- The balance between low and high TRLs across Horizon Europe
- The novelties of Horizon Europe (i.e., the three-pillar structure, the European Innovation Council, the new approach to European Partnerships, the EU Missions).

In total, **217 stakeholders** from **206 different organisations** participated in the event²⁰⁷. Participants encompassed different stakeholder categories, with 42% of them representing academic or research organisations, 21% public authorities and 16% companies or business organisations.

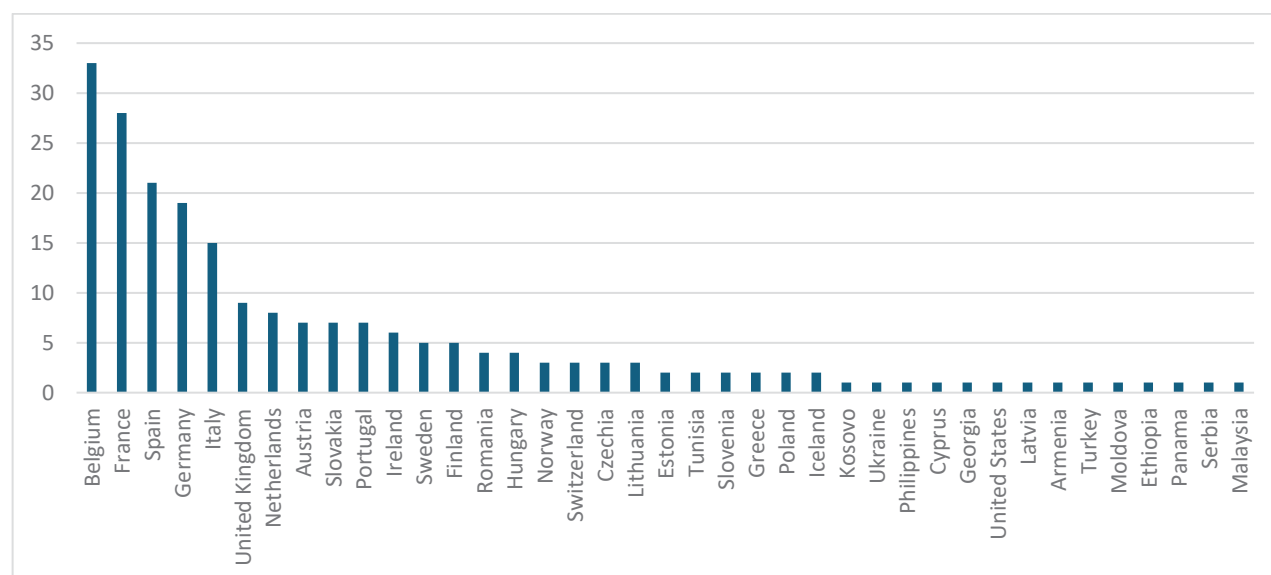
Figure 36: Types of stakeholders participating in the public event (Number of participants for which the information is available: 213)



Participants came from **39 different countries**. The highest share (15%) came from Belgium, as many pan-European organisations are registered there, followed by France (13%) and Spain (19%).

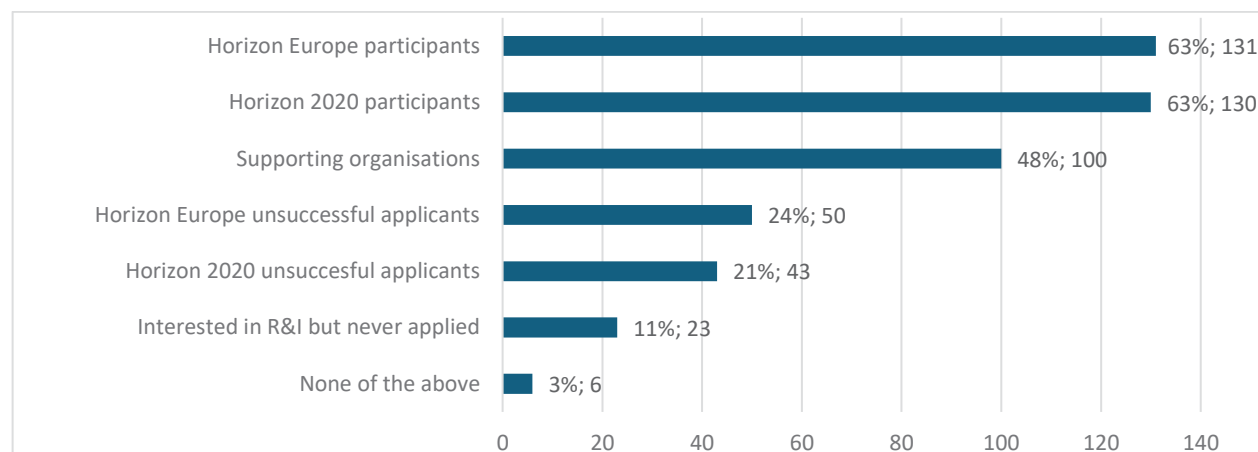
²⁰⁷ In addition, there were 9 people from the European Commission and 9 contractors present. The total of participants connected to the event was 235. The event was broadly promoted, and registrations were accepted for 297 participants.

Figure 37: Country of origin of stakeholders participating in the public event (Number of participants for which the information is available: 216)



More than 60% of the stakeholders participating in the event were either **Horizon 2020 or Horizon Europe participants** (or both), whereas 49% of them were organisations supporting other entities that apply for / participate in the EU Framework Programmes.

Figure 38: Experience with the EU Framework Programmes of stakeholders participating in the public event (Number of participants for which the information is available: 208. Multiple options possible)



Public consultation & Horizon Europe Public Event: Results

The benefits of participating in Horizon Europe

The majority of respondents (74%; 1 184) agreed that participating in Horizon Europe “improved cooperation with partners from other countries (within the EU and beyond)”, 39% (618) agreed that Horizon Europe “improved excellence in research and innovation” compared to other programmes available in EU Member States or Associated Countries, and 34% (544) agreed that Horizon Europe brought the “possibility to finance projects which otherwise could not be supported at national and/or regional level”. Less than 1% (0.6%; 9) of respondents stated that there was “no additional benefit” in participating in Horizon Europe compared to other national and/or regional R&I programmes.

The analysis by country group shows that, although the ranking of response options is aligned, certain benefits are considered particularly relevant for some country groups:

- 76.8% of respondents from Third Countries and 78.1% of respondents from EU13 selected “improved cooperation with partners from other countries” compared to 73.4% of respondents from EU14 and 73.2% from Associated Countries.
- 50% of respondents from Third Countries, 49.6% of respondents from Associated Countries and 49.4% of respondents from EU13 selected “improved excellence in research and innovation” compared to 35.4% of respondents from EU14.
- 35.2% of respondents from EU14 and 35% from Associated Countries selected “possibility to finance projects which otherwise could not be supported at national and/or regional level” compared to 28.1% of respondents from EU13 and 27.8% from Third Countries.
- 37.5% of respondents from Third Countries and 35.4% from EU13 selected “improved international visibility” compared to 31.9% of respondents from EU14 and 28.5% from Associated Countries.
- 28.5% of respondents from EU14 selected “strengthened critical mass to address pan-European challenges” compared to 22.8% of respondents from Associated Countries, 19.4% from Third Countries and 14.6% from EU13.

Table 20: According to you, what are the main benefits of participating in Horizon Europe compared to national and/or regional R&I programmes in EU Member States or Associated countries? Select maximum 3 answers (EU14 N= 1 223; EU13 N= 178; EU Associated Countries N=83; Third countries N=112)

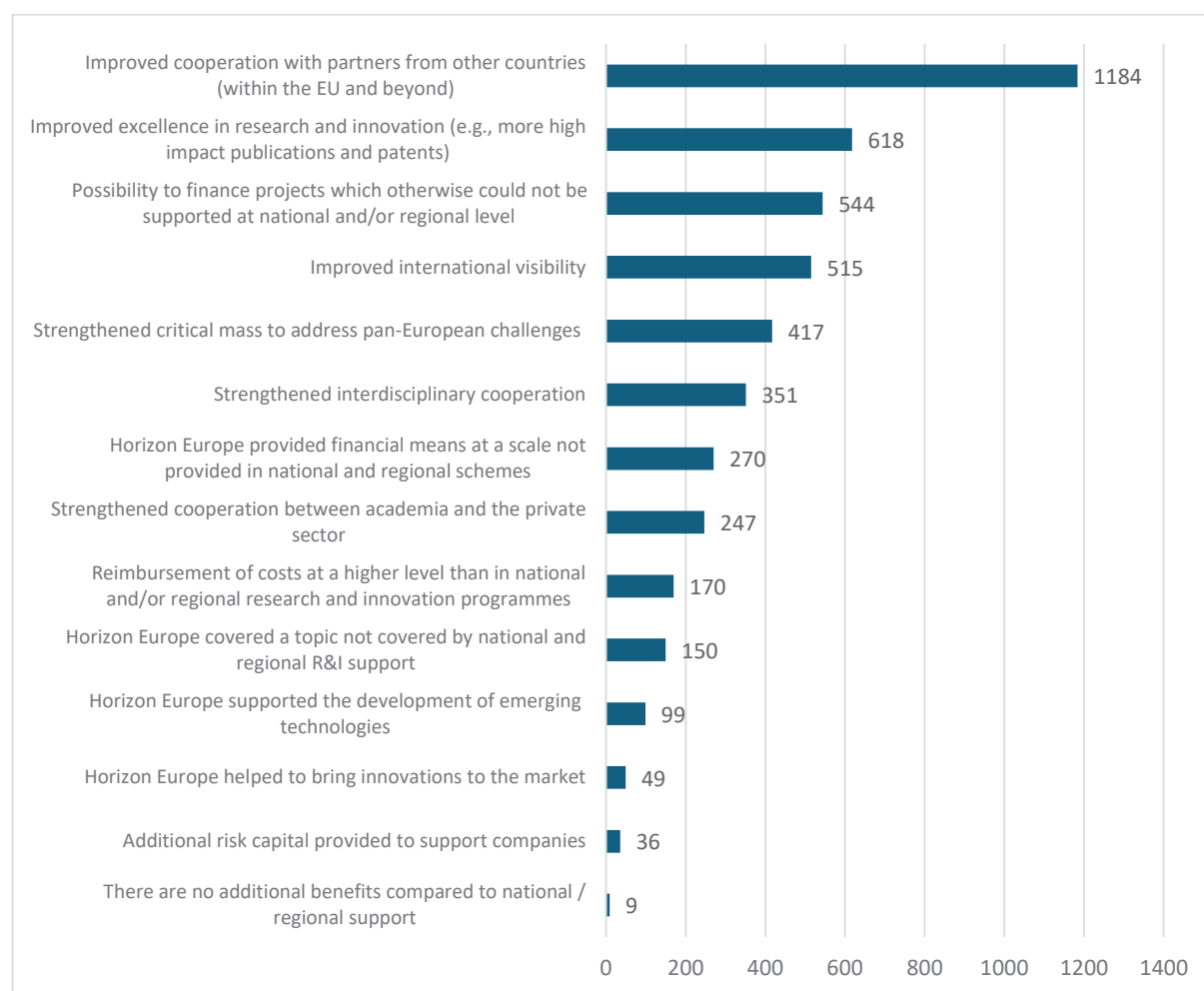
RESPONSE OPTION	EU14	EU13	EU ASSOCIATED COUNTRIES	THIRD COUNTRIES
Improved cooperation with partners from other countries (within the EU and beyond)	73.4%	78.1%	73.5%	76.8%
Improved excellence in research and innovation (e.g., more high impact publications and patents)	35.4%	49.4%	47.0%	46.4%
Possibility to finance projects which otherwise could not be supported at national and/or regional level	35.2%	28.1%	33.7%	26.8%
Improved international visibility	31.9%	35.4%	21.7%	15.2%
Strengthened critical mass to address pan-European challenges	28.5%	14.6%	13.3%	12.5%
Strengthened interdisciplinary cooperation	21.8%	20.8%	18.1%	22.3%
Horizon Europe provided financial means at a scale not provided in national and regional schemes	17.7%	15.2%	3.6%	3.6%
Strengthened cooperation between academia and the private sector	15.5%	15.2%	31.3%	24.1%
Reimbursement of costs at a higher level than in national and/or regional research and innovation programmes	11.8%	11.2%	4.8%	0.9%
Horizon Europe covered a topic not covered by national and regional R&I support	8.8%	11.8%	12.0%	7.1%
Horizon Europe supported the development of emerging technologies	5.9%	5.6%	20.5%	6.3%
Horizon Europe helped to bring innovations to the market	2.9%	2.8%	9.6%	7.1%
Additional risk capital provided to support companies	1.8%	3.9%	4.8%	3.6%
There are no additional benefits compared to national / regional support	0.7%	0.0%	0.0%	0.0%

The position papers highlighted similar benefits²⁰⁸. The most recurrent benefit mentioned in the position papers by different stakeholders (from academia, research organisations, companies and business associations) was the possibility to collaborate with partners across different sectors and involving different actors such as researchers, non-academic stakeholders and policy makers. Another aspect underlined by some position papers submitted by

²⁰⁸ 18 position papers included comments on the benefits of Horizon Europe.

respondents from industry was that Horizon Europe allowed RDI actors to undertake projects to address global challenges such as climate change and energy security, which require long-lasting and coordinated efforts. One business association mentioned the increased visibility of projects funded by Horizon Europe compared to those nationally funded, and one academic actor remarked that Horizon Europe funding helped to attract international talent.

Figure 39: According to you, what are the main benefits of participating in Horizon Europe compared to national and/or regional R&I programmes in EU Member States or Associated countries? Select maximum 3 answers (N=1 596)



The reasons preventing participation in Horizon Europe

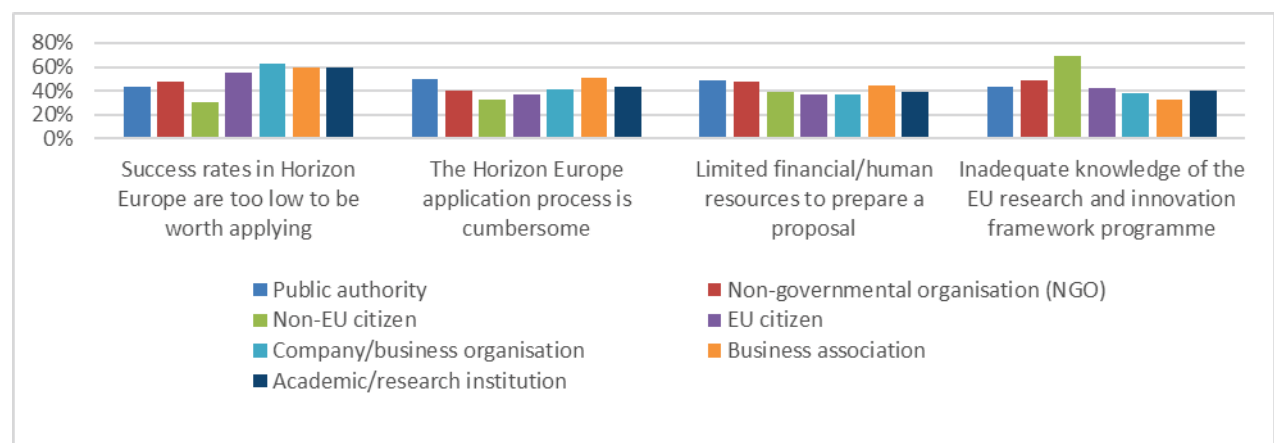
The main reported “reasons that may have prevented potential beneficiaries from participating in Horizon Europe” are the programme’s low success rates (for 58% of respondents; 916), an application process perceived as cumbersome (for 42% of respondents; 665), the inadequate knowledge of potential applicants of the EU research and innovation framework programme (for 41% of respondents; 644) and the limited financial and human resources available to prepare a proposal (for 40% of respondents; 630)²⁰⁹.

²⁰⁹ The first two reasons are relatively more important for unsuccessful than for successful applicants, whereas the third and fourth reasons are more important for successful than for unsuccessful applicants.

Figure 40: In your view, what are the main reasons that may have prevented potential beneficiaries from participating in Horizon Europe? Select maximum 3 answers. (N=1 585)



Figure 41: Stakeholder breakdown – top four main reasons preventing participation in Horizon Europe (up to three responses allowed, environmental organisations and trade unions not represented due to low response rate (2 or fewer))



The low success rates, the “limited financial / human resources to prepare a proposal” and the “difficulties in finding project partners” are relatively more important reasons for respondents from EU13 countries than for those from EU14 countries. By contrast, the cumbersome application process and project implementation rules are relatively more important for respondents from EU14 countries.

Table 21: In your view, what are the main reasons that may have prevented potential beneficiaries from participating in Horizon Europe? Select maximum 3 answers. (Successful applicants N= 1 225; Unsuccessful applicants N= 106)

RESPONSE OPTION	HORIZON SUCCESSFUL APPLICANTS	EUROPE	HORIZON UNSUCCESSFUL APPLICANTS	EUROPE
Success rates in Horizon Europe are too low to be worth applying	58.7%		68.9%	
Limited financial/human resources to prepare a proposal	40.7%		36.8%	
Inadequate knowledge of the EU research and innovation framework programme	40.5%		32.1%	
The Horizon Europe application process is cumbersome	40.2%		48.1%	
Difficulties in finding project partners	23.8%		17.9%	
The Horizon Europe project implementation rules are cumbersome	21.0%		17.0%	
Other	18.0%		17.0%	
Lack of a relevant area/topic for my research and innovation interests	16.7%		23.6%	
Limited attractiveness compared to other national or regional programmes	11.5%		7.5%	
Lack of expertise	10.8%		9.4%	
Concerns about sharing valuable knowledge with partners	5.6%		3.8%	
Limited attractiveness compared to other European or international programmes	2.1%		2.8%	

Table 22: In your view, what are the main reasons that may have prevented potential beneficiaries from participating in Horizon Europe? Select maximum 3 answers. (EU14 N= 1 213; EU13 N= 178; EU Associated Countries N= 83; Third Countries N= 111)

RESPONSE OPTION	EU14	EU13	EU ASSOCIATED COUNTRIES	THIRD COUNTRIES
Success rates in Horizon Europe are too low to be worth applying	60.0%	62.9%	33.7%	29.7%
The Horizon Europe application process is cumbersome	43.9%	28.7%	42.2%	24.3%
Limited financial/human resources to prepare a proposal	39.9%	46.6%	36.1%	26.1%

Inadequate knowledge of the EU research and innovation framework programme	39.4%	34.8%	55.4%	52.3%
The Horizon Europe project implementation rules are cumbersome	22.6%	10.1%	26.5%	6.3%
Difficulties in finding project partners	20.8%	34.3%	36.1%	18.9%
Other	17.9%	19.1%	14.5%	19.8%
Lack of a relevant area/topic for my research and innovation interests	17.1%	16.9%	13.3%	10.8%
Limited attractiveness compared to other national or regional programmes	10.6%	13.5%	9.6%	9.0%
Lack of expertise	10.1%	15.2%	14.5%	5.4%
Concerns about sharing valuable knowledge with partners	5.7%	3.9%	6.0%	4.5%
Limited attractiveness compared to other European or international programmes	2.2%	3.4%	1.2%	2.7%

The deterring reasons mentioned by respondents in the position papers²¹⁰ are:

- The low success rates compared to the effort needed to prepare the proposal – this issue was underlined by academic actors, research organisations, but also companies and business associations.
- The requirement to create large consortia, which creates administrative burden, especially for the project coordinator, and difficulties in project management (e.g., for projects on research infrastructures).
- The administrative procedures for application, the language used in the calls for proposals and the documents for the application process are considered too complex for newcomers and SMEs and require expert help (e.g., from consultants).
- According to a business association at European level, SMEs encounter difficulties in finding partners.
- Some universities and associations of universities maintained that the programme was too complex, with different actions and instruments addressing the same objectives. It is difficult for small organisations with limited experience and resources and for newcomers to navigate the landscape of opportunities available and to identify the relevant ones for them. Against this background, the EU Missions and the European Partnerships are said to create additional layers of complexity.

Some academic stakeholders participating in the event claimed that joining consortia and partnerships is not always easy, since sometimes they are perceived as “closed clubs”. This barrier is stronger for newcomers or small local/regional organizations with low experience in Horizon Europe. In addition, some research organisations maintained that the Work Programmes’ structure has become more complex over time, and it is difficult for researchers to navigate the different opportunities, especially for those not familiar with EU funding. According to them, this aspect may prevent participation from actors without the necessary administrative support (typically SMEs).

Novelties in Horizon Europe

More than half of respondents maintained that the following “changes, introduced in Horizon Europe, contribute **somewhat or to a great extent** to strengthening the impact of European research and innovation”:

- Definition of the future R&I priorities through a co-creation process with stakeholders (76%; 1 200)
- Implementation of an open science policy (73%; 1 147)
- Development of several multi-annual Strategic Plans (71%; 1 106)²¹¹
- Creation of a pillar dedicated to innovation, including the European Innovation Council (64%; 997)
- Introduction of the impact logic in the formulation of topics (61%; 958)
- Creation of a pillar grouping societal and industrial issues (54%; 849)
- New approach to Partnerships (co-programmed, co-funded and institutionalised) (53%; 825)
- Creation of “EU Missions” (52%; 813)

²¹⁰ 17 position papers included comments on the barriers to participation.

²¹¹ Associations of research and academic actors at EU and national level observed in their position papers that the Strategic Plans improve the long-term planning process and the predictability for applicants, and (improve and?) demonstrate the alignment of Horizon Europe with key global challenges.

Some position papers from research institutions addressed the three-pillar structure of Horizon Europe positively, as it was seen in continuation with Horizon 2020. Likewise, according to the participants in the event the three Pillars' structure is working well. However, stakeholders from academia, research organisations as well as business support organisations, observed a gap between the research funded in Pillar I and Pillar II and the actions funded in Pillar III, since the first two Pillars fund collaborative research whereas Pillar III focuses on actions carried out by single beneficiaries. Therefore, the research projects funded under Pillar II often achieve a medium (5-6) Technology Readiness Level but struggle to scale up. In this view, some participants from research organisations regretted the lack of support for small collaborative projects under Pillar III since the Fast Track to Innovation had been discontinued. They called for enlarging the Transition grant scheme (which currently bridges ERC to EIC) to also cover Pillar II. A participant from a company supporting researchers and universities participating in Horizon Europe expressed appreciation for the fact that the Pillar II has brought together industrial and societal challenges as the two are interlinked.

The event participants assessed positively the creation of Pillar III, dedicated to innovation, but according to some stakeholders (both from universities and business support organisations) it is unclear what the medium and long-term objectives of the European Innovation Ecosystems (EIE) programme are. This lack of clarity makes the participation more difficult for stakeholders.

Figure 42: In your view, to what extent do the following changes, introduced in Horizon Europe, contribute to strengthening the impact of European research and innovation?

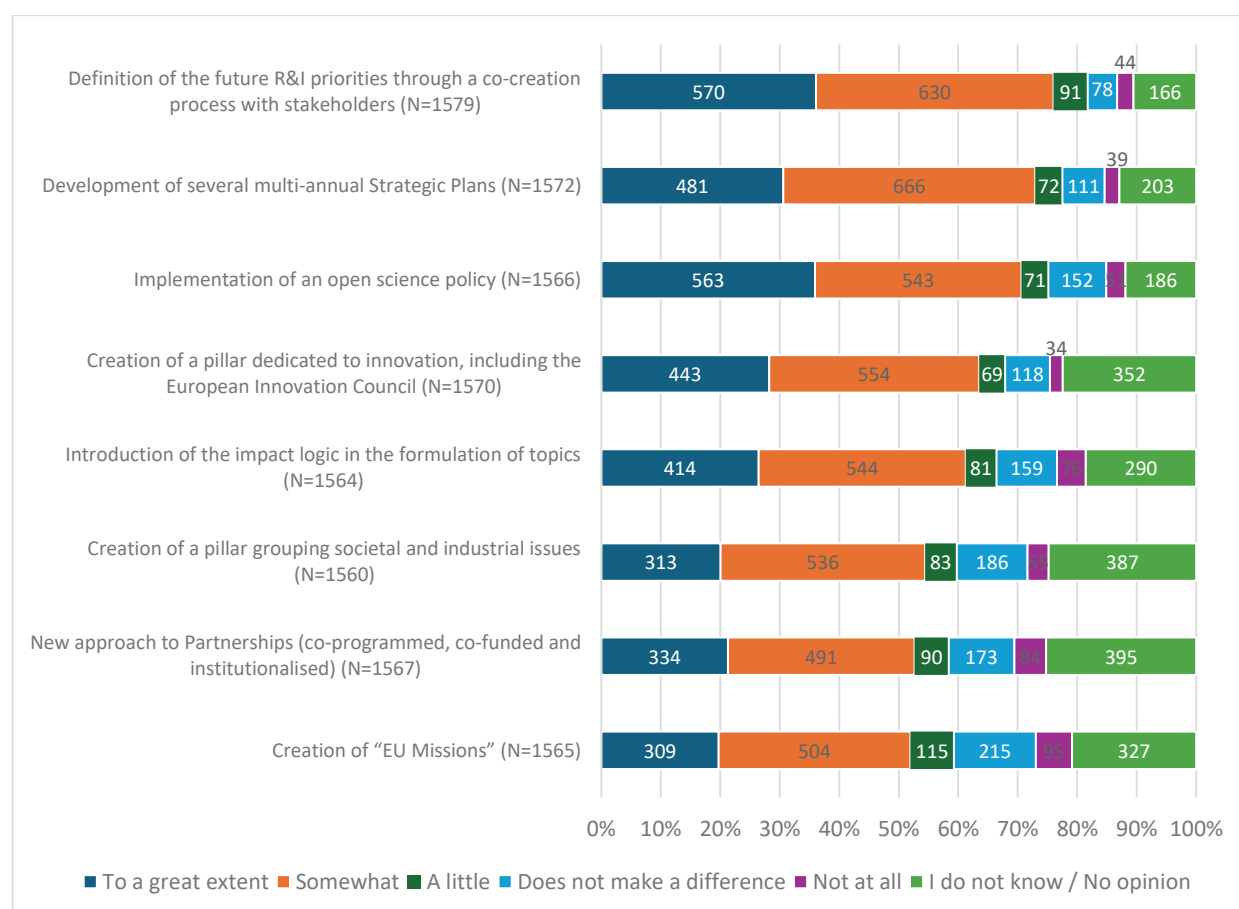


Figure 43: Stakeholder breakdown – definition of future R&I priorities through a co-creation process with stakeholders (N = 1579)

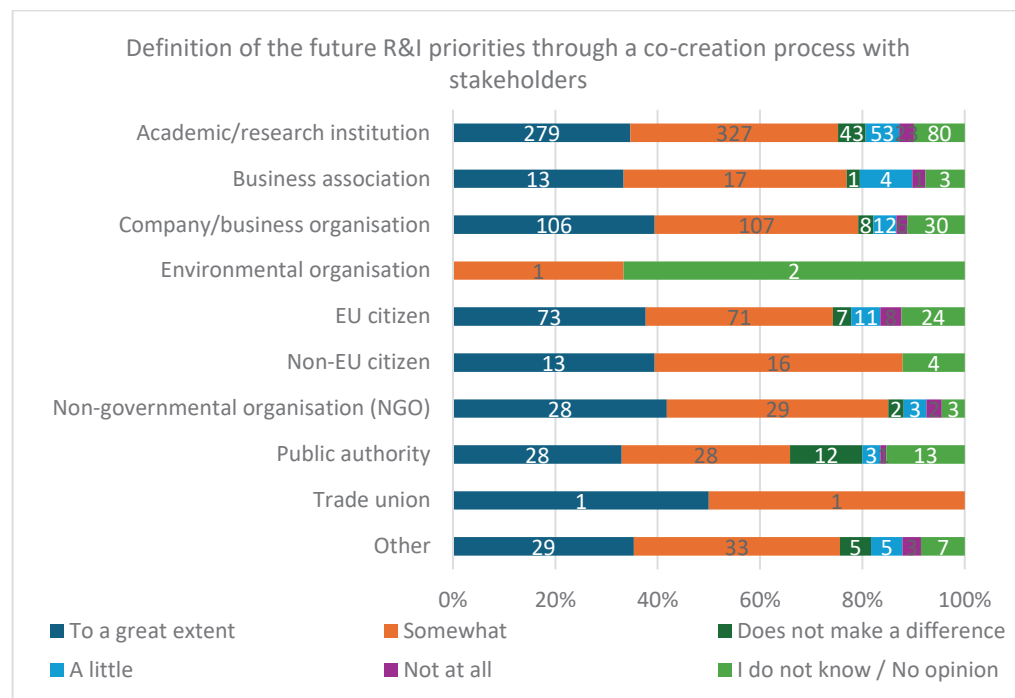


Figure 44: Stakeholder breakdown – Development of several multi-annual Strategic Plans (N=1572)

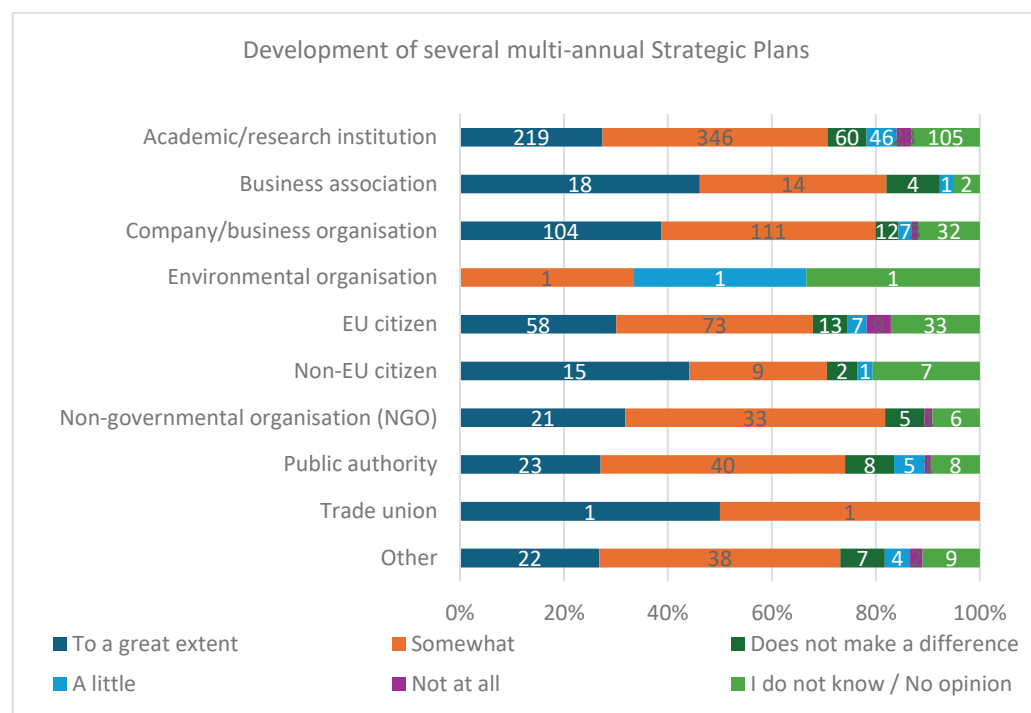
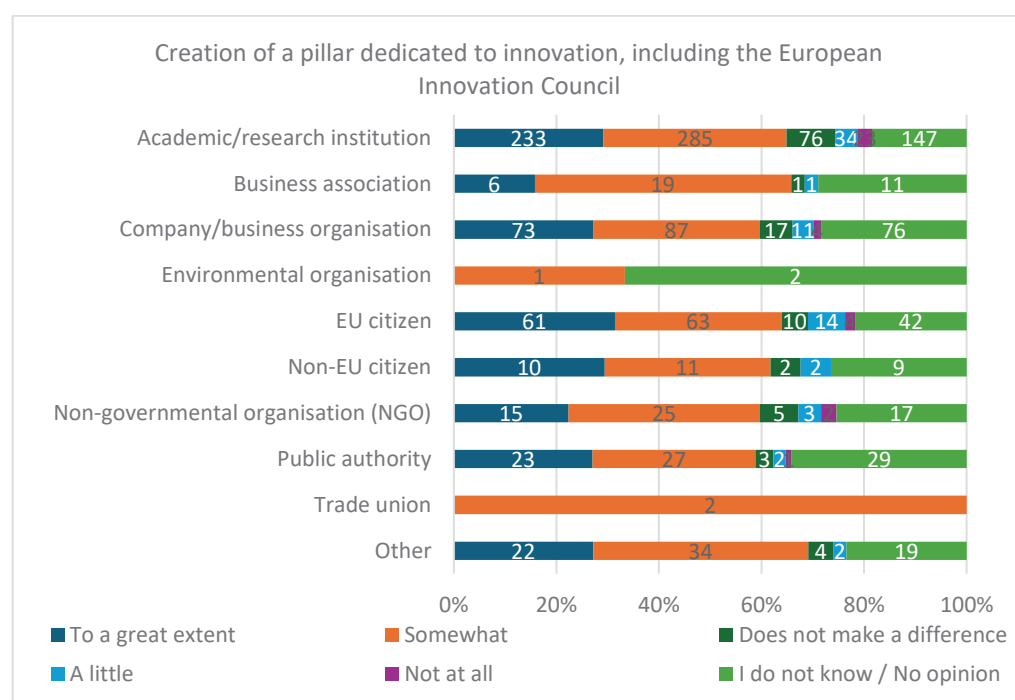


Figure 45: Stakeholder breakdown – Creation of a pillar dedicated to innovation, including the European innovation Council (N=1570)



Box 4: Overview of the comments on the European Innovation Council

27 position papers included comments on the European Innovation Council. Whilst several stakeholders appreciate the creation of the European Innovation Council, they pointed out some implementation issues, concerning:

- The insufficient flexibility of the administrative processes.
- The limited scope of the EIC Transition (accepting proposals only from the ERC PoC Pathfinder and FET).
- The application and evaluation process.
- The low success rates.
- The harmonisation of the IP provisions with the rest of Horizon Europe and with the Commission Recommendation on intellectual property.²¹²
- Similarly, the event participants deemed the EIC as a valuable tool that addresses all stages of innovation. The specific procedures for proposals selection under the different EIC components and its general structure were considered appropriate. However, it was observed that during the first years of Horizon Europe the EIC had major governance issues, particularly in the Accelerator component, since the work of the newly established EIC Fund was not smooth enough and there were delays in the selection of beneficiaries. In addition:
 - For several participants, the Accelerator component excessively focused on deep-tech instead of on disruptive and breakthrough innovation in general, missing the opportunity

²¹² 2008/416/EC, Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations.

of funding disruptive social innovation. The focus on deep-tech innovation contradicts the attention to interdisciplinarity given in the rest of Horizon Europe.

- According to a participant representing an association for technology research, the requirement for co-investors was not communicated well, it is quite challenging for start-ups to meet and this in turn can hinder their participation.
- A National Contact Point highlighted the need to improve communication on the EIC calls, the participation rules and the administrative procedures. Due to the peculiarities of the programme compared to the rest of Horizon Europe, these aspects differ from the rest of the FP. For this reason, additional communication and training is needed to explain them to potential applicants and participants.
- It is difficult for applicants and participants to understand how the EIC portfolio has been built and works, as it appears completely different from other EU initiatives.
- Some concerns were expressed regarding the rejection process as a participant representing a network of universities reported difficulties in communicating with evaluators.
- The budget for the Pathfinder and Transition components was considered insufficient from academic stakeholders.

Figure 46: Stakeholder breakdown – Creation of EU Missions (N= 1565)

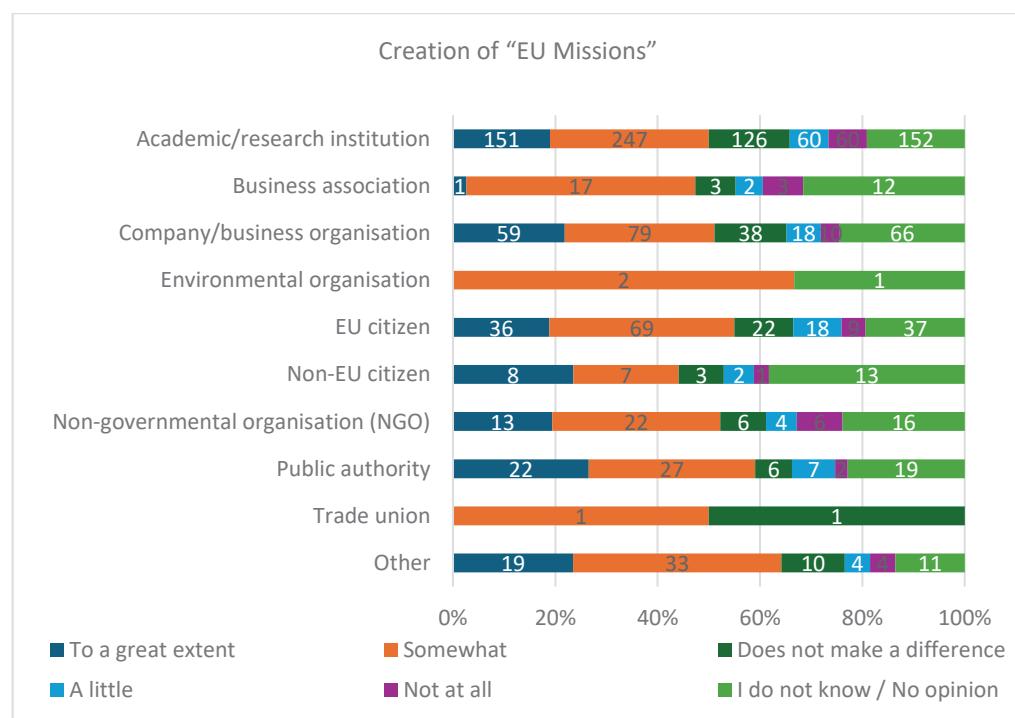


Figure 47: Stakeholder breakdown – Creation of a pillar grouping societal and industrial issues (N= 1560)

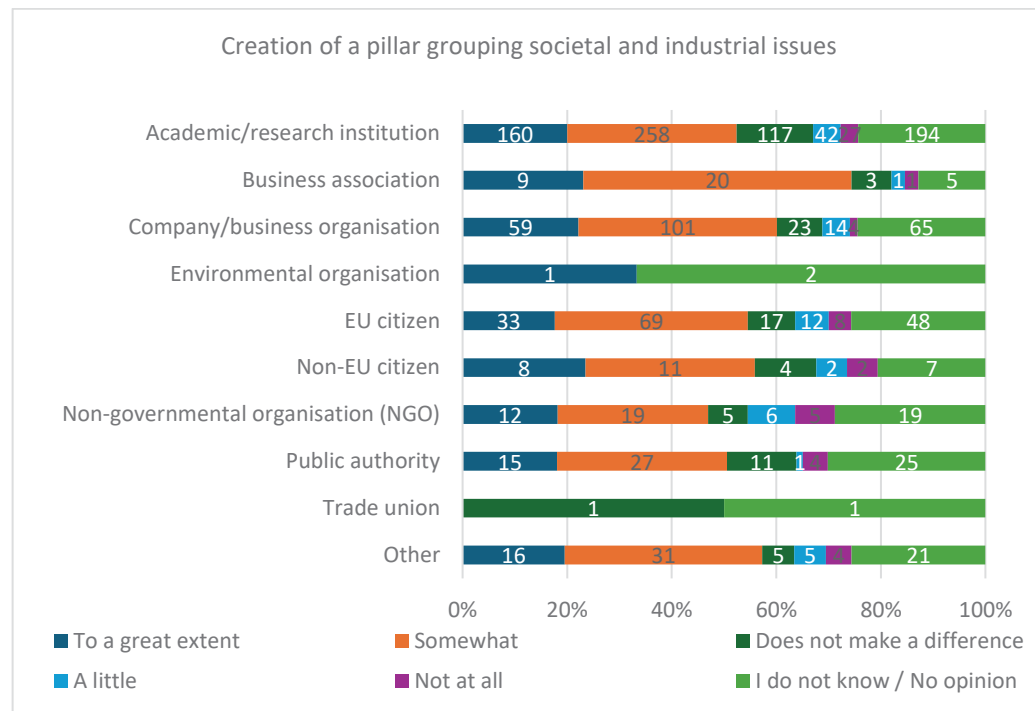


Figure 48: Stakeholder breakdown – New approach to Partnerships (N= 1567)

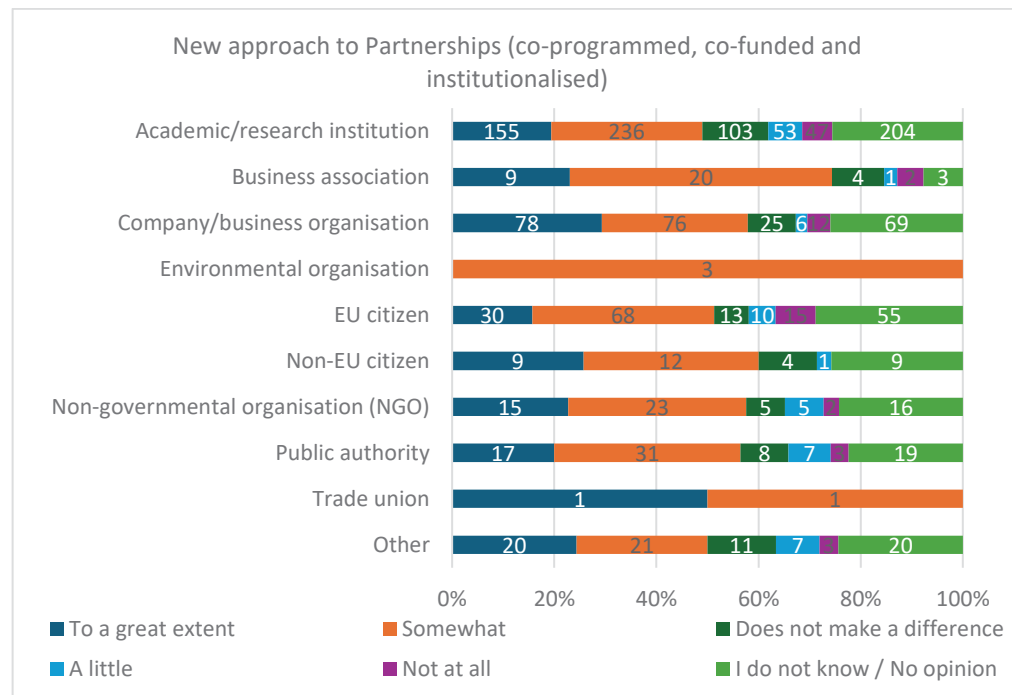
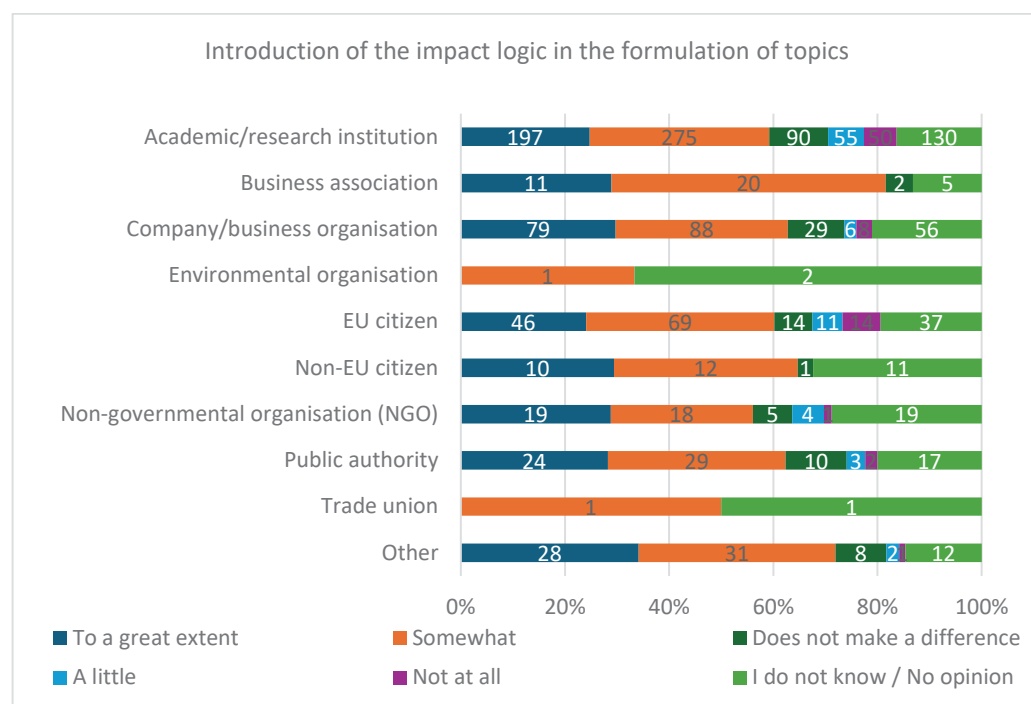


Figure 49: Stakeholder breakdown – Introduction of the impact logic in the formulation of topics (N= 1564)



Implementation and administrative procedures

Design and implementation of the calls for proposals

Most respondents agreed with the following statements: “the rules of participation [are] clear” (77%; 1 218), that “the standard application form [facilitates] the application” (67%; 1 053) and that “the descriptions of the calls for proposals [are] clear” (64%; 1 110) and “frequent enough” (58%; 905). However, 29% (457) of respondents maintained that finding the right call for proposals was difficult and 31% (485) of respondents did not think that “there [is] an adequate mix of calls for proposals addressing specific topics (top-down) and calls for proposals without a pre-defined topic (bottom-up)”²¹³.

51 position papers discussed aspects of the calls for proposals. Several of these topics were discussed more in depth during the public event. The main messages concern:

- The scope of the calls for proposals. Several research organisations and universities deemed the description of the calls for proposal in Horizon Europe as too vague and “multidimensional”. As a result, only large consortia can address every aspect of the call and it is difficult to understand how researchers in different disciplines should contribute to the projects. Moreover, according to some respondents, vague calls for proposals worsen the risk of oversubscription.
- The template for the proposal. There were different views on whether or not the page limit of the template simplifies the application. Some position papers highlighted the challenges experienced in filling in specific parts of the template due to its alleged rigid structure and its page limit. The new page limits set in the Horizon Europe application forms (part B)

²¹³ This opinion is shared especially among academic and research organisations. The results of the analysis broken down by type of respondent are reported in Table 23 and Table 24- additional statistics.

was generally seen as positive by the event participants, since proposals are now shorter, more concise and to the point. However, some applicants claim that the page reduction has posed a new challenge to proposal writing, as sometimes there is not adequate space to address exhaustively all the aspects requested by the calls for proposals. This issue is particularly relevant for large consortia, since part of the proposal is dedicated to the partners' description.

- Using the two-stage application procedure. Whilst some actors thought that the current balance between two-stage and single-stage application procedure is appropriate (e.g., an association representing universities), other actors (e.g., some research organisations, a business association, a public authority) would like to expand the use of the two-stage procedure.
- The challenging submission deadlines. Some respondents considered that finding and responding to calls for proposals within a restricted time frame and with sometimes overlapping deadlines was difficult. Likewise, during the event, some applicants expressed the need to review the frequency of the calls for proposals, asking for more flexibility. According to them, the calendar of the deadlines for submission doesn't always consider public holidays or celebrations.
- The balance between top-down and bottom-up calls. In their position papers and during the event, some universities and research organisations, but also some public authorities, pointed out the need for more bottom-up calls for proposals, especially in Pillar II. In their opinion, the bottom-up approach would facilitate the deployment of Social Sciences and Humanities within the Framework Programme.
- According to the event participants applicants are generally satisfied with the quality and availability of information provided to fulfil a proposal application. However, some stakeholders reported a few cases where mixed and non-consistent information was found between call documents, F&T portal and the info-days organized by NCPs. In this respect, stakeholders called for better use of the FAQ section on the F&T Portal.
- Some position papers appreciated the existence of an updated Funding and Tenders Portal, although some technical improvements are suggested. Similarly, some event participants expressed their concern over the technical flaws of the F&T portal, especially close to the deadlines, when the system is often perceived as unstable. Moreover, the imposed "two-factor" authentication method may slow down the administrative procedures.

Figure 50. To what extent do you agree with the following statements concerning the calls for proposals under Horizon Europe?

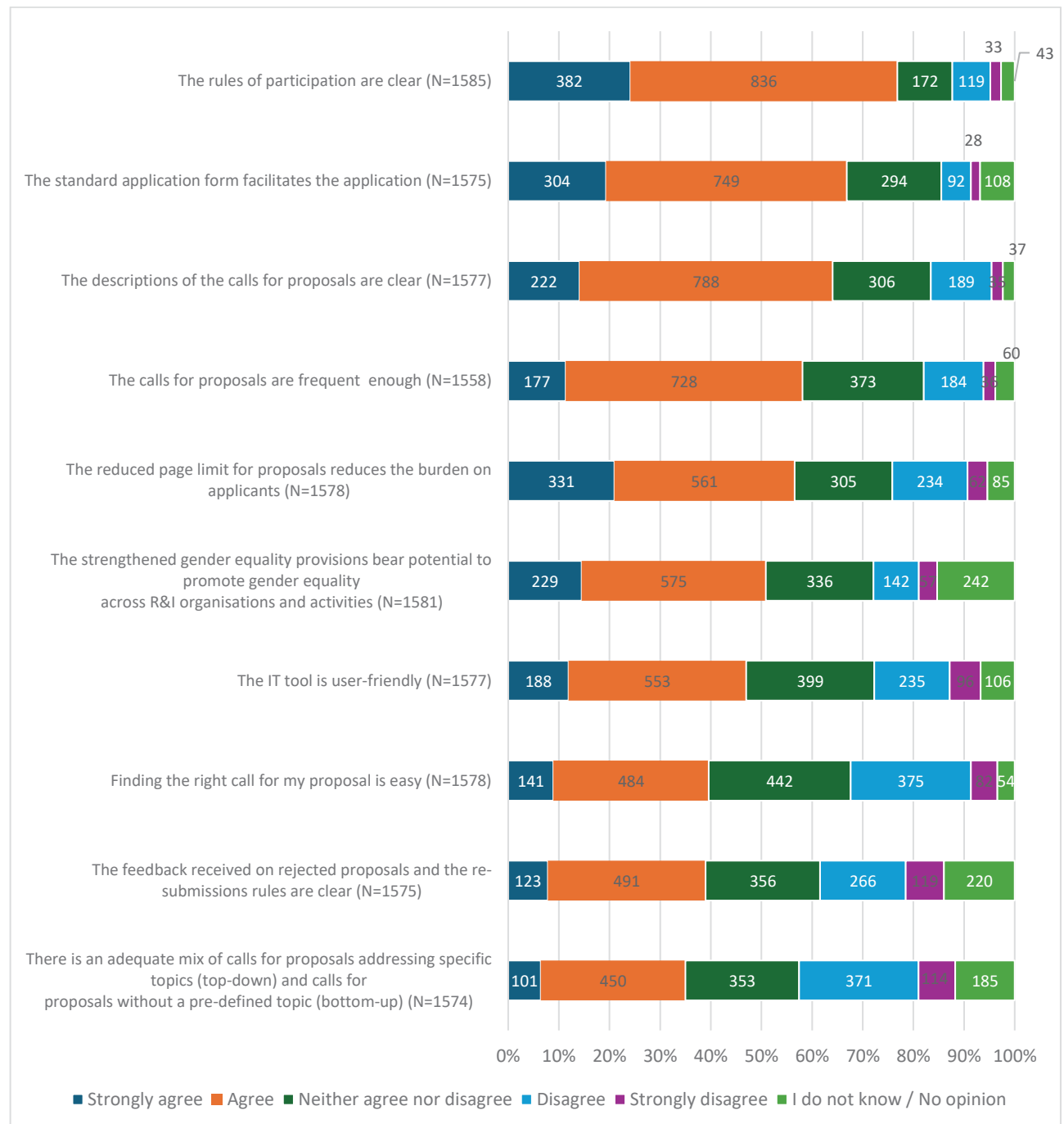


Figure 51: Stakeholder breakdown – Rules of participation are clear (N= 1585)

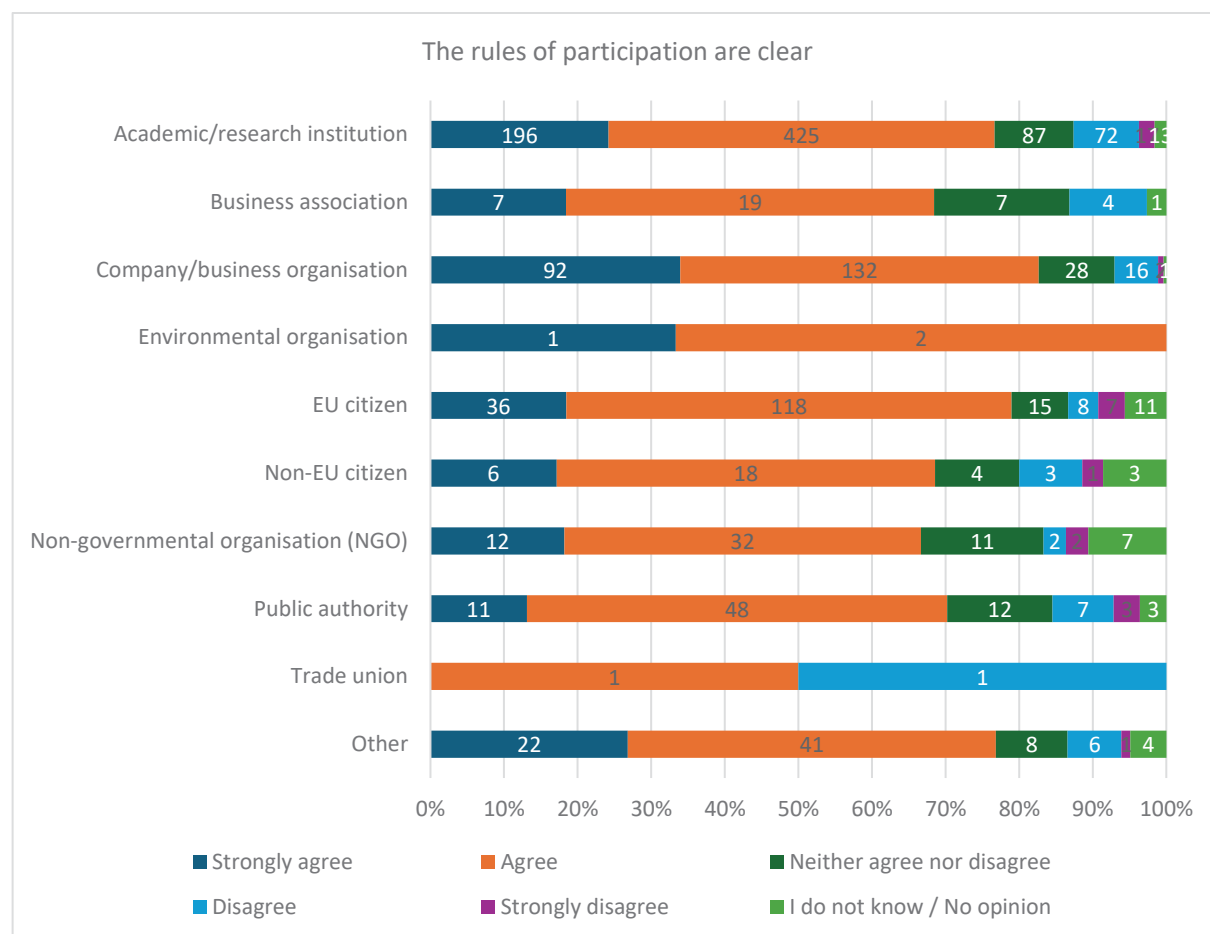


Figure 52: Stakeholder breakdown – The standard application form facilitates the application (N= 1575)

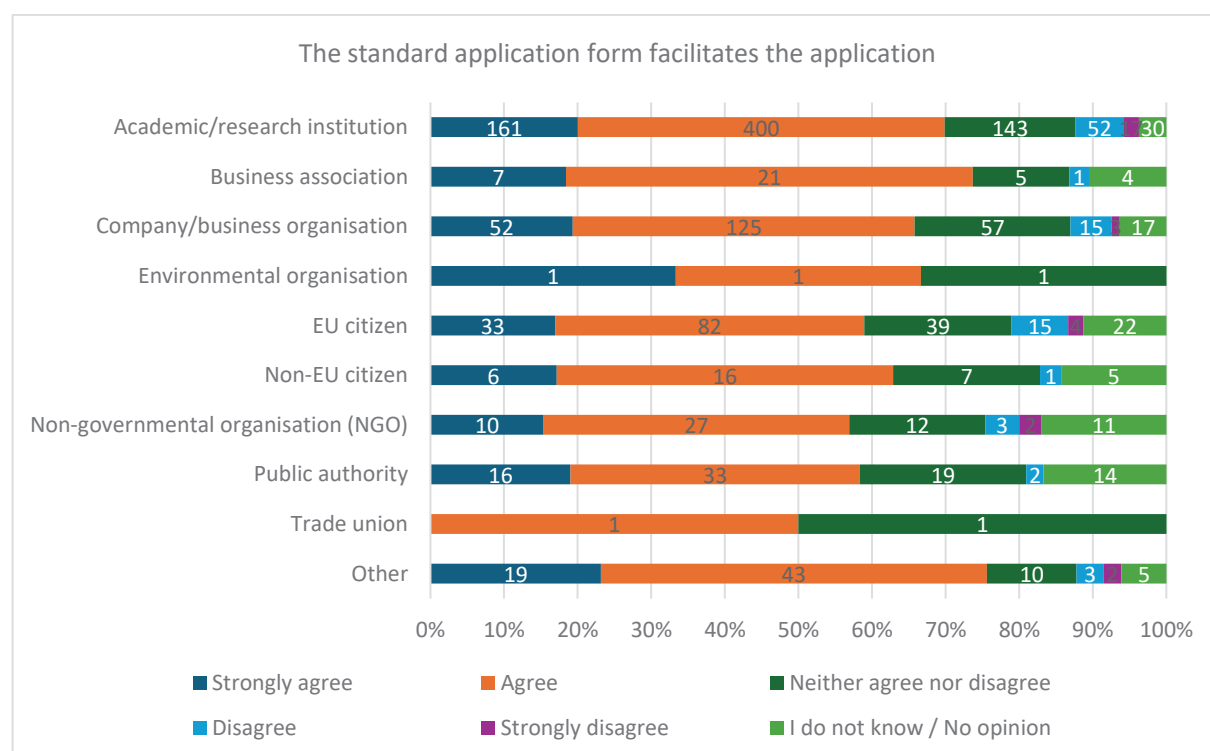
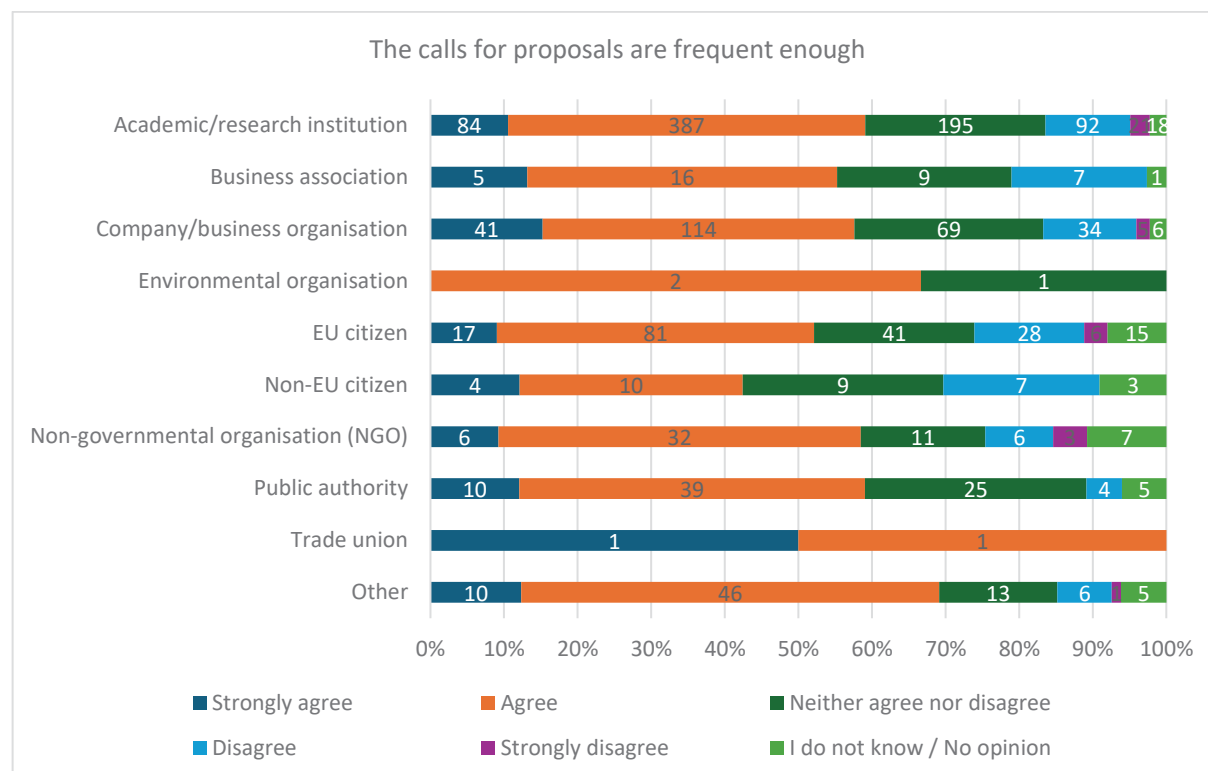


Figure 53: Stakeholder breakdown – The calls for proposals are frequent enough (N= 1558)



Evaluation of proposals

Most respondents agreed or strongly agreed that the “time to sign the grant agreement” (65%; 1 028) and the “time to evaluate the proposals” (63%; 1 002) was “adequate”. Whilst 44% (698) of respondents thought that the feedback received from the evaluation was “clear and informative”, 24% (383) of respondents disagreed or strongly disagreed with this statement. Likewise, whilst some position papers highly valued the evaluation system of Horizon Europe and observed improvements over time, others underlined the need for more consistent and detailed feedback in the evaluation reports.²¹⁴ Some research organisations and associations thereof welcomed the “right to react” mechanism, but a national agency supporting applicants put into question the effectiveness of the procedure.

Six papers referred to the “blind evaluation process” that has been piloted, stating that stakeholders were interested in the results of the pilot and in the possibility of expanding its use.

Although stakeholders recognised that efforts have already been made to reduce the time to grant, the actual time between proposal submission and evaluation was still considered too long by different stakeholders (e.g., respondents from universities, from business associations).

Box 5: Main messages on the evaluation of proposals from the public event

- Applicants are generally satisfied with the timing for proposal evaluation and the signature of the Grant Agreement, seen as mostly “adequate”.

²¹⁴ 51 position papers discussed aspects of the evaluation of proposals.

- However, they have raised several concerns related to the quality and clarity of the evaluations provided through the ESRs. Comments of the evaluators are sometimes reported as too generic, contradictory and not really helpful for a reworking the proposal for a new submission.
- Although the Horizon Europe programme is highly impact-oriented, an academic stakeholder has highlighted that some evaluators are lacking adequate preparation or guidance on how to adequately assess impact. Differences between the scopes of the different Clusters should also be taken into account.
- Likewise, higher competences in evaluating integrated SSH aspects would be welcome, given the increasing space and importance that these disciplines are receiving in many topics.
- According to a participant representing a business company, the evaluators specific field of expertise should be in line with the scientific field of the proposal. Otherwise, the risk is to receive misplaced or inconsistent evaluation, especially in the case of disruptive technology.
- It was suggested by academic stakeholders that the guidelines for evaluators provided by the programme's officers should be public, thus ensuring more transparency in the evaluation process.

Figure 54. To what extent do you agree with the following statements concerning proposal evaluation under Horizon Europe?

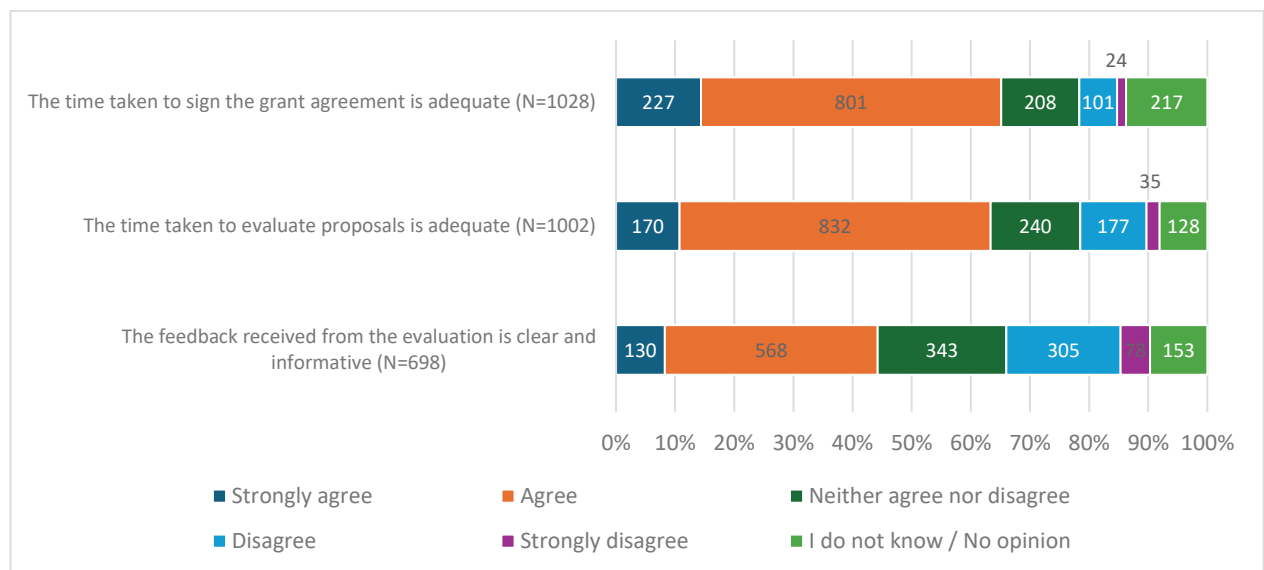


Figure 55: Stakeholder breakdown – The time taken to sign the grant agreement is adequate (N= 1028)

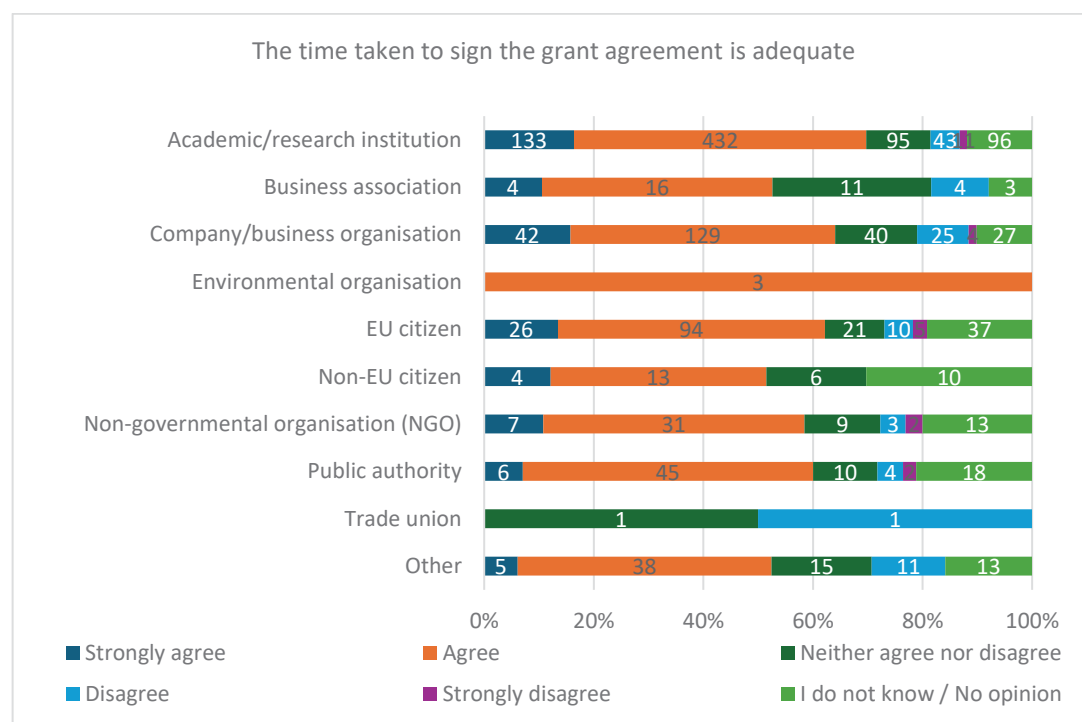


Figure 56: Stakeholder breakdown – The time taken to evaluate proposals is adequate (N= 1002)

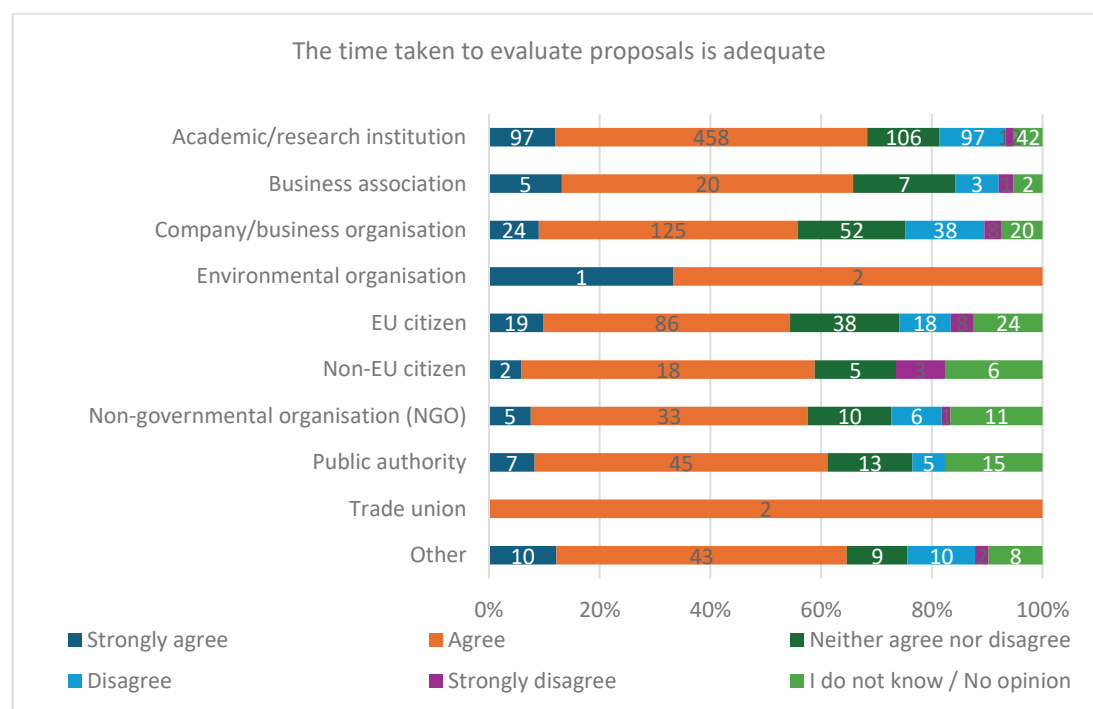
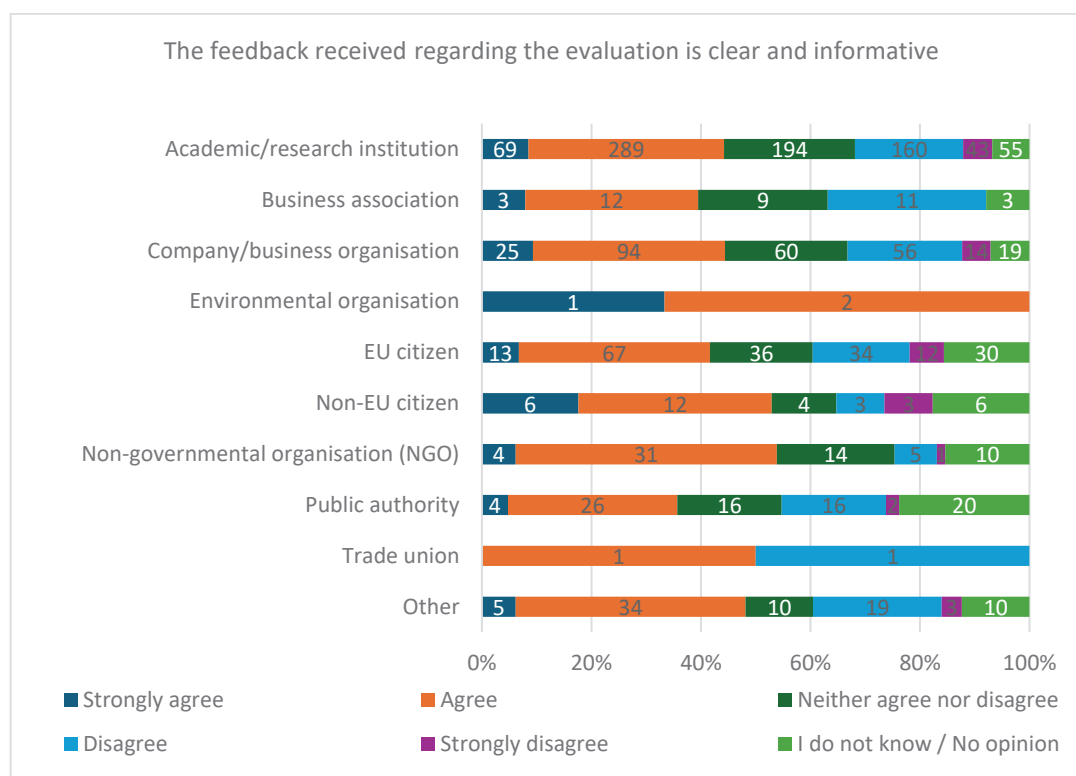


Figure 57: Stakeholder breakdown – The feedback received regarding the evaluation is clear and informative (N= 698)



Project implementation

Most respondents agreed or strongly agreed that “the standard templates facilitate project reporting” (62%; 978), that “the mechanisms for project monitoring and reporting were adequate” (61%; 955), that their “organisation’s usual accounting practices were accepted” (59%; 1 933), that “the cost calculation rules were clear” (59%; 925). The majority of respondents were “satisfied with the support received by the EC services (including agencies) during grant preparation and implementation” (52%; 813) and agreed or strongly agreed that “the extension of the single audit principle reduces the burden on beneficiaries (51%; 790). Conversely, only 39% (616) of respondents agreed or strongly agreed that “the use of lump sum funding reduces the burden on beneficiaries” and 15% (233) maintained the opposite. 63 position papers commented on aspects of project implementation. Several of these topics were discussed more in depth during the public event. The main messages concerned:

- **The lack of the Annotated Model Grant Agreement** and the delays for a final Annotated Model Grant Agreement - this issue was raised also during the public event. The event participants also urged the publication of an Indicative Audit Programme to receive detailed rules on auditing.
- **The lump sum funding.** The position papers expressed different views on whether the lump sum funding reduces the burden on beneficiaries, depending also on the project size. Many stakeholders, including universities, national research centres and a large company, recommended a thorough evaluation of the funding scheme before expanding its use, especially for large collaborative applied research projects. While the simplification brought by lump sum schemes has been generally appreciated, concerns were raised by different stakeholders, in particular by a series of European associations of research centres, on the intensification of the workload in the proposal stage. Moreover, research and

technologies organisations (RTOs) report experiencing a lack of genuine collaboration among partners in large projects working with lump sums, as a result of different approaches aiming to minimise financial risks. On the other hand, representatives from the R&I community from Italy, Czech Republic, Lithuania, and Poland observed the simplified reporting, the reduced financial errors, and the decreased administrative burden induced by lump sum funding and have explicitly called for its extension.²¹⁵

- **The increasing difficulties in managing projects due to large consortia.** A participant in the event acting as NCP reported that it is becoming increasingly difficult to manage big consortia, especially in relation to the budget and administration. This aspect affects the expected level of participation of SMEs, since only experienced project managers have the experience and resources to deal with large consortia.
- **The tools for reporting and monitoring.** Most event participants are satisfied with the standard tools for reporting and monitoring and find very useful the assistance received by the EC services (including agencies) during grant preparation and implementation.
- **The new cost calculation rules.** According to some respondents, the new rules have not simplified the reporting and may have shifted costs towards the preparation phase. During the event, contrasting views were expressed on the measures to simplify the calculation of personnel costs. Whereas some participants consider the 215-day-a-year rule as a positive simplification, other academic actors see it as a rigid scheme that does not allow for the calculations to be adapted to the specificities of each country or entity.
- **The decentralisation of project management to the executive agencies.** The collaboration between the EC Project Officers and the beneficiaries is broadly positive. However, some participants have experienced high turnover and frequent changes in the people acting as Project Officer, which is reported as not beneficial for the project execution. In addition, an academic participant expressed concerns about the efficiency of the communication channels with the Commission, since he/she experienced fragmentation in communication between the Project Officer and the Commission.
- **The integration of gender aspects into project implementation.** The increasing importance of Gender Equality Plans (GEP) has been widely welcomed by the event participants. However, while the adoption of GEPs is often quite simple and straightforward for universities, it may not be the same for other types of organizations. More guidance and support on how to design the GEPs and how to effectively integrate gender aspects into project implementation would be welcome to avoid turning GEPs into a “just-tick-the-box” exercise.
- **18 position papers provided comments on the EC communication and information activities.** These stakeholders expressed appreciation for the effort made by the Commission, such as organisation of Infodays, and webinars. They point to areas in which communication and guidance can be improved: Synergies with other EU programmes and the Model Grant Agreement.

²¹⁵ For further information on lump sums, please refer to Annex 4, Section 4.4.2.

Figure 58. To what extent do you agree with the following statements concerning the project implementation under Horizon Europe?

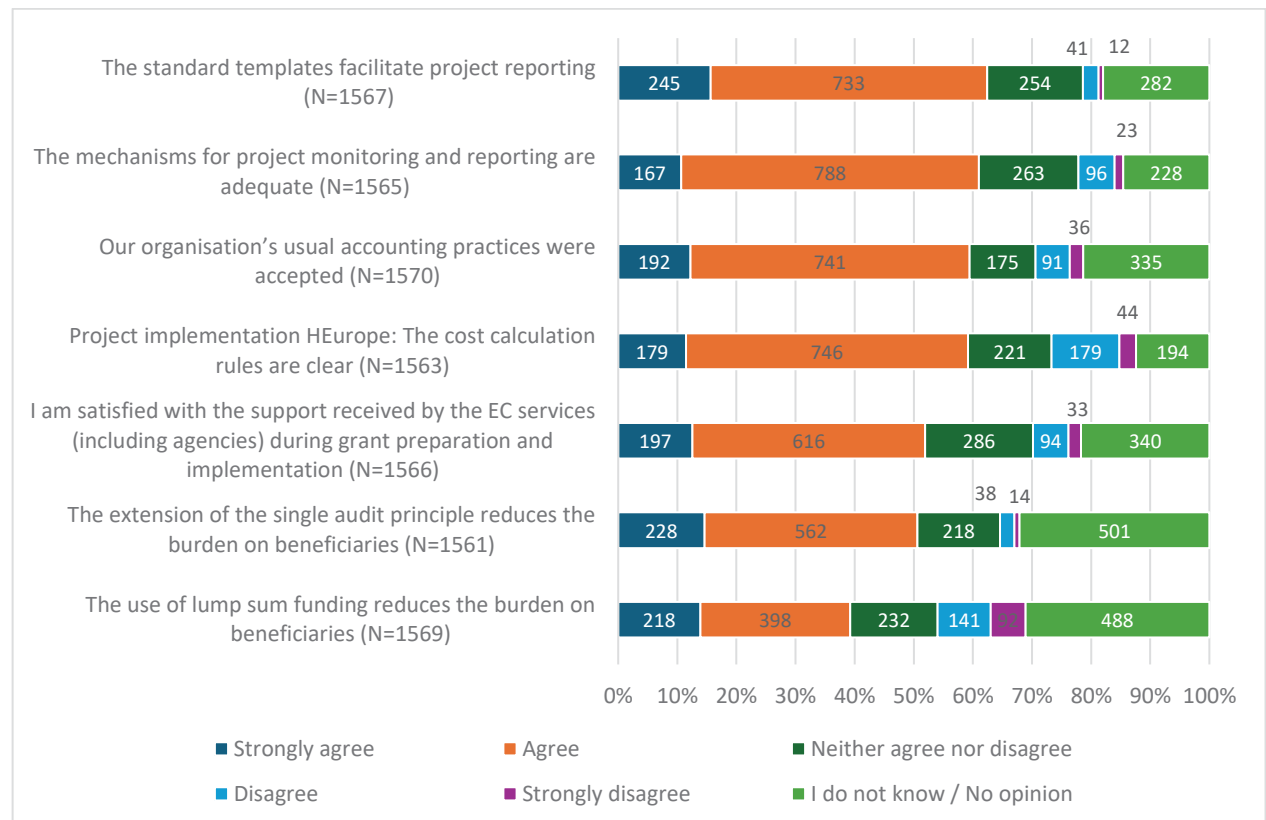


Figure 59: Stakeholder breakdown – I am satisfied with the support received from the EC services (N= 1566)

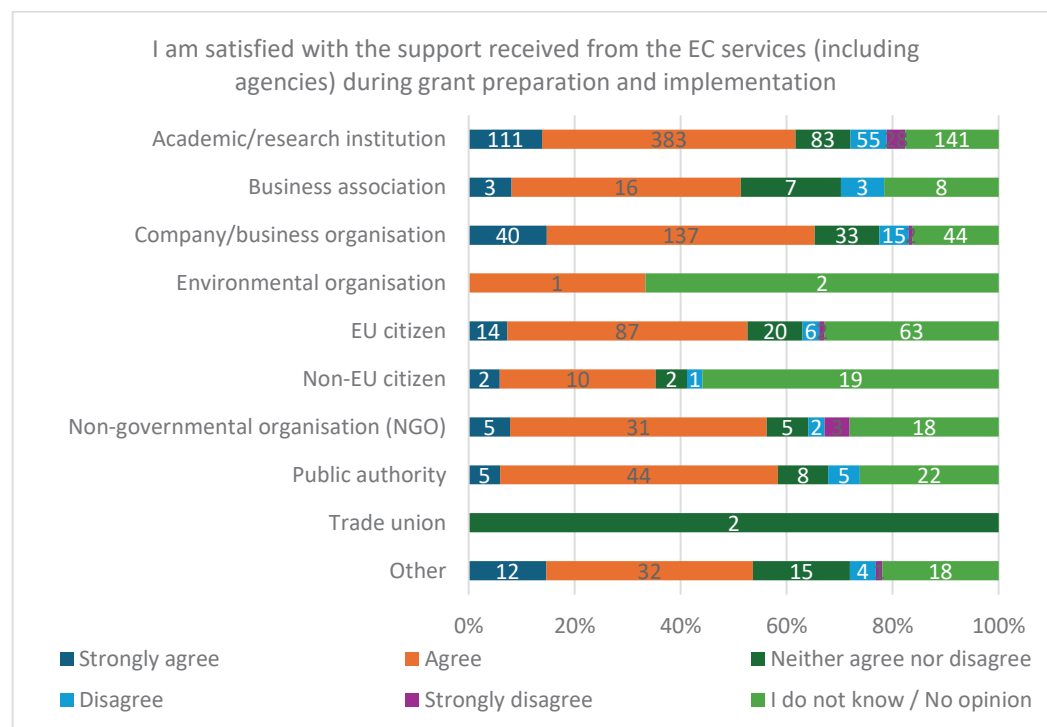


Figure 60: Stakeholder breakdown – The cost calculation rules are clear (N= 1563)

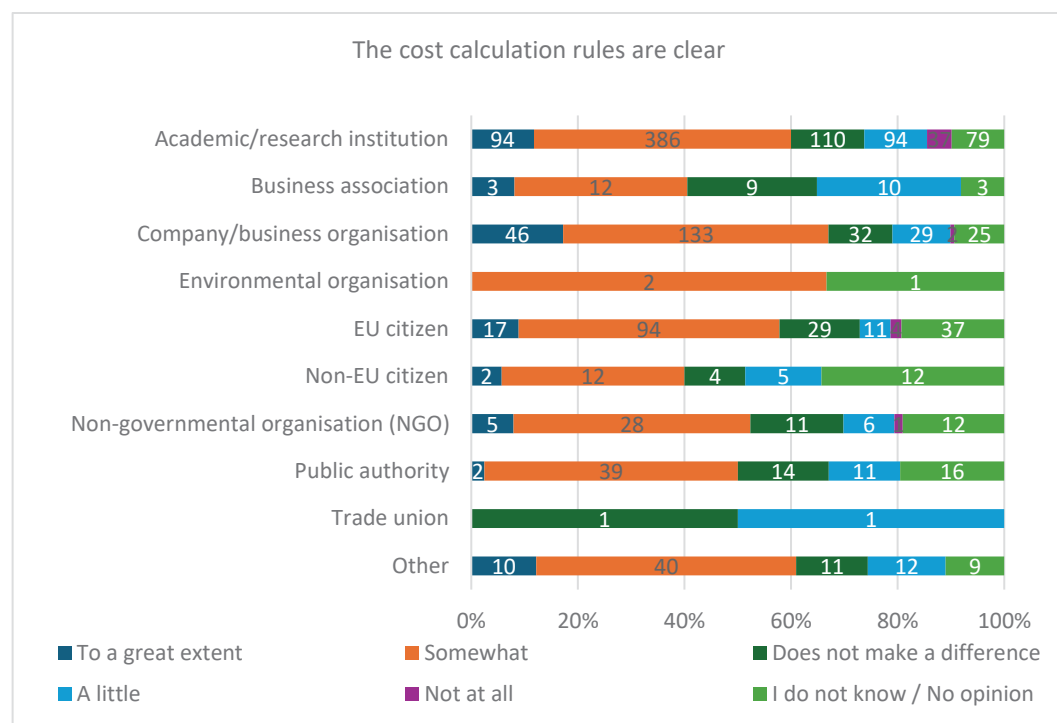


Figure 61: Stakeholder breakdown – Our organisation's usual accounting practices were accepted (N= 1570)

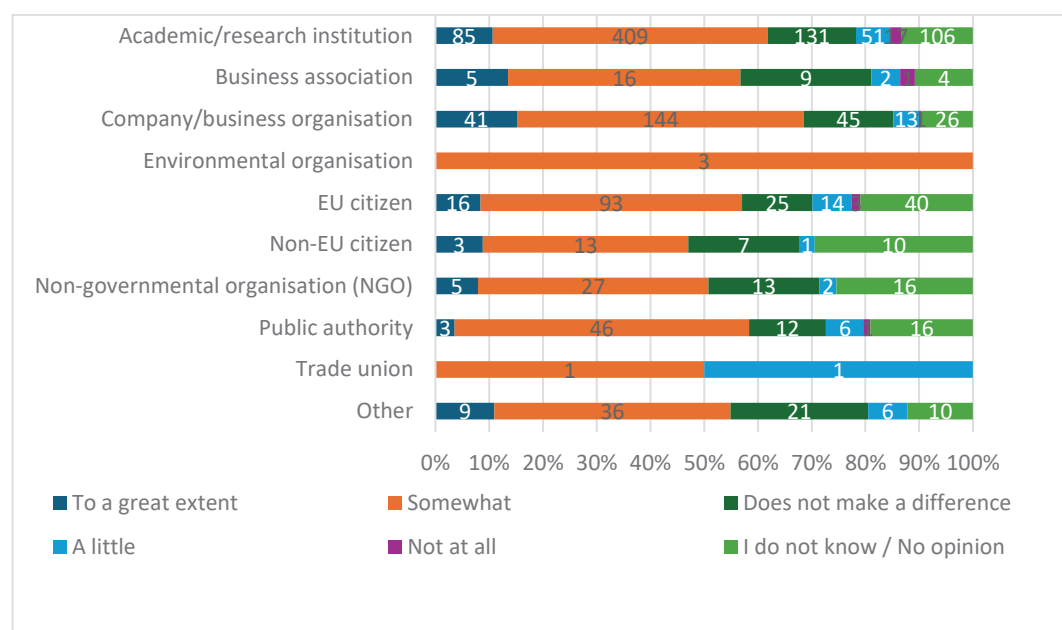


Figure 62: Stakeholder breakdown – The mechanisms for project monitoring and reporting are adequate (N= 1565)

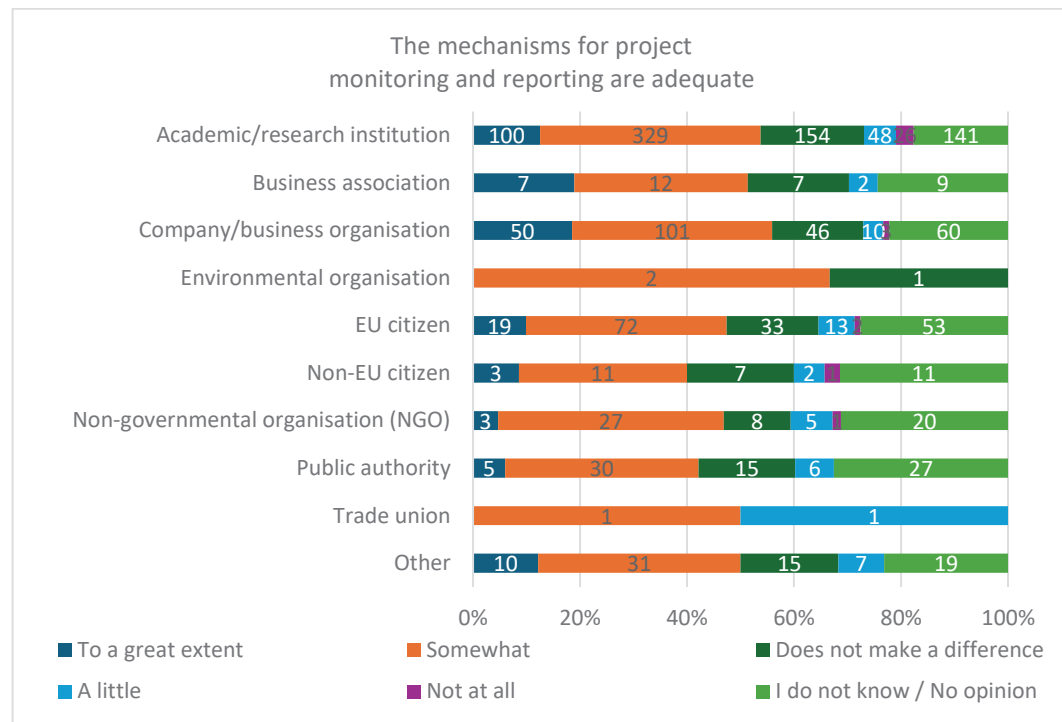


Figure 63: Stakeholder breakdown – The standard templates facilitate project reporting (N= 1567)

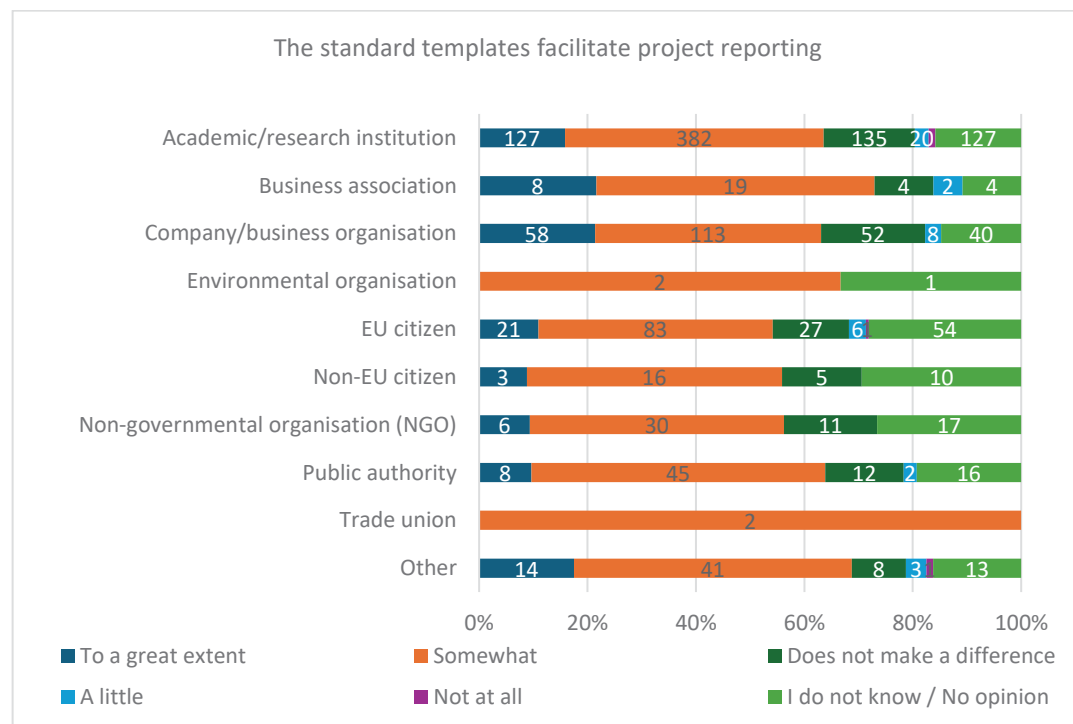


Figure 64: Stakeholder breakdown – The extension of the single audit principle reduces the burden on beneficiaries (N= 1561)

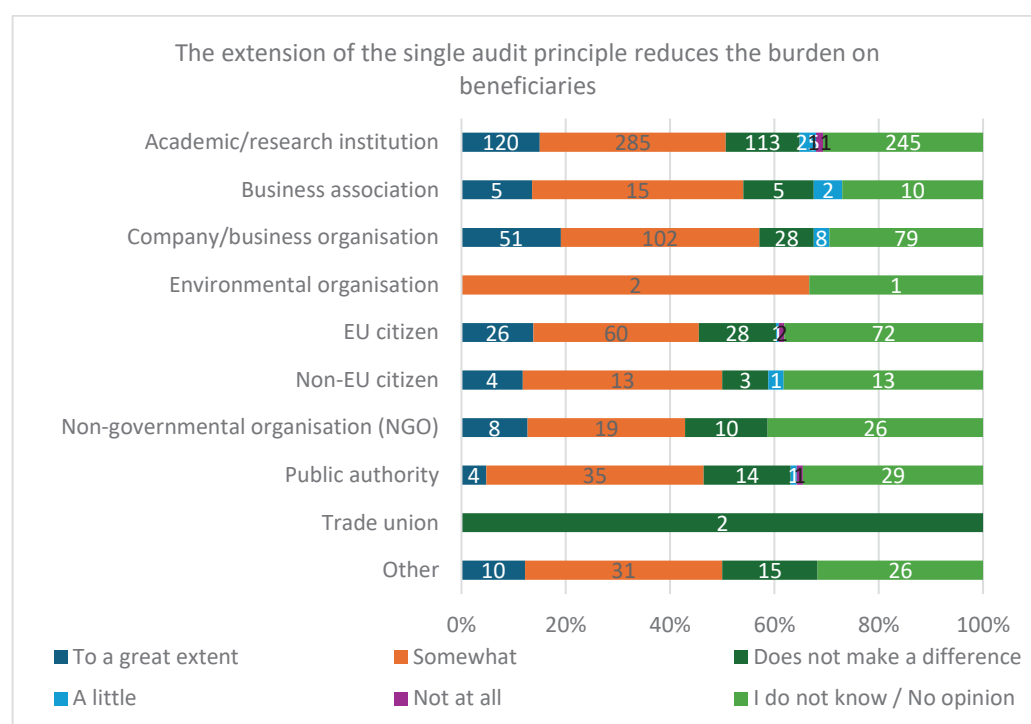
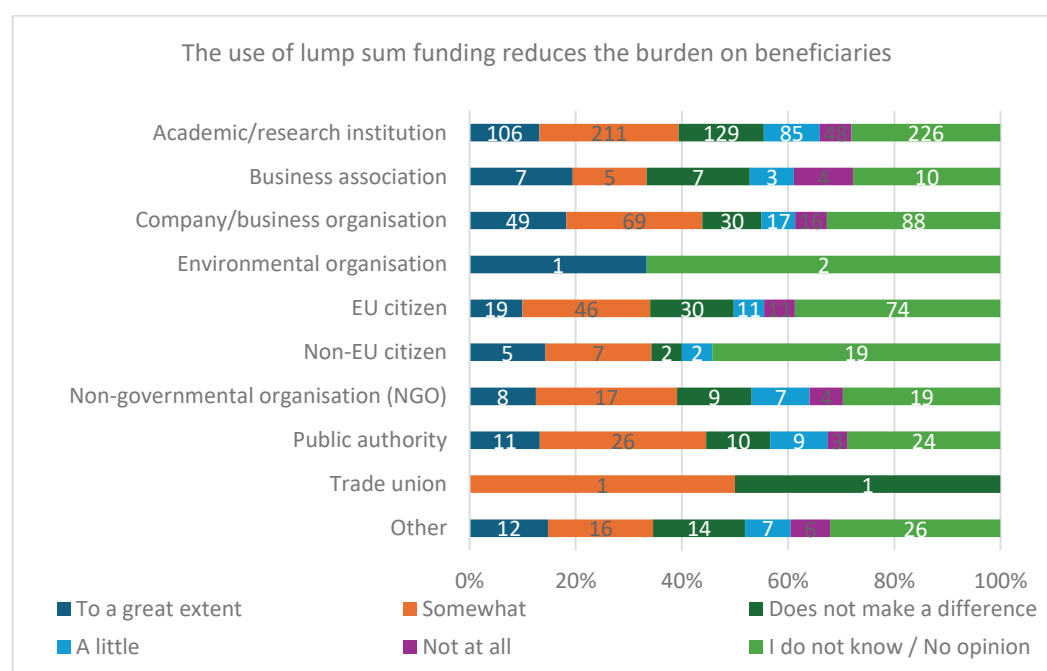


Figure 65: Stakeholder breakdown – The use of lump sum funding reduces the burden on beneficiaries (N= 1569)



Satisfaction with the types of support

Considering only the responses of those who expressed an opinion or used the specific type of support, the share of respondents who were “satisfied” or “very satisfied” is above 50% for the following types of support:

- Grants for collaborative projects (80%; 1099)

- Grants for single beneficiary projects (65%; 592)
- Support for networking (57%; 551)
- Technical assistance (54%; 447)
- Training and expert advice (52%; 450).

Conversely, the types of support with the lowest share of respondents who were “satisfied” or “very satisfied” are:

- Prizes (36%; 169)
- Blended finance (grants and equity support) (35%; 151)
- Public procurement (34%; 156)

Nonetheless, the types of support with the highest share of respondents who are “dissatisfied” or “very dissatisfied” are European Partnerships (22%; 204) and EU Missions (24%; 196). Nevertheless, it is important to acknowledge that for both European Partnerships and EU Missions, positive responses (“satisfied” or “very satisfied”) outweigh negative ones (“dissatisfied” or “very dissatisfied”). For European Partnerships, 446 and for EU Missions 325 respondents indicated that they are either satisfied or very satisfied (out of 1 564 and 1 546 total replies respectively). For the European Partnerships the share of “dissatisfied” or “very dissatisfied” respondents was higher among public authorities (31.6%), NGOs (28.9%) and academic and research organisations (24.1%) than among companies and business organisations (9%) or business associations (12%)²¹⁶. Likewise, for the EU Missions the share of respondents who were “dissatisfied” or “very dissatisfied” was higher among NGOs (38.2%), academic and research organisations (25%) and public authorities (24.6%) than among companies and business organisations (13.3%)²¹⁷.

During the event, a participant representing a European industrial association claimed that the increased size of funding and partnerships, as well as the higher complexity of projects, has not led to higher efficiency from Horizon 2020 to Horizon Europe. A better balance between large projects with a broad value-chain prospective and small projects with a narrower technology development angle should be found.

²¹⁶ The results of the analysis broken down by type of respondent are reported in the additional statistics section further below.

²¹⁷ The results of the analysis broken down by type of respondent are reported in the additional statistics section further below.

Figure 66. What is your level of satisfaction with the way the European Commission implements the following types of support under Horizon Europe?

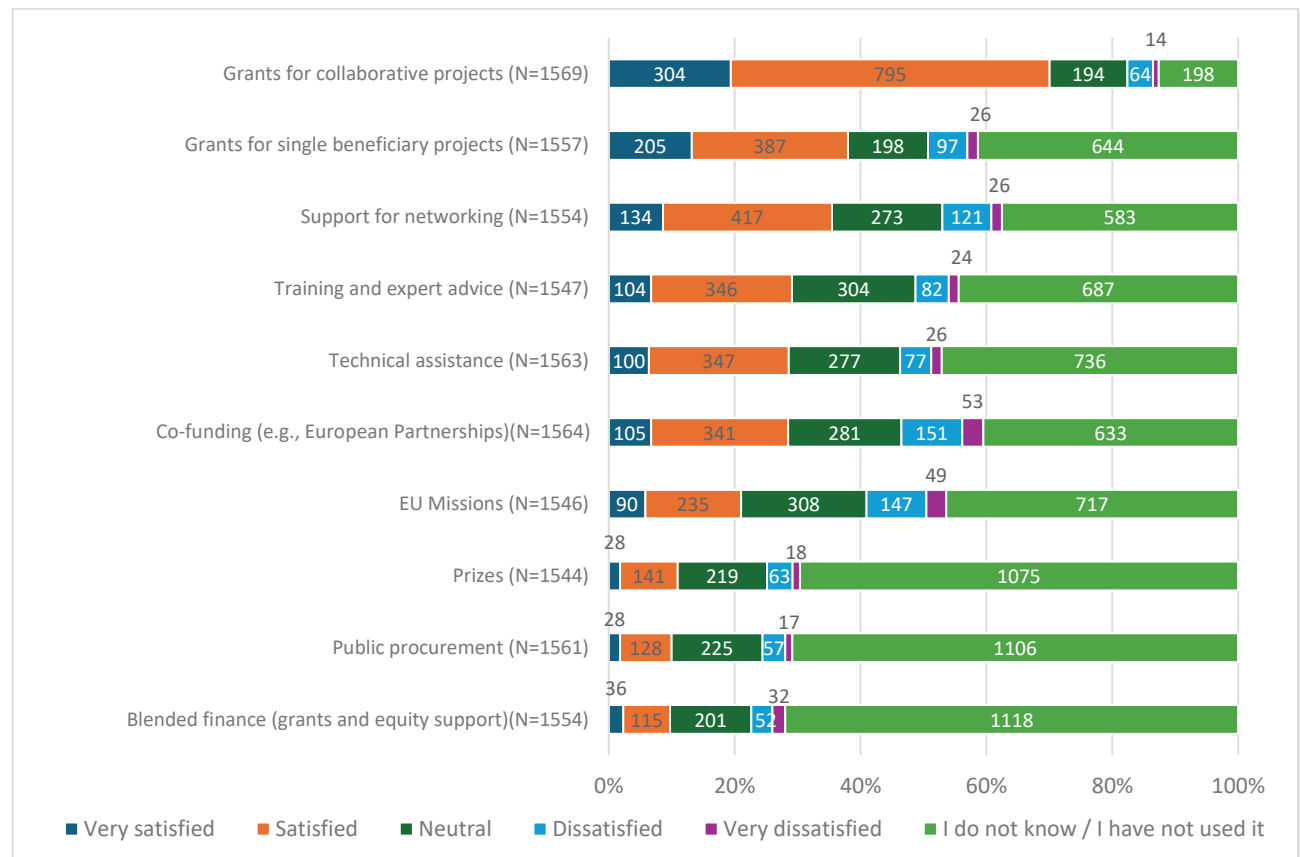


Figure 67: Stakeholder breakdown – Grants for collaborative projects (N= 1569)

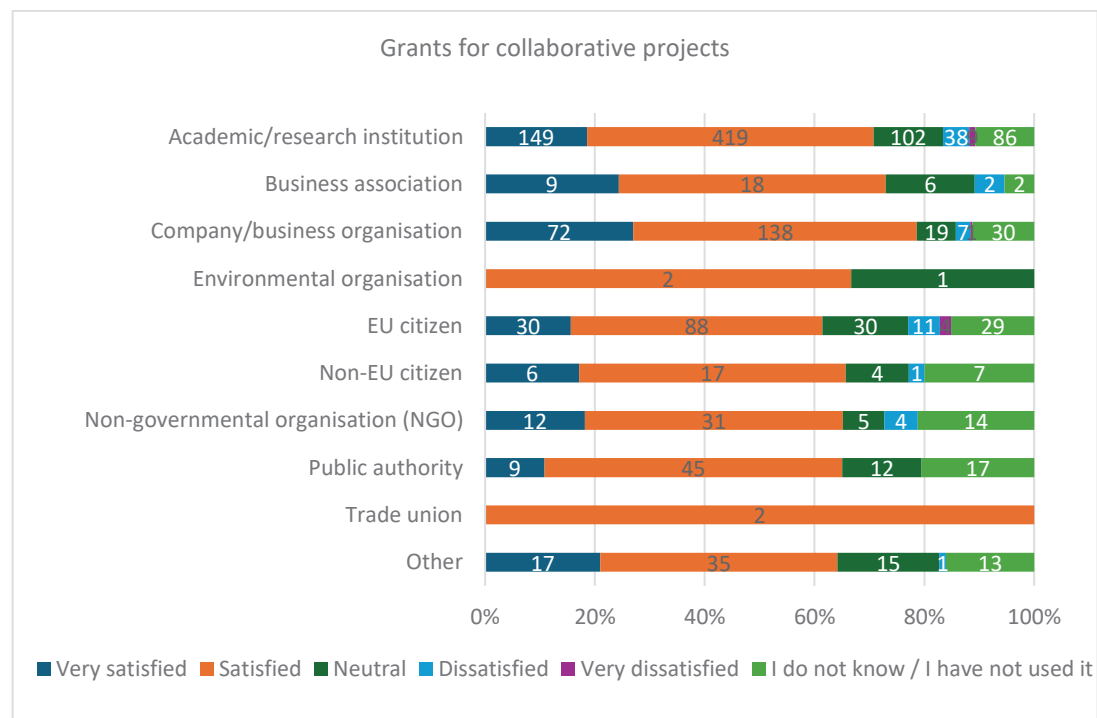


Figure 68: Stakeholder breakdown – Grants for single beneficiary projects (N= 1663)

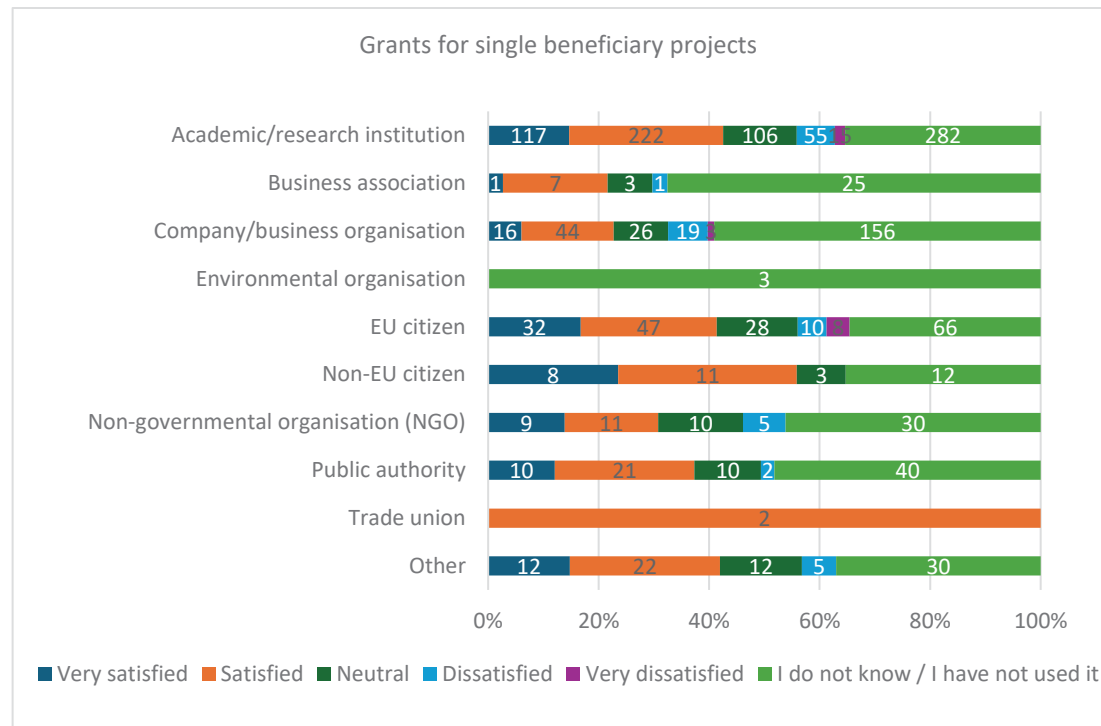


Figure 69: Stakeholder breakdown – Blended finance (N= 1554)

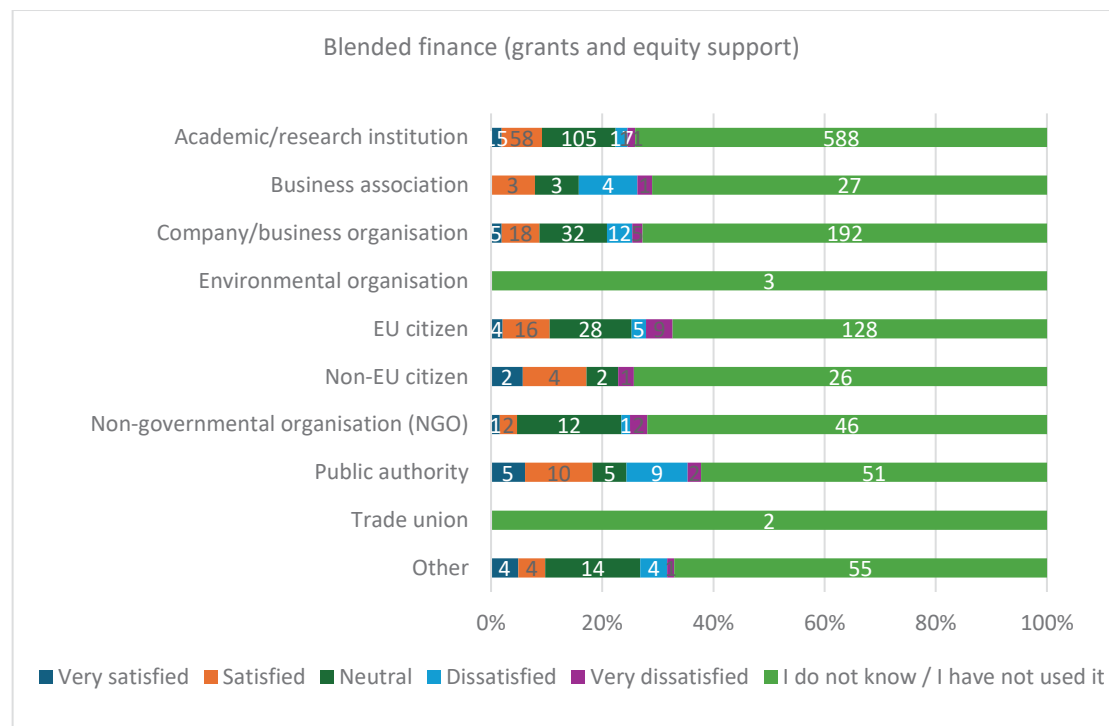


Figure 70: Stakeholder breakdown – Public procurement (N= 1561)

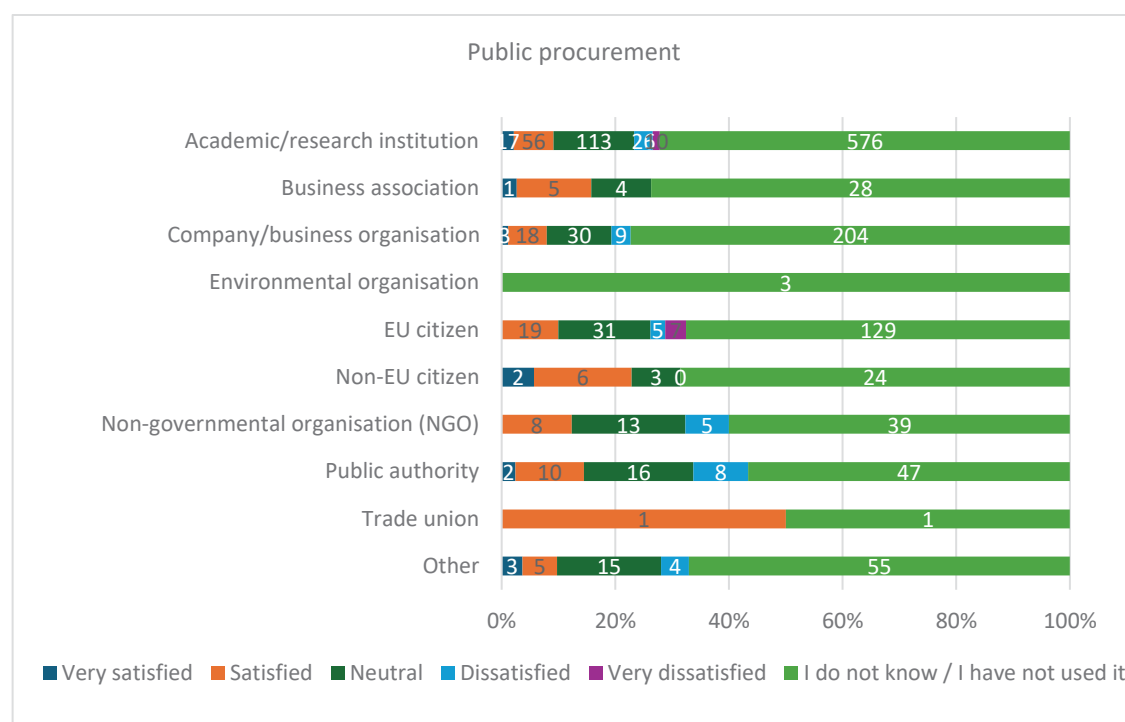


Figure 71: Stakeholder breakdown – Prizes (N= 1544)

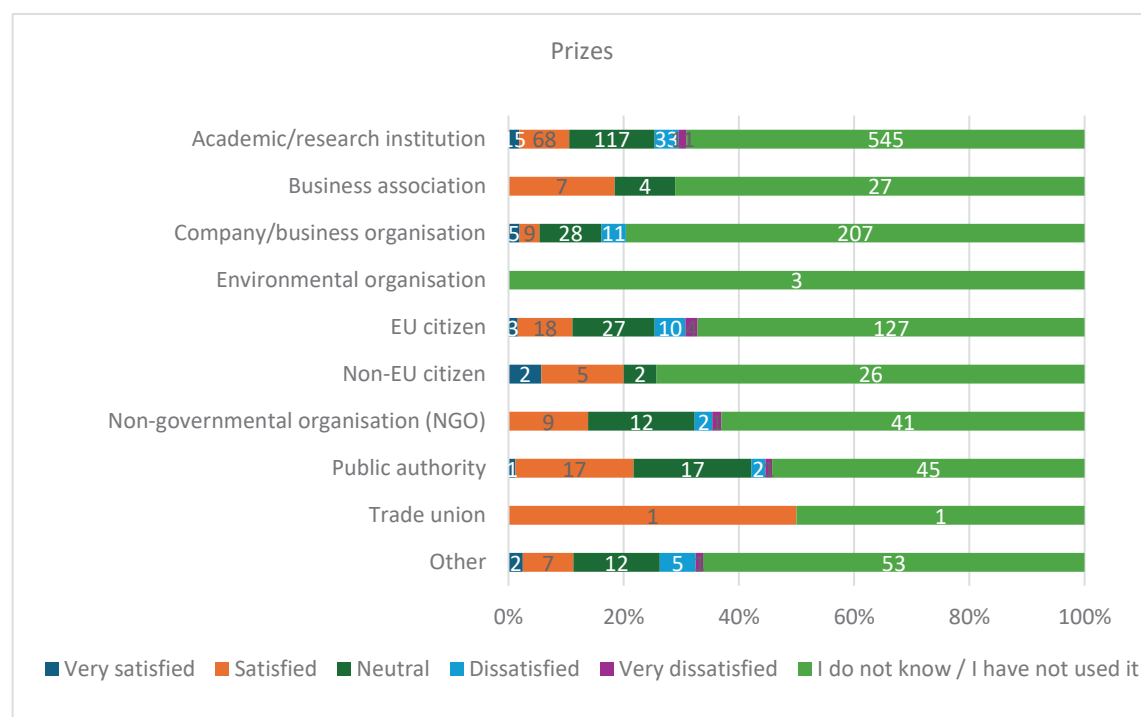


Figure 72: Stakeholder breakdown – Co-funding (N= 1565)

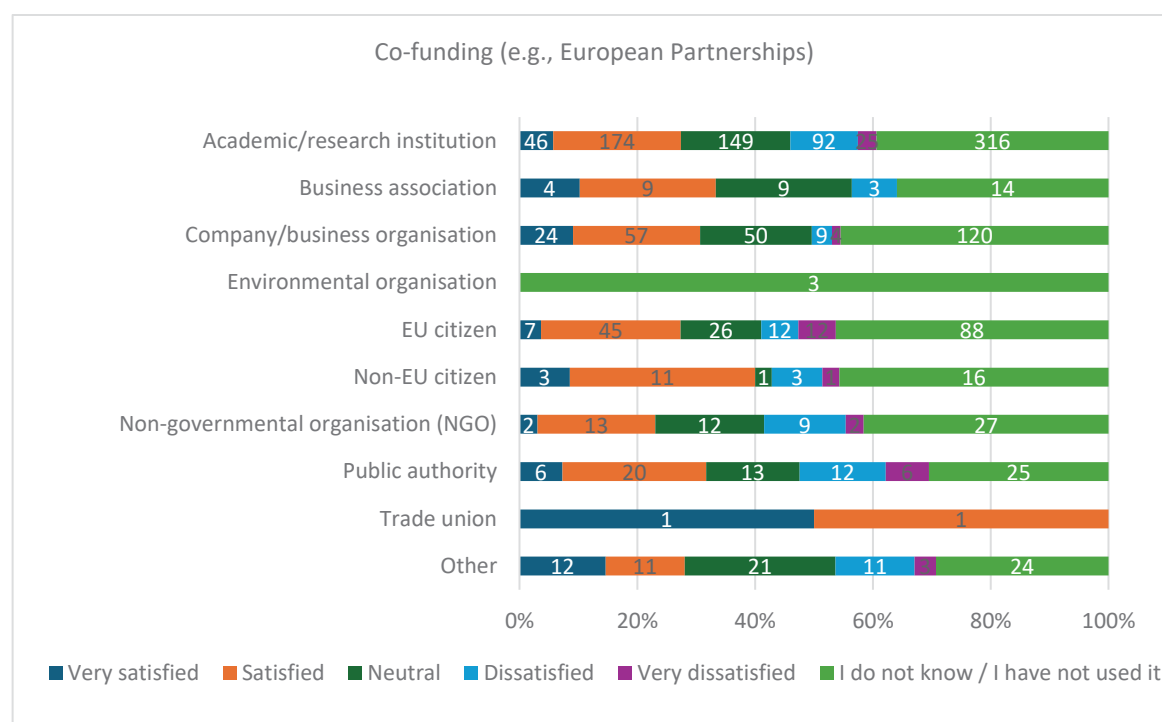
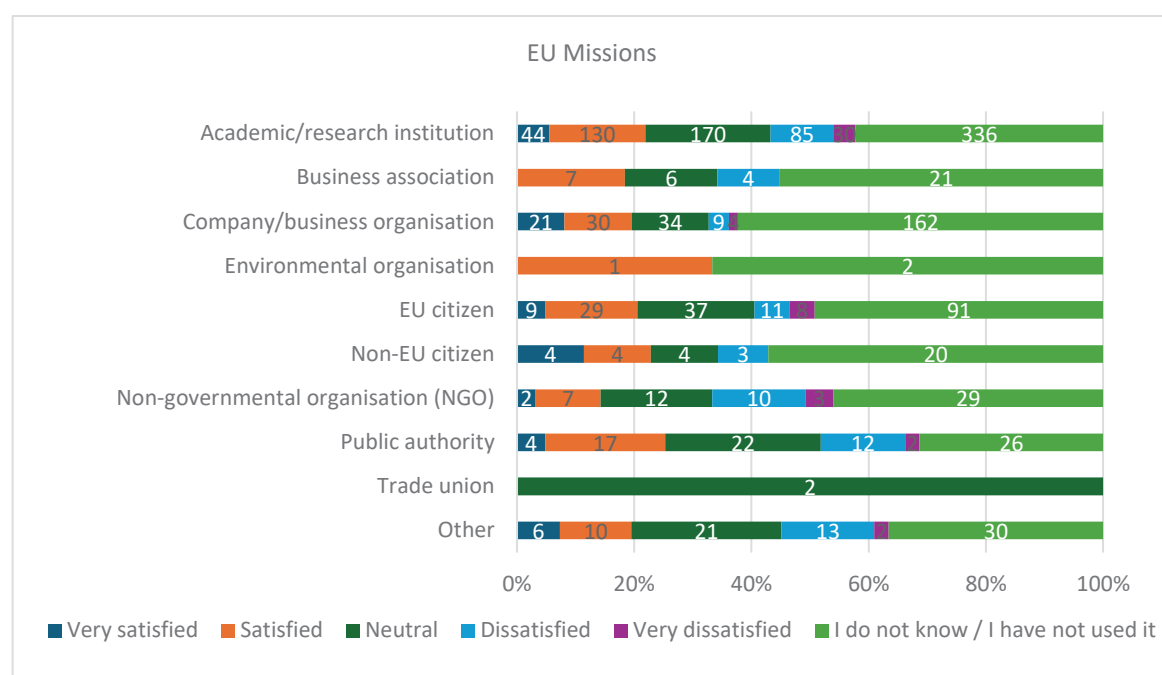


Figure 73: Stakeholder breakdown – EU Missions (N= 1546)



TRLs

In the position papers, the comments on the types of support mainly concerned the technology readiness levels (TRLs) targeted by the calls for proposals. Several universities and research organisations noticed a tendency in Horizon Europe to fund projects at higher TRLs under Pillar II. This tendency was seen negatively by most of the respondents, as there is a perceived gap between the fundamental research funded by the ERC and the very applied and innovation-oriented calls within Pillar II. In this regard, different research organisations, universities, but

also some public authorities recommended combining the thematic calls targeting high TRL under Pillar II with some calls targeting lower TRL research.

Box 6: Summary of the discussion held in the public event on the balance between low and high Technology Readiness Levels across Horizon Europe

- The discussion reaffirmed the findings of the public consultation and focused primarily on issues identified in Pillar II.
- First of all, participants appreciated the programme's emphasis on addressing the full TRL spectrum from basic research to market implementation with adequate instruments and resources.
- However, participants from business, academia and research organisations voiced concerns that the prevalence of calls for high TRL projects, including Research and Innovation Actions (RIA), acted as a barrier for researchers. This issue was observed across all clusters and Missions, hampering the ability to build a portfolio of basic research projects that would nurture future innovation.
- Participants emphasized the importance of covering the entire innovation cycle, including a better coverage of low TRL projects, and the need for structured synergies with other EU programs to facilitate funding and resource utilization for market uptake and commercialisation.
- Additionally, participants pointed to the importance of maintaining a balance between low, medium, and high TRL levels, supporting the full range of TRLs, and ensuring smooth transitions between different programs and pillars. It was noted that TRLs were often addressed in silos, leading to gaps within the program. Concerns were expressed because of the gaps between the European Research Council (ERC) and Marie Skłodowska-Curie Actions and calls for projects in Pillar II. A research organisation noted that the Pathfinder was considered a good example for integrating in a continuum the TRL spectrum, but its positioning within Pillar III was questioned.
- Concerns were expressed by research organisations about overly prescriptive project calls in Pillar II, lack of diversity in funding opportunities, and the potential negative impact on researchers' flexibility and participation.
- Another participant, taking into account EU policy that emphasize European competitiveness and strategy autonomy, highlighted the importance of focusing on mid-level TRLs to facilitate the deployment of pilots, testing, demonstrators, and scale-ups.
- At the same time, stakeholders acknowledged the significant progress made by Horizon Europe in integrating transdisciplinary approaches within clusters, which was positively received.
- Finally, some stakeholders from research organisations emphasised the limitations of the TRL concept for SSH advocating for more consideration of societal readiness in addition to technical aspects.

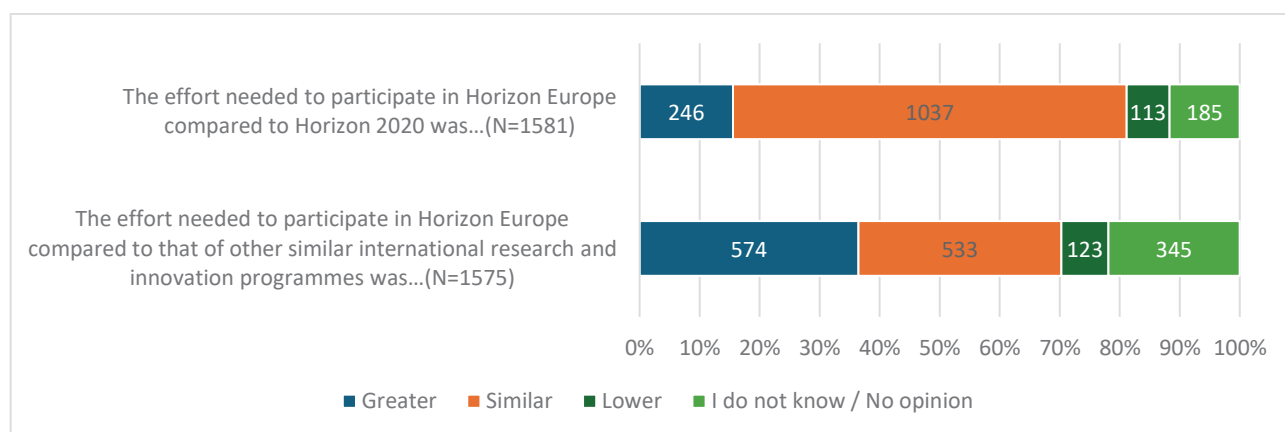
In their position papers, the respondents explained their concerns about the implementation of the EU Missions and the European Partnerships, summarised respectively in Box 5 and Box 6.

Effort to participate in Horizon Europe

66% (1 037) of respondents maintained that “the effort to participate in Horizon Europe compared to Horizon 2020” was “similar”. According to 16% (246) of respondents it was greater and for 7% (113) it was lower. A relatively larger share of respondents from Associated Countries and Third Countries indicated that the effort was “greater” than from EU14 or EU13. Among the different types of respondents, the effort needed to participate in Horizon Europe was perceived as “greater” both compared to Horizon 2020 and to other programmes especially by academic and research institutions.²¹⁸ The effort to participate in Horizon Europe was usually deemed greater (36%; 574) or similar (34%; 533) to other research and innovation programmes. Only 8% (123) of respondents thought it was lower.

Although many respondents acknowledged the simplification efforts put in Horizon Europe²¹⁹, the participation in Horizon Europe was still considered too burdensome and the position papers pointed out some room for improvement²²⁰. A few papers have highlighted the additional requirements linked to the cross-cutting issues (e.g., the Gender Equality Plan), which have further increased the costs of proposal preparation.

Figure 74: The effort needed to participate in Horizon Europe compared to Horizon 2020 and other similar international programmes was:



²¹⁸ The results of the analysis differentiating by type of respondent and by geographical area are reported in Table 27, Table 28, Table 29 and Table 30 - additional statistics.

²¹⁹ For example through the Funding & Tender portal, the standard template for proposal preparation, the introduction of simplified financing (e.g., lump sum), simplified procedures for Grant Agreement preparation and reporting.

²²⁰ 50 position papers discussed issues related to the costs of participation, simplification efforts and administrative burden. The main messages are in line with the ones presented in the previous sections on proposal preparation and project implementation.

Figure 75: Breakdown by country – Effort to participate compared to Horizon 2020 (N= 1581)

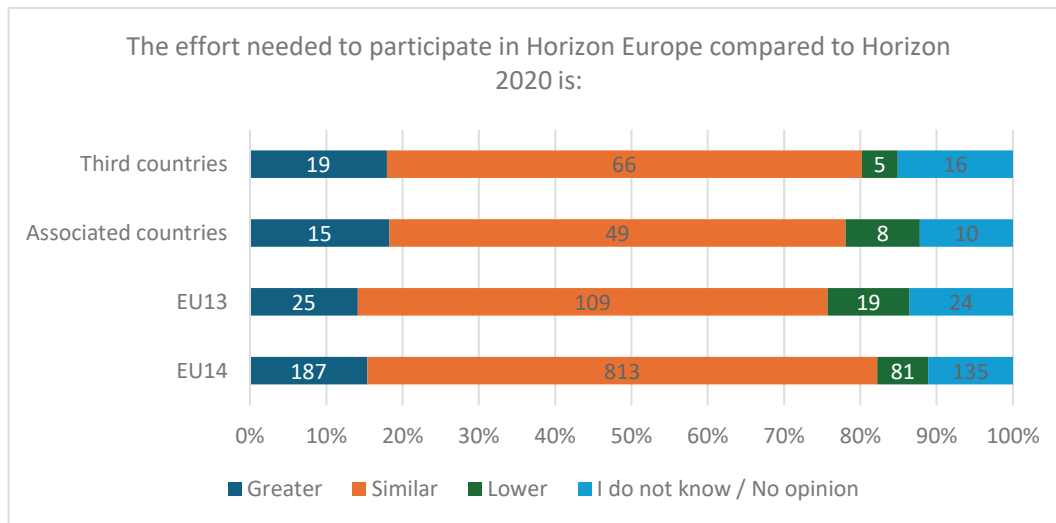


Figure 76: Stakeholder breakdown – Effort to participate compared to Horizon 2020 (N= 1581)

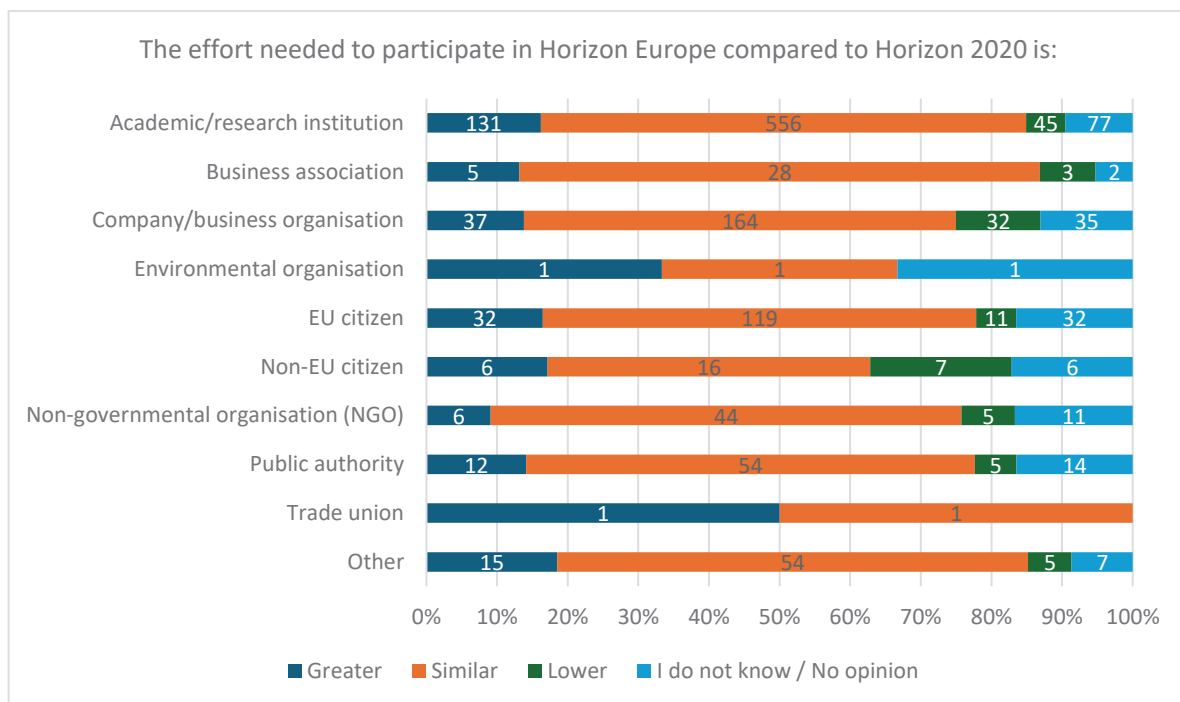


Figure 77: Breakdown by country – Effort to participate compared to other programmes (N= 1575)

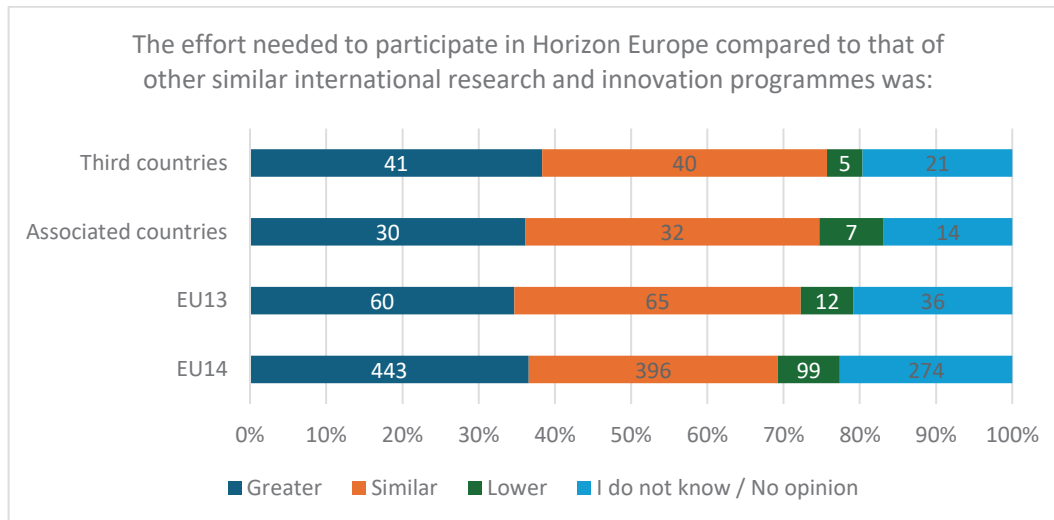
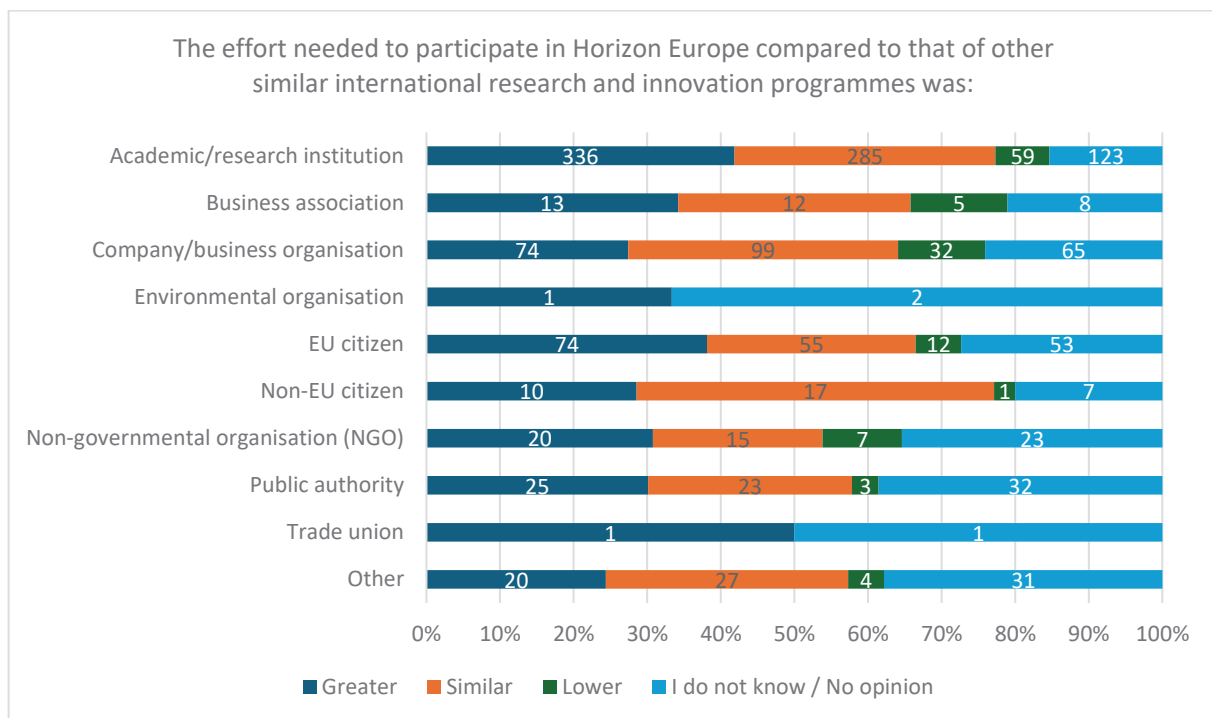


Figure 78: Stakeholder breakdown – Effort to participate compared to other programmes (N= 1575)



Costs of proposal preparation

A majority (52%; 744) of the respondents declared that their “proposal preparation for Horizon Europe” took overall less than 50 days, 34% (483) more than 50 but less than 100 days and 15% (213) more than 100 days.²²¹

Figure 79: Approximately, how much time did the proposal preparation for Horizon Europe take overall? Please indicate the total number of person-days. (N= 1 663)

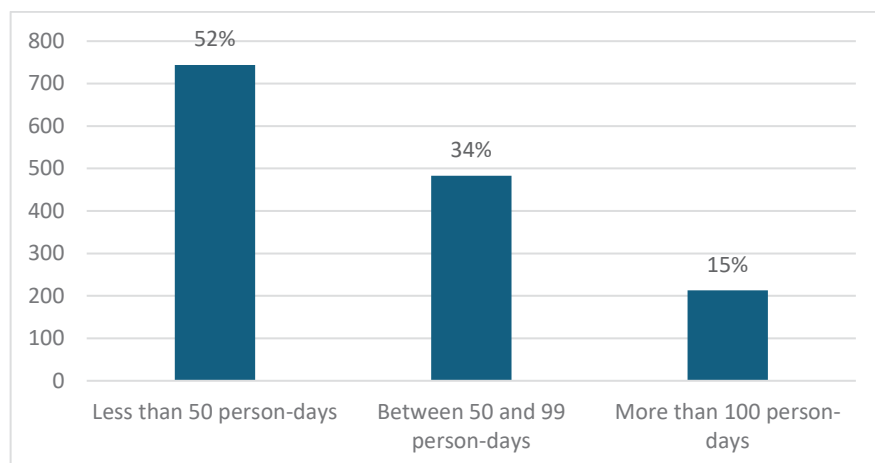
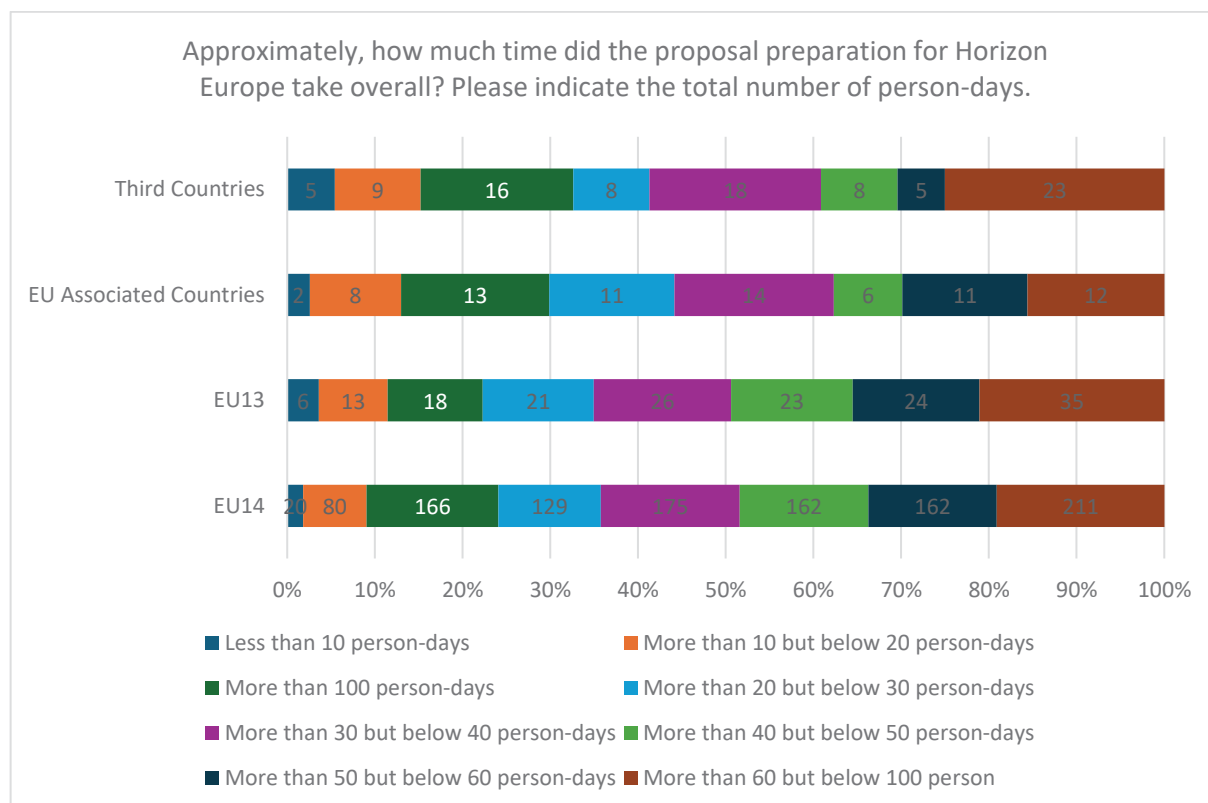
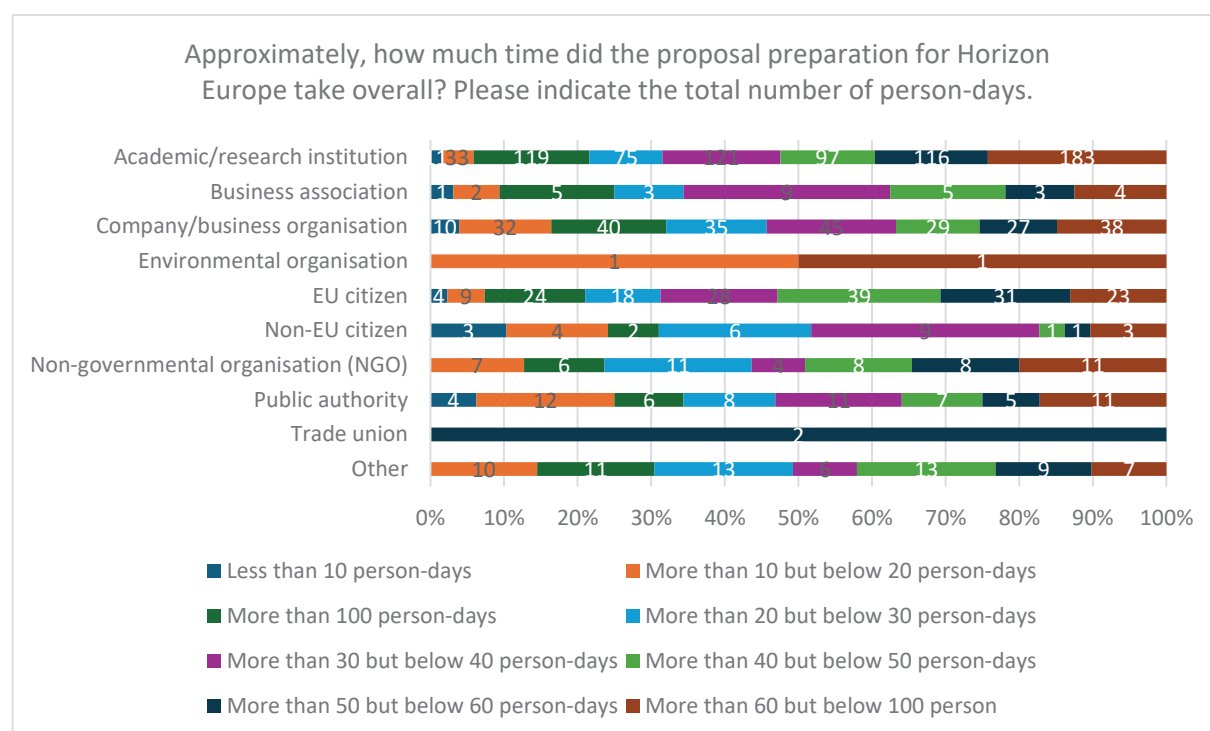


Figure 80: Breakdown by country group – Total number of person-days (N= 1663)



²²¹ The results of the analysis differentiating by country group and type of respondent and by geographical area are reported in Table 31 and Table 32 - additional statistics.

Figure 81: Stakeholder breakdown – Number of person-days (N= 1663)



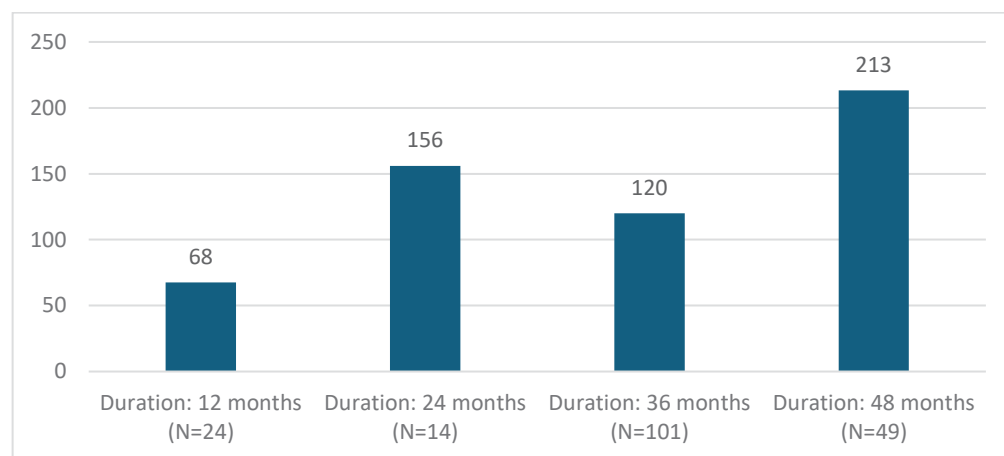
Managing participation in Horizon Europe

The consultation also asked participants about the “time spent managing participation”. The analysis of responses cannot be conclusive because there is great variability in the responses in terms of who provided information or not, which programme parts the respondents were linked to and their specific role in the projects.²²²

The chart below shows the information provided on “average number of person-days spent during the entire project”, by project duration.

²²² For example, among projects with a duration of 36 months, the estimates range from 5 person-days to 750 person-days.

Figure 82: Approximately, how much time does your project spend on managing participation in Horizon Europe? Total number of person-days spent overall on managing participation. Average estimate of person-days by project duration (N= 188)



The answers to the open question “Approximately, how much time does your project spend on managing participation in Horizon Europe?” can only be interpreted with caution because of the following:

- 342 responses could not be processed because respondents did not provide the required information: they could not provide an estimate or when they did it was not in the required format.
- Comparability is difficult because respondents interpreted the question in different ways (e.g., some respondents included in the estimate the time spent for the internal project coordination, others provided an estimate of the time that it took for the whole project activities).
- The resources spent on managing participation largely depended on the type of action (i.e., Research & Innovation Action or Coordination and Support Action) or the role of the respondent in the project (i.e., coordinator or partner), and the project size.

Suggestions on how administrative burden for applicants and participants can be further reduced are related to simplifying the application and submission process (including the process to amend the proposal), reducing the reporting requirements, increasing flexibility in accepting different time management measurements as well as accounting practices, creating a simplified contractual framework and reduced models for calculating costs and accounting, implementing two-staged application processes to reduce the burden of the application, and eliminating the repeating parts in the project proposal templates.²²³

Progress towards achieving Horizon Europe objectives

Assessing the achievement of Horizon Europe objectives

The majority of respondents “agreed” or “strongly agreed” that “Horizon Europe was on track to deliver” its objectives.

²²³ 830 respondents answered the open question “How can the administrative burden for applicants and participants be further reduced (regarding application process, reporting requirements, cost calculation etc.)?”

Figure 83: To what extent do you agree that Horizon Europe is on track to deliver on the following objectives

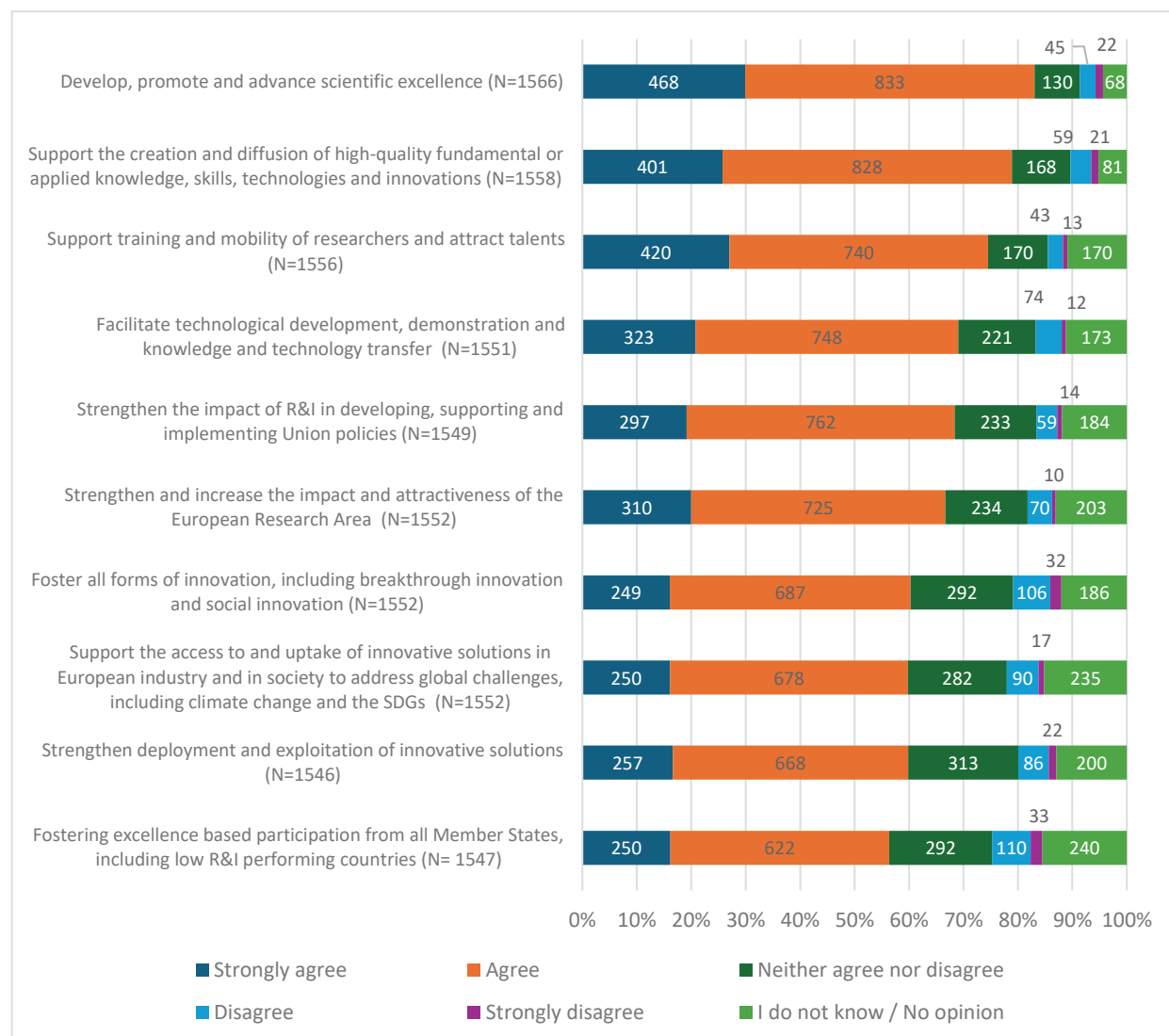


Figure 84: Stakeholder breakdown – Develop, promote and advance scientific excellence (N= 1566)

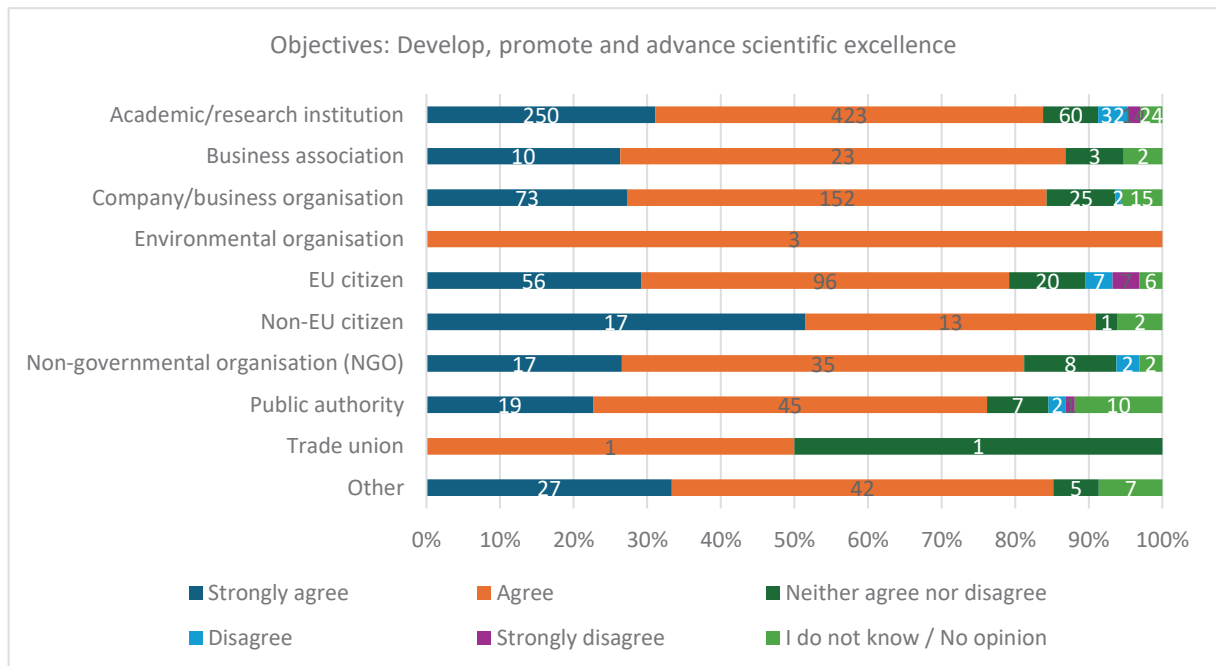


Figure 85: Stakeholder breakdown – Support the creation and diffusion of high-quality fundamental or applied knowledge, skills, technologies and innovations (N= 1558)

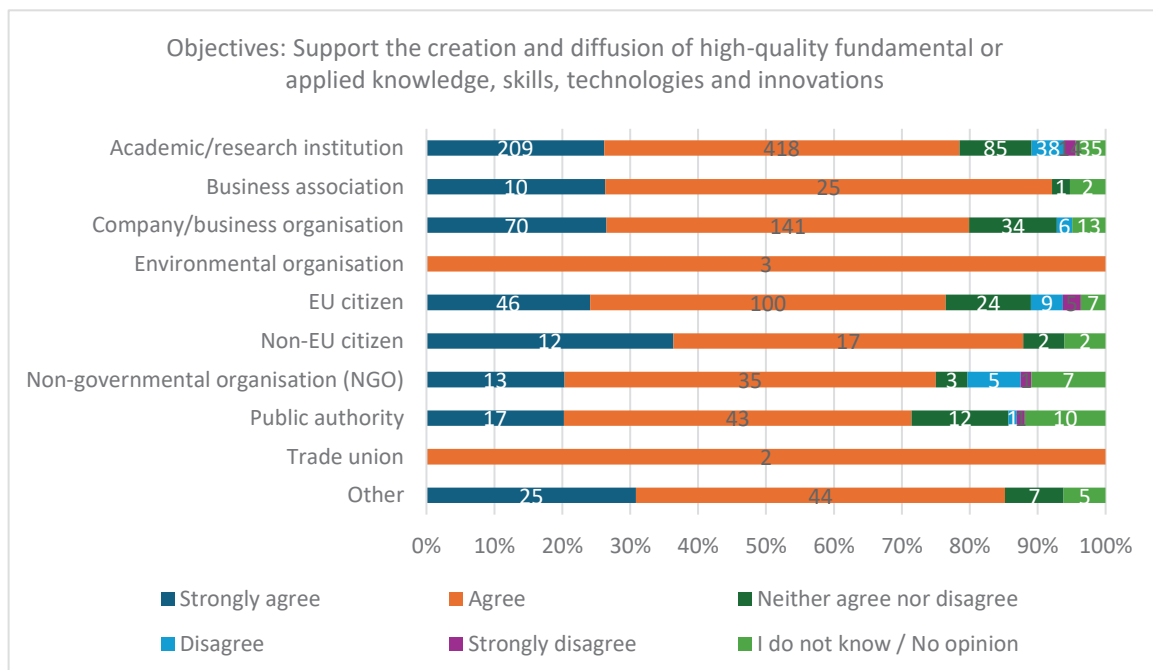


Figure 86: Stakeholder breakdown – Support training and mobility of researchers and attract talents (N= 1556)

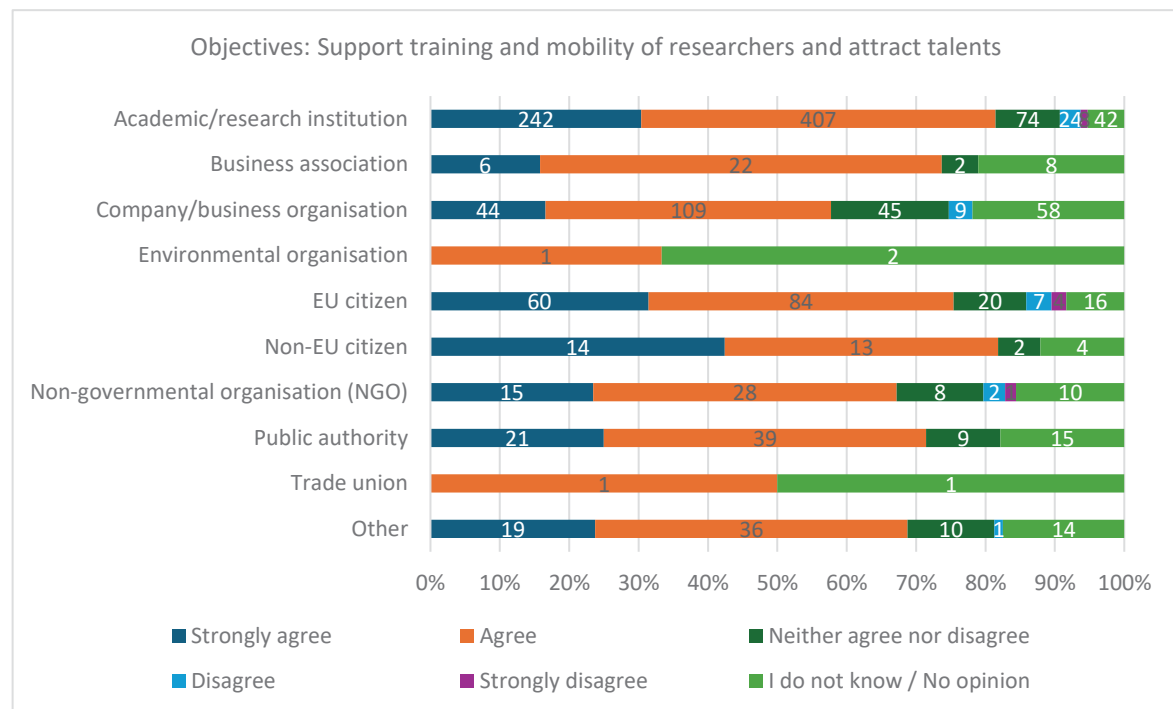


Figure 87: Stakeholder breakdown – Strengthen the impact of R&I in developing, supporting and implementing Union policies (N=1549)

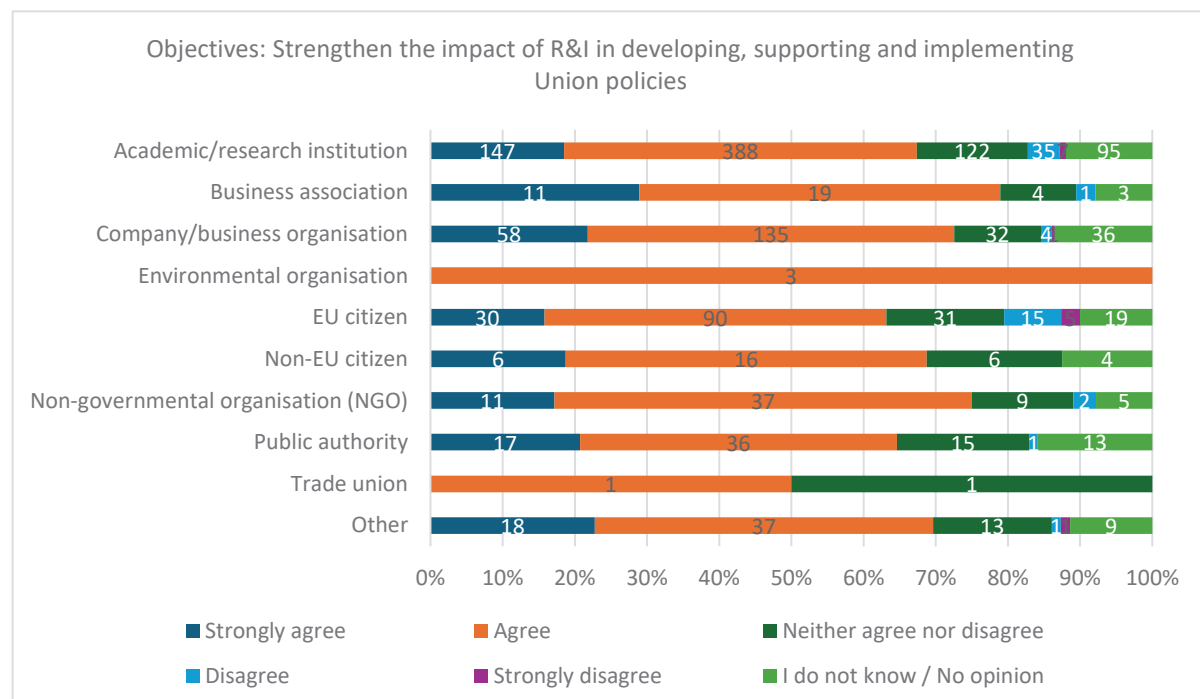


Figure 88: Stakeholder breakdown – Support access to and uptake of innovative solutions in European industry and in society to address global challenges including climate change and the SDGs (N= 1552)

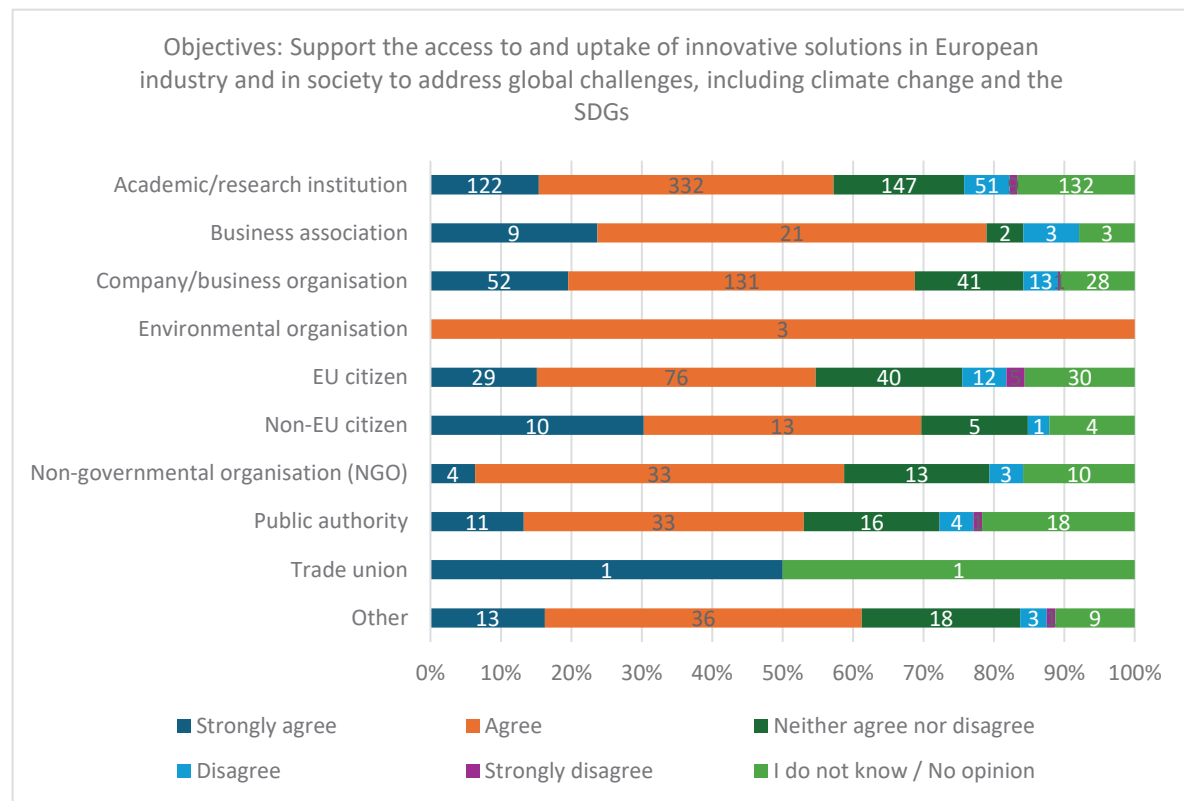


Figure 89: Stakeholder breakdown – Foster all forms of innovation including breakthrough innovation and social innovation (N= 1552)

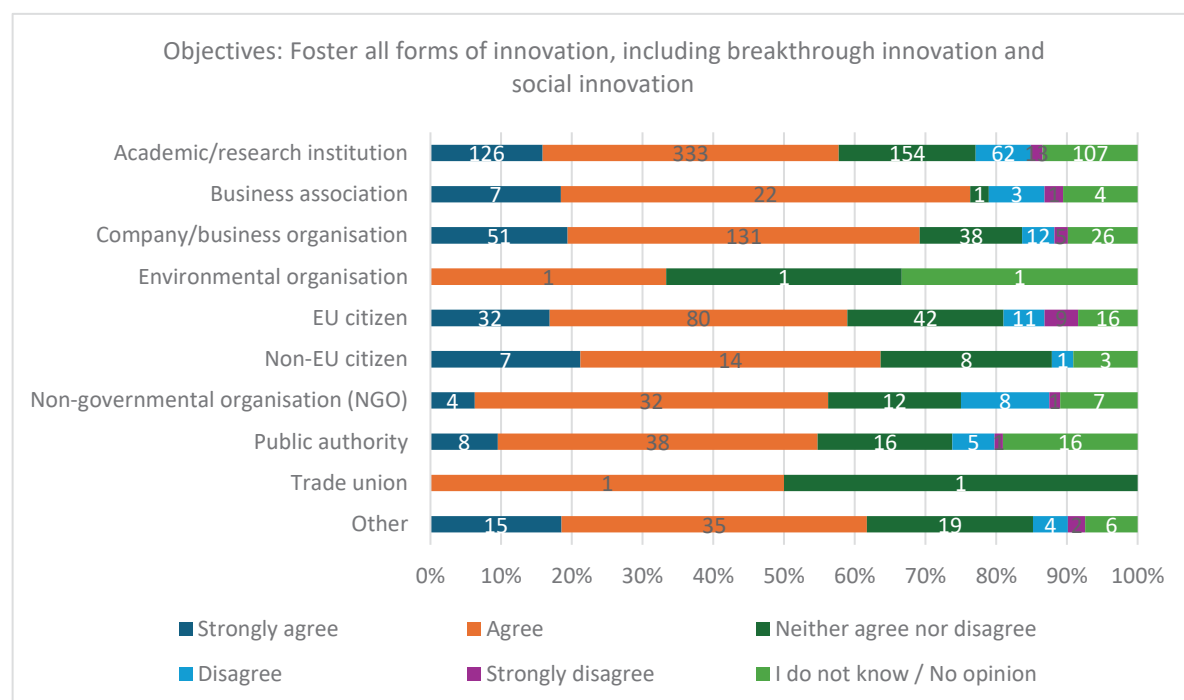


Figure 90: Stakeholder breakdown – Facilitate technological development, demonstration and knowledge and technology transfer (N= 1551)

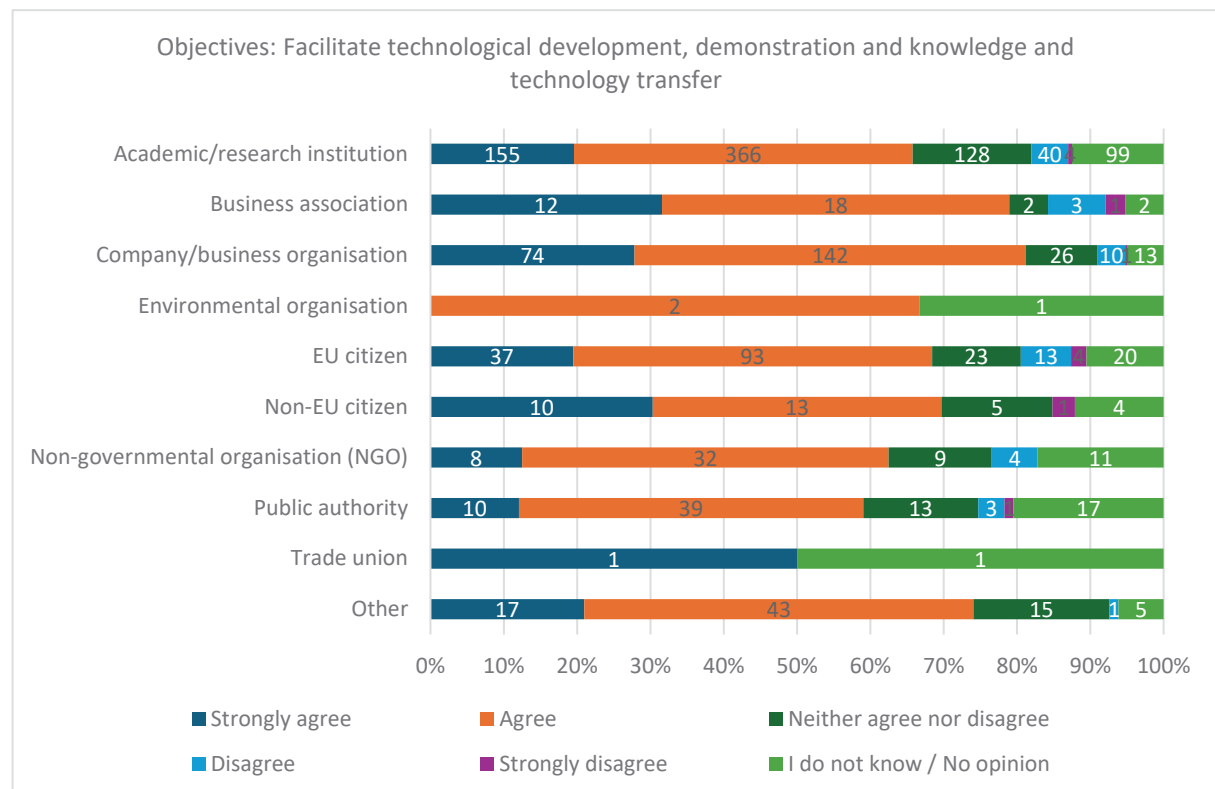


Figure 91: Stakeholder breakdown – Strengthen deployment and exploitation of innovative solutions (N= 1546)

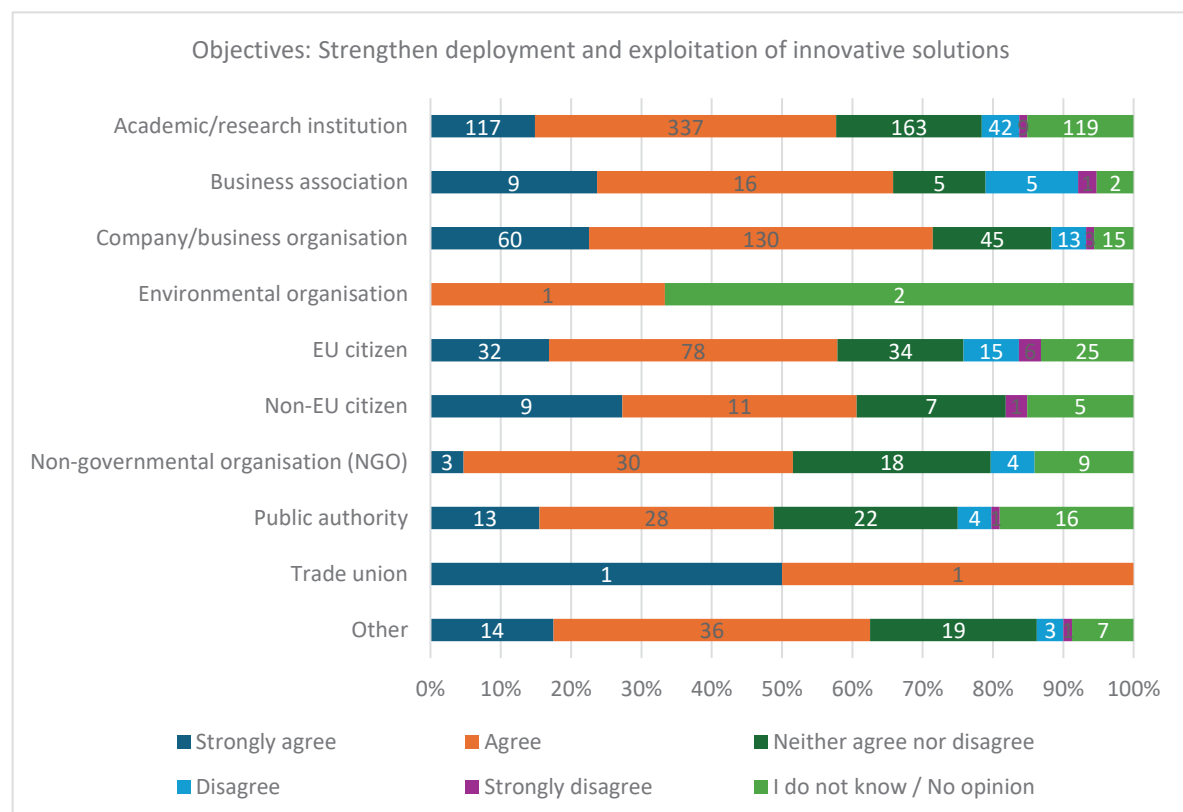


Figure 92: Stakeholder breakdown – Strengthen and increase impact and attractiveness of the European Research Area (N= 1552)

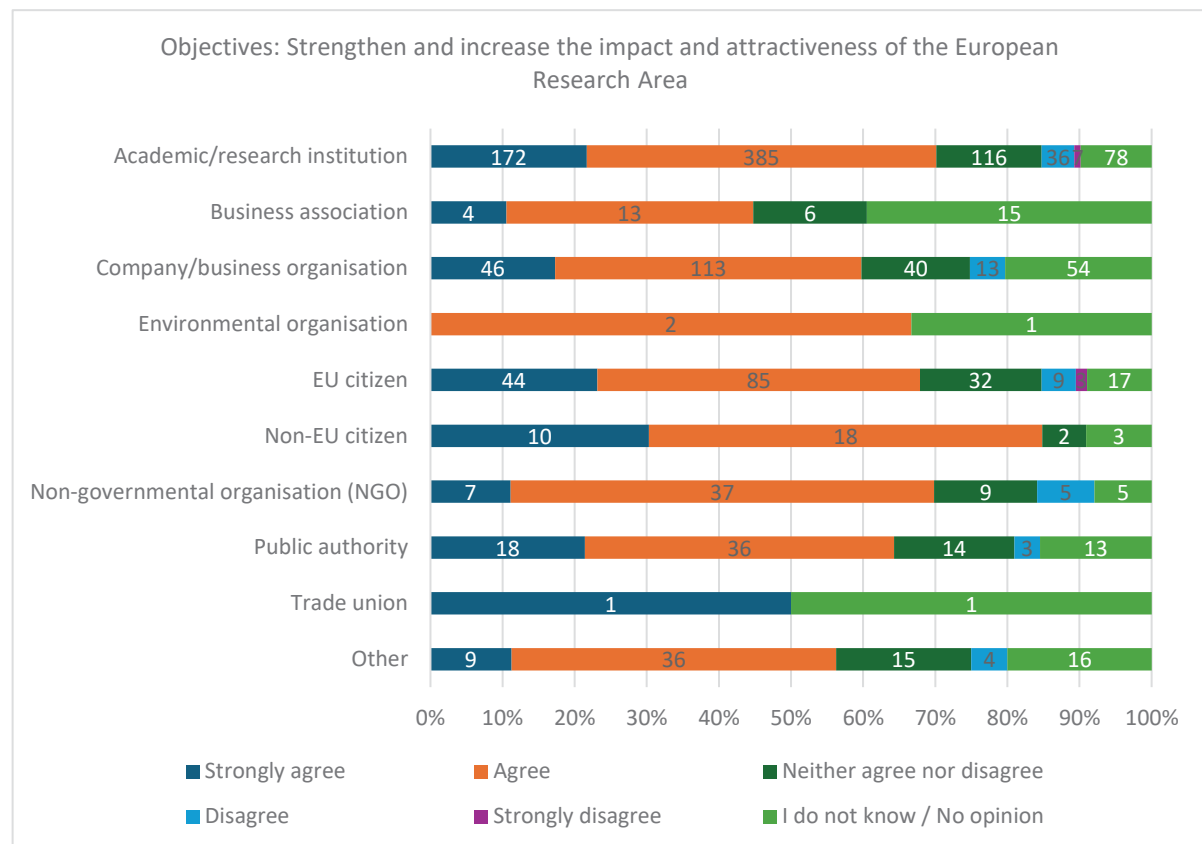
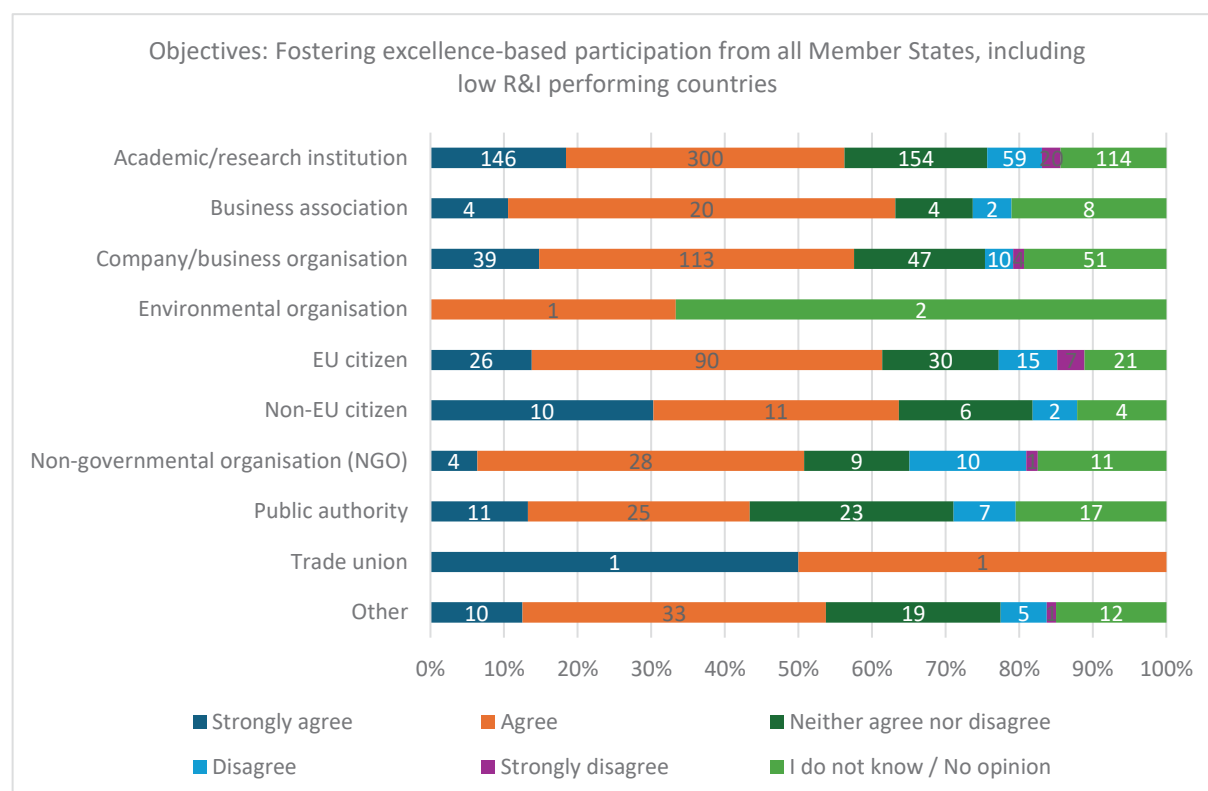


Figure 93: Stakeholder breakdown – Fostering excellence-based participation from all Member States, including low R&I performing countries (N= 1547)



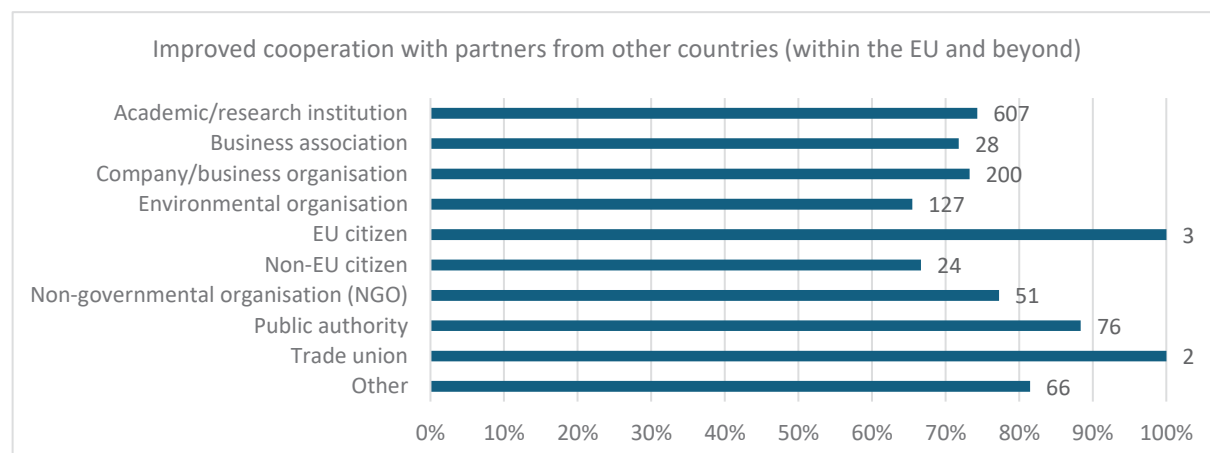
Cross-cutting issues

Please find below additional breakdowns regarding the cross-cutting objectives of Horizon Europe, along with aspects highlighted in the position papers.

International cooperation

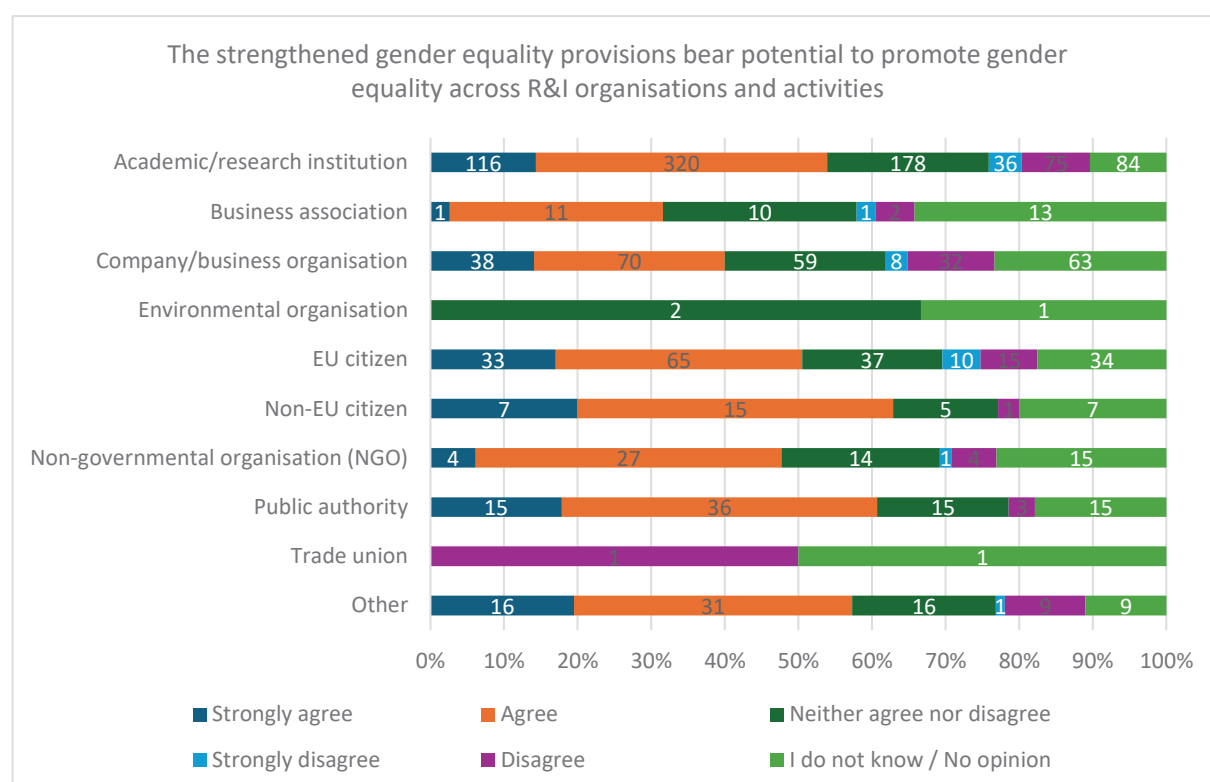
35 position papers discussed international cooperation. They pointed to the benefits of international collaboration for EU research and innovation because it allows access to more talents, resources and knowledge. Stakeholders also considered that the non-association of Switzerland and the UK, and uncertainty about the status of non-EU countries, has thus far limited the ability of consortia to work with international partners.

Figure 94: Stakeholder breakdown – Improved cooperation with partners from other countries within the EU and beyond (N= 1597)



Gender equality

Figure 95: Stakeholder breakdown – Gender equality provisions bear potential to promote gender equality across R&I organisations and activities (N= 1581)



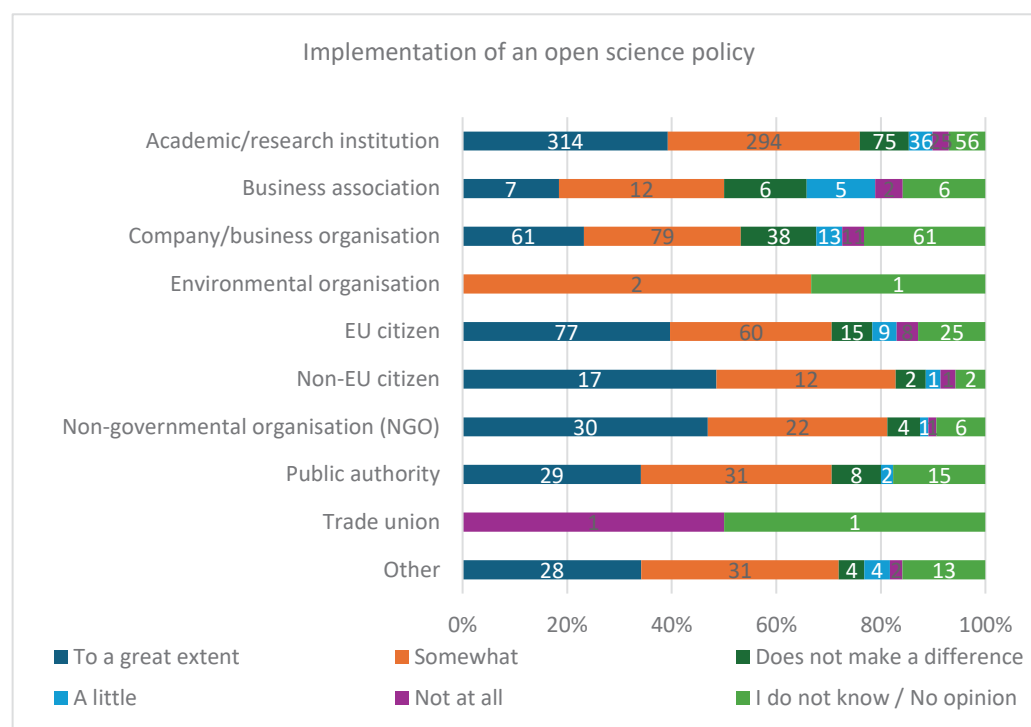
16 position papers discussed the gender cross-cutting issue. Stakeholders welcomed the introduction of the Gender Equality Plan (GEP) as an important step for addressing gender inequalities, whereas they remained more sceptical about the requirement to complete the Researcher Table. Stakeholders also considered that without post-award monitoring, there is no guarantee that the GEP and the Researcher Table translate in concrete actions.

Open science

21 position papers discussed open science. Open science received strong support from research organisations. However, they also considered that to fully achieve the objectives of Open

Science, more guidance and dedicated resources are needed, along with progress within national policy frameworks.

Figure 96: Stakeholder breakdown – Implementation of an open science policy (N= 1566)



Social Sciences and Humanities

36 position papers discussed social sciences and humanities (SSH) in Horizon Europe. Stakeholders acknowledged the progress made in integrating SSH expertise into Horizon Europe, in particular through a dedicated cluster in Pillar II, but they also raised concerns about the lack of systematic involvement of SSH researchers upstream in work programme and call preparation across all clusters. Stakeholders considered that SSH research involvement was an important, yet not fully exploited, driver of interdisciplinarity across the various intervention areas of Horizon Europe. A number of position papers by research organisations also emphasised that SSH researchers found it challenging to identify funding opportunities and blamed what they considered the overly prescriptive nature of the work programmes, the application of the TRL scale, and the insufficient SSH expertise in evaluators and evaluation panels.

Widening

19 position papers (all from academia and public authorities) discussed widening issues. Stakeholders emphasised the significance of continued support for widening actions in Horizon Europe. They highlighted the success of instruments such as Teaming for Excellence, ERA Chair, and Twinning, while they pointed to some issues in the new Hop-On scheme (implementation and partner selection). Stakeholders also considered that the reasons for low engagement from widening countries appeared to be largely systemic. They advocated to leverage budget from other EU programmes like the European Regional Development Fund (ERDF) and NextGeneration EU to structurally invest in R&I and reduce territorial unbalances.

According to the stakeholders participating in the public event, the integration of cross-cutting and horizontal aspects (e.g., SSH disciplines, gender issues, multi-actor approach) is highly positive and beneficial for the research projects, in line with the Responsible Research &

Innovation (RRI) principles, which are fundamental for the value of scientific results. However, some applicants claim that the call for proposals' text is not always clear on how those cross-cutting aspects should be integrated in the research activities. This may lead to increased time for the preparation of the proposal and a “just-tick-the-box” effect.

Effectiveness of the EU Missions and European Partnerships

Participants in the public event considered the long-term objectives and possible synergies under the EU Missions as very positive aspects that boost innovation possibilities. Missions are particularly appreciated by public authorities for providing them with scientific inputs to address local challenges. However, participants from different stakeholder categories (from business support organisations, National Contact Points and public authorities) recognised that often targeted stakeholders do not have a clear understanding of the EU Missions. For example, local authorities (typically regions) have little information about the Missions' calls and implementation. In general, the involvement of stakeholders from different fields of activities and levels of governance was considered a key aspect to be improved.

After excluding the responses of those who selected “I do not know”, respectively 52% (461) and 50% (485) of respondents “agreed” or “strongly agreed” that “the implementation so far of EU Missions is on track to deliver on their objectives” for the EU Missions on “Climate-neutral and smart cities” and “Adaptation to climate change”. For the other EU Missions this percentage was between 40% (A Soil Deal for Europe; 257) and 45% (Prevention, cure and solutions for cancer; 312). The share of respondents who “disagreed” or “strongly disagreed” ranged between 18% (Prevention, cure and solutions for cancer; 122) and 25% (Restoring healthy oceans, seas, coastal and inland waters; 190).

Figure 97: To what extent do you agree that the implementation so far of EU Missions is on track to deliver on their objectives?

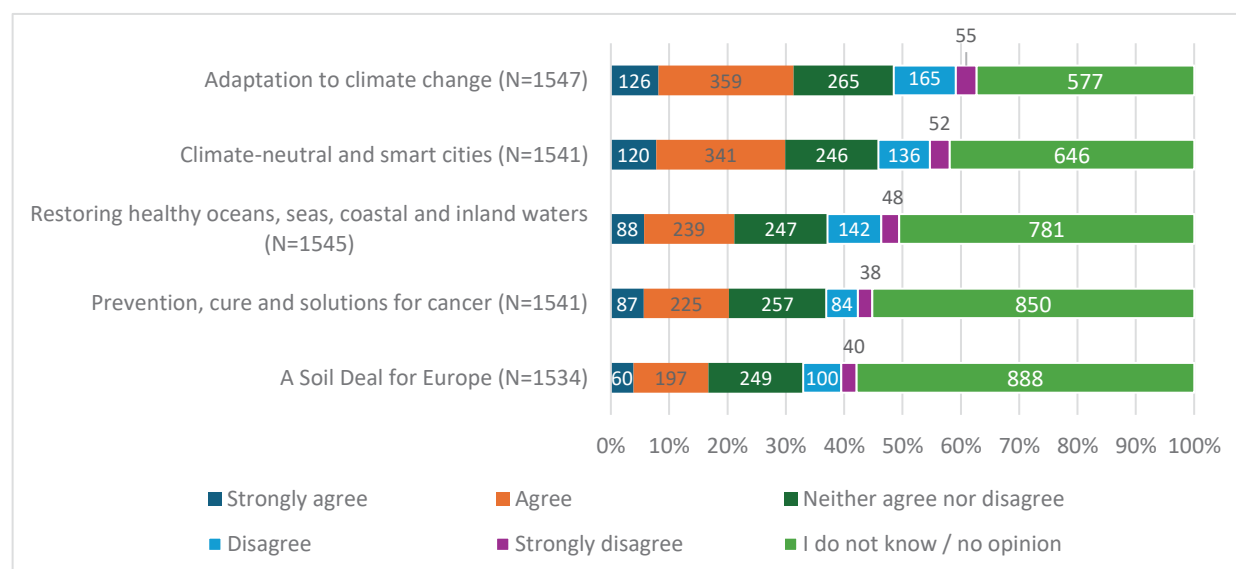


Figure 98: Stakeholder breakdown - Adaptation to climate change (N= 1547)

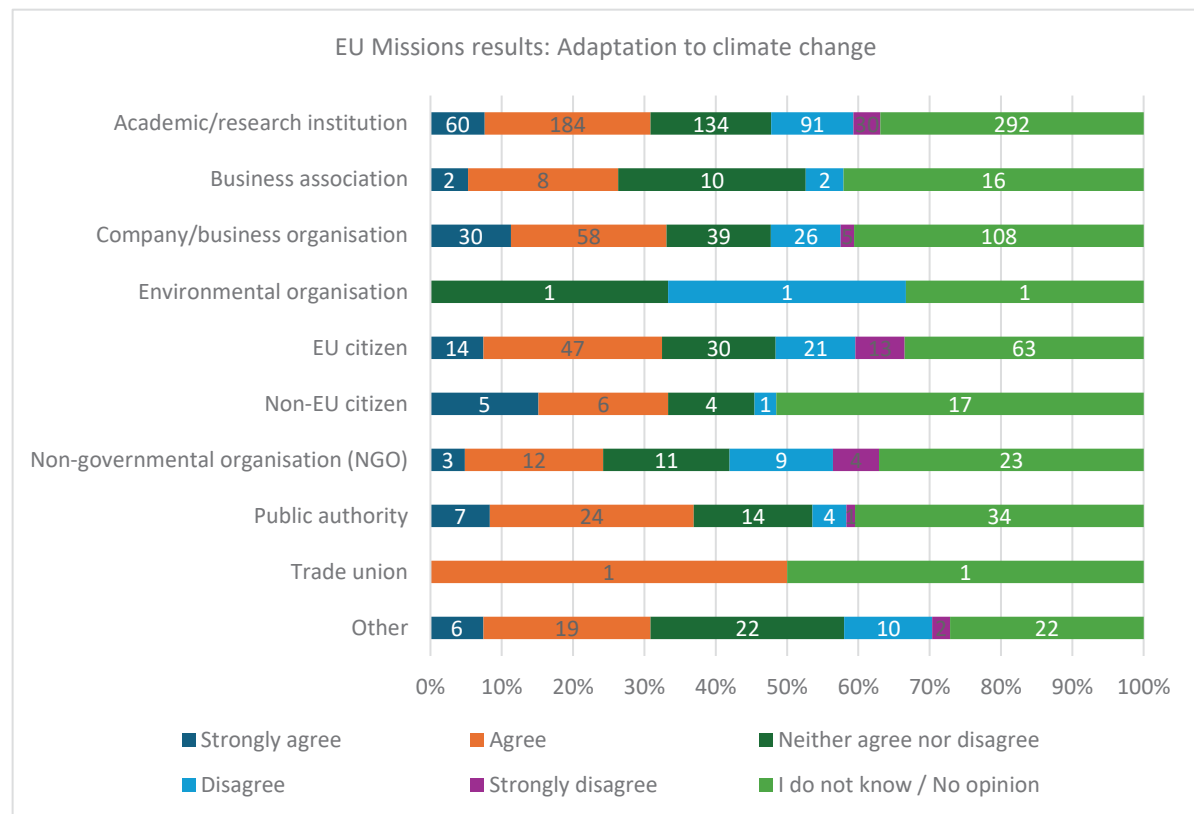


Figure 99: Stakeholder breakdown - Mission Cancer (N= 1541)

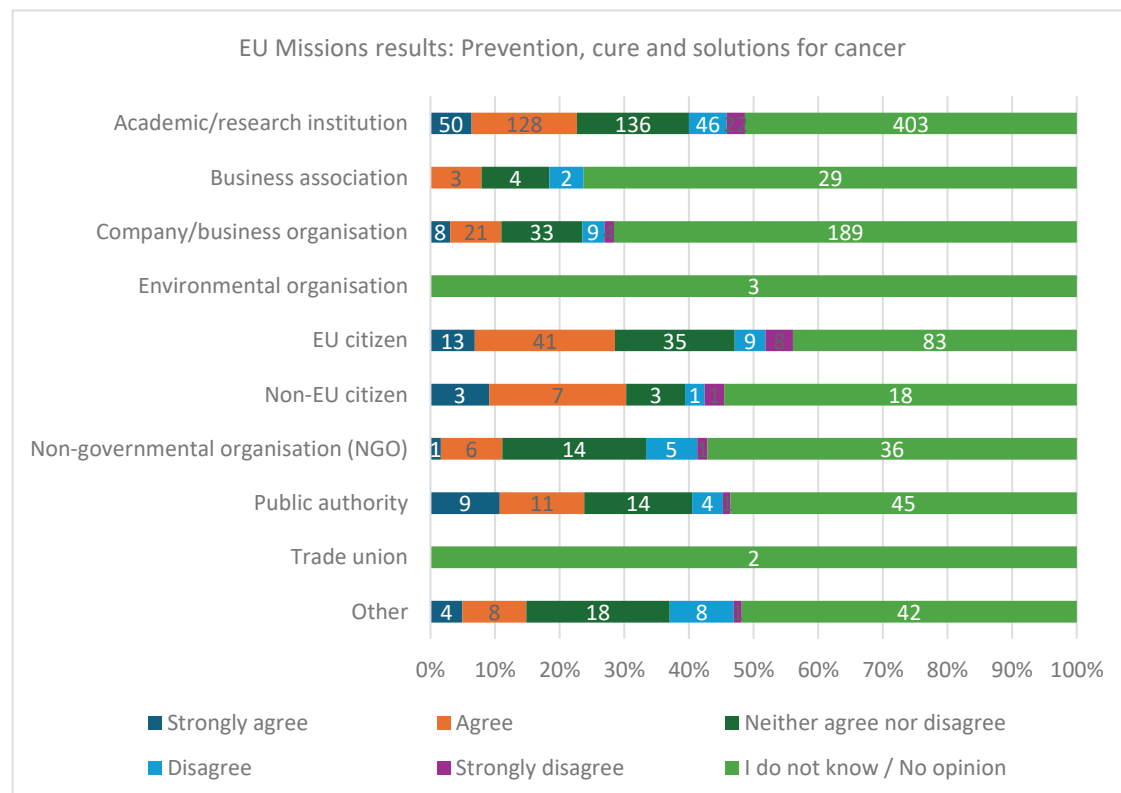


Figure 100: Stakeholder breakdown – Mission Oceans (N= 1541)

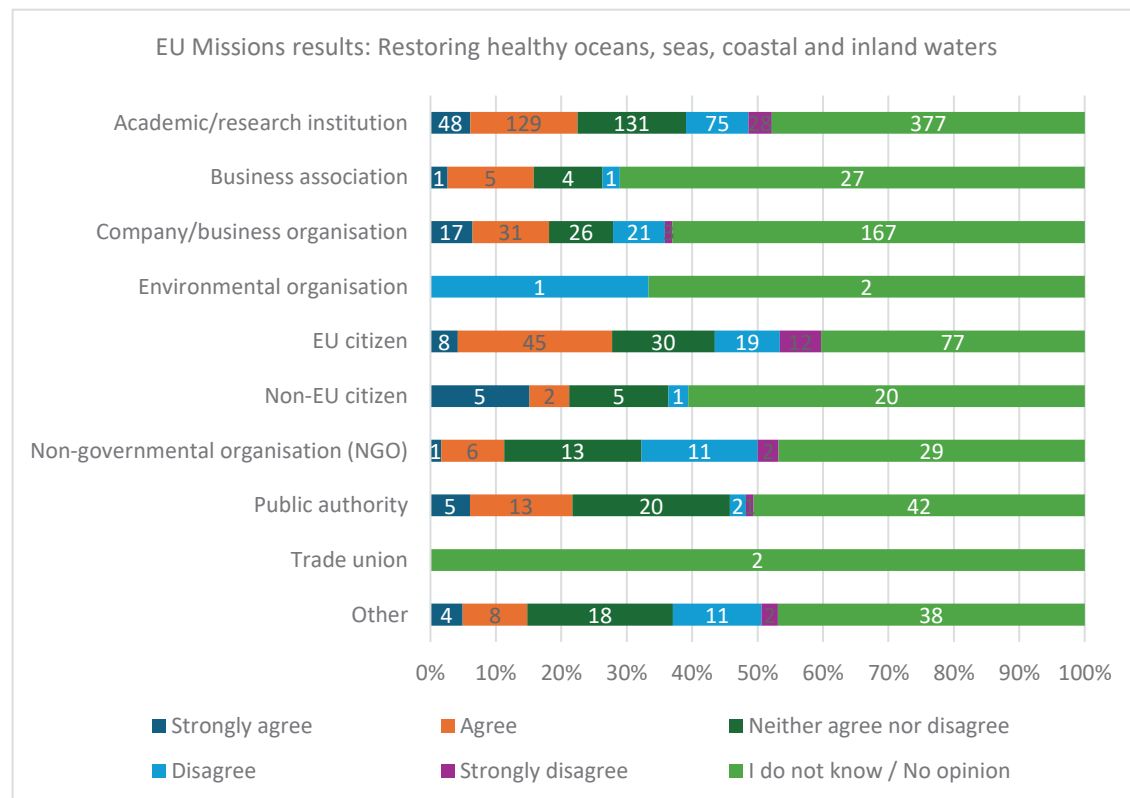


Figure 101: Stakeholder breakdown – Mission cities (N= 1541)

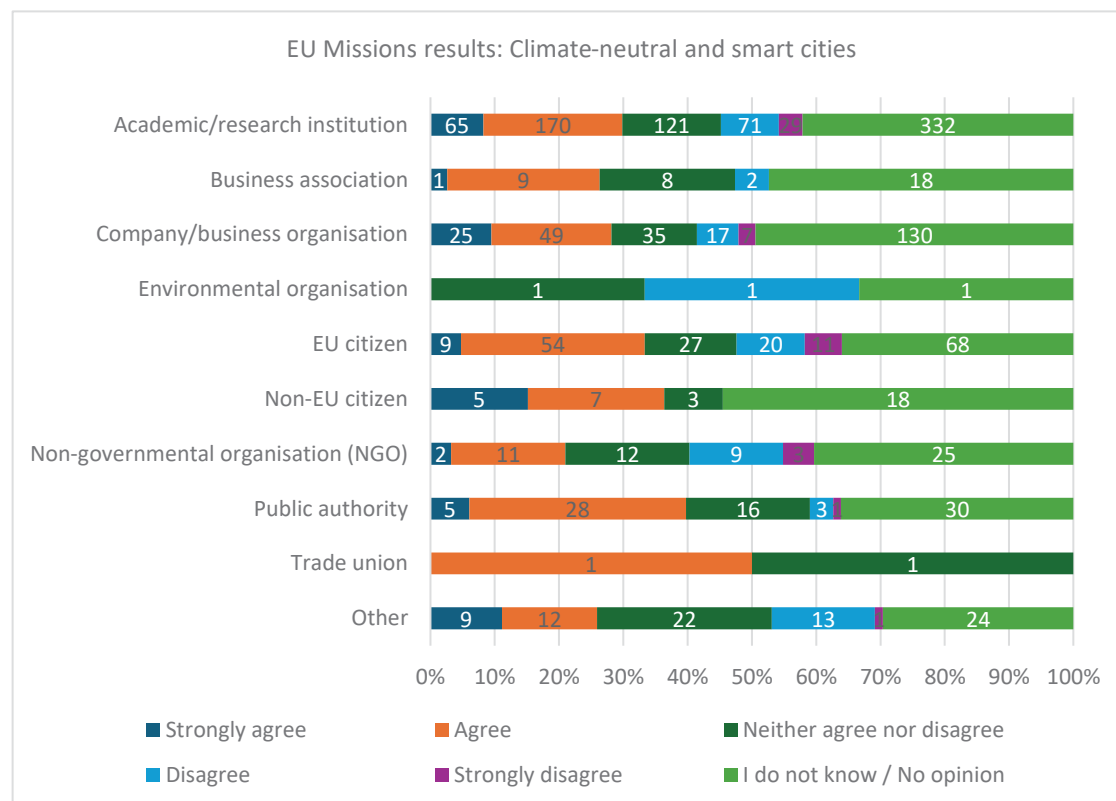
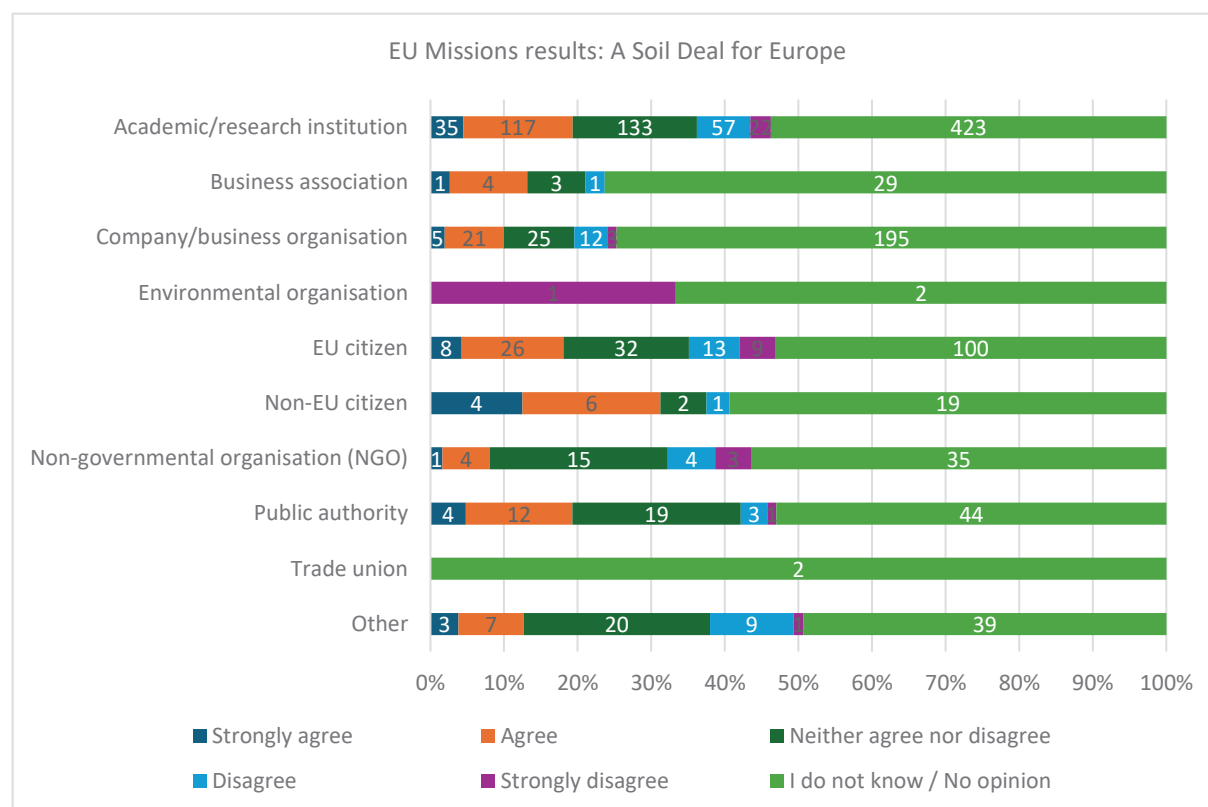


Figure 102: Stakeholder breakdown – Mission Soil (N= 1534)



Box 7: Specific comments on the EU Missions

43 position papers included comments on the EU Missions.

Whilst several stakeholders embraced the concept of the EU Missions, they pointed out some implementation issues, which may jeopardise the achievement of their objectives. In addition, some have noticed that the EU Missions were at an early stage and their added value could hardly be evaluated yet. The key messages from the position papers and the discussion during the public event are the following:

- The governance of the EU Missions is unclear to several stakeholders and is not considered suitable to ensure that the funded projects deliver on the strategic objectives. This concern was raised also during the event. Different stakeholders (from academia, National Contact Points, business support organisations, public research promotion agencies) perceived the overall functioning of Missions as unclear, and recommendations were made to communicate more effectively on that. The EC should develop specific communication channels for stakeholders and provide better communication on the entire Missions' portfolio.
- There is a risk of dispersion of resources as every Mission has multiple priorities and expected outcomes are very broad. To be fully efficient, some stakeholders participating in the event suggested a better portfolio management by the EC to ensure more ambitious impacts and avoid overlaps between Missions.
- There is little coordination with national initiatives. In this regard, some event participants questioned the fact that Missions are exclusively funded through Horizon Europe, not through other funds. They called for more synergies with both other EU funding sources, such as ERDF funds, and national funding sources.

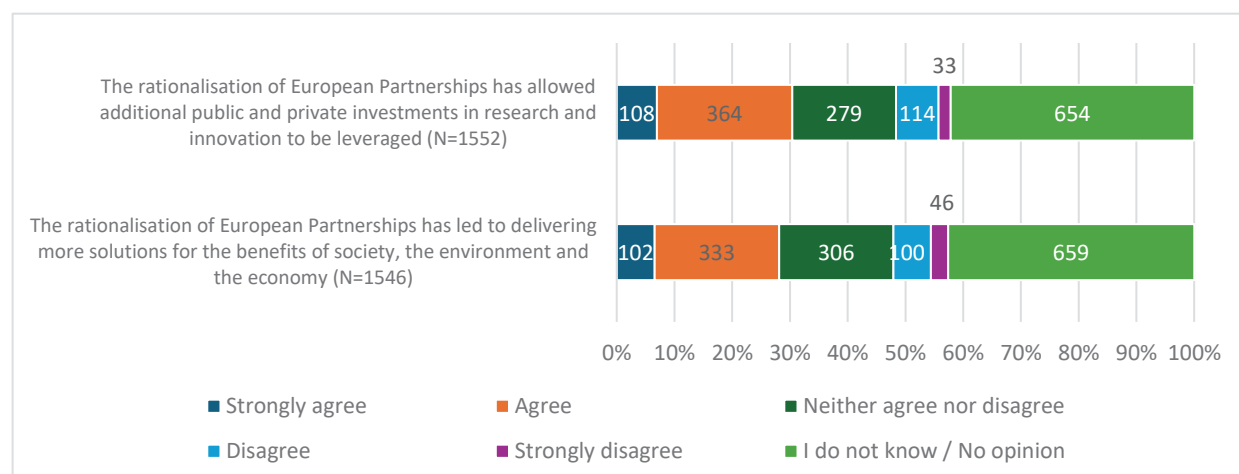
- National and local stakeholders struggle to find an entry point to contribute to the Missions. During the event, different stakeholders called for the simplification of participation and implementation rules, as Missions are currently perceived as complex, making it difficult to attract a variety of actors.
- According to stakeholders from industry, the EU Mission calls have a too narrow scope and do not focus enough on technology development. These aspects limit the possibility for the industry to participate.
- According to research organisations and academia, the EU Missions should focus more on research and development activities. In their opinion, these are currently too focused on piloting and deployment of solutions.
- Participation from research actors was perceived as low due to the lack of opportunities for collaborative research within the EU Missions. Participants from academia confirmed this opinion in the event.
- The link between the EU Missions' calls and the calls published in the Pillar II clusters is unclear. There is a risk of duplication with other parts of Horizon Europe (e.g., European Partnerships). This issue was raised also during the public event by stakeholders from academia. At the same time, synergies between the Missions and Pillar II are limited due to different timeline and topics. A participant working in the aerospace industry recommended to align the topics of the Missions and those in Pillar II to boost synergies.
- There are concerns over the introduction of new EU Missions at this stage.

The consultation asked the respondents their opinion about the rationalisation of the European Partnerships from Horizon 2020 to Horizon Europe. After excluding the responses of those who selected “I do not know”, 53% (472) of respondents “agreed” or “strongly agreed” that “the rationalisation of European Partnerships had allowed additional public and private investments in research and innovation to be leveraged”. In comparison, 31% “neither agreed or disagreed”, and 17% “disagreed” or “strongly disagreed”. In addition, 49% (435) “agreed” or “strongly agreed” that “the rationalisation of European Partnerships [has] led to delivering more solutions for the benefits of society, the environment and the economy”, while 16% “disagreed” or “strongly disagreed” and around a third of respondents (34%) “neither agreed or disagreed”.

Similarly, event participants agreed that partnerships are effective instruments for combining national and EU funds for research and innovation (R&I) and enhance research and dissemination in Europe. Industrial partners, particularly a participant from the aerospace and defence sector, strongly appreciated the fact that partnerships provide a long-term perspective for industry and enable reaching high TRLs.

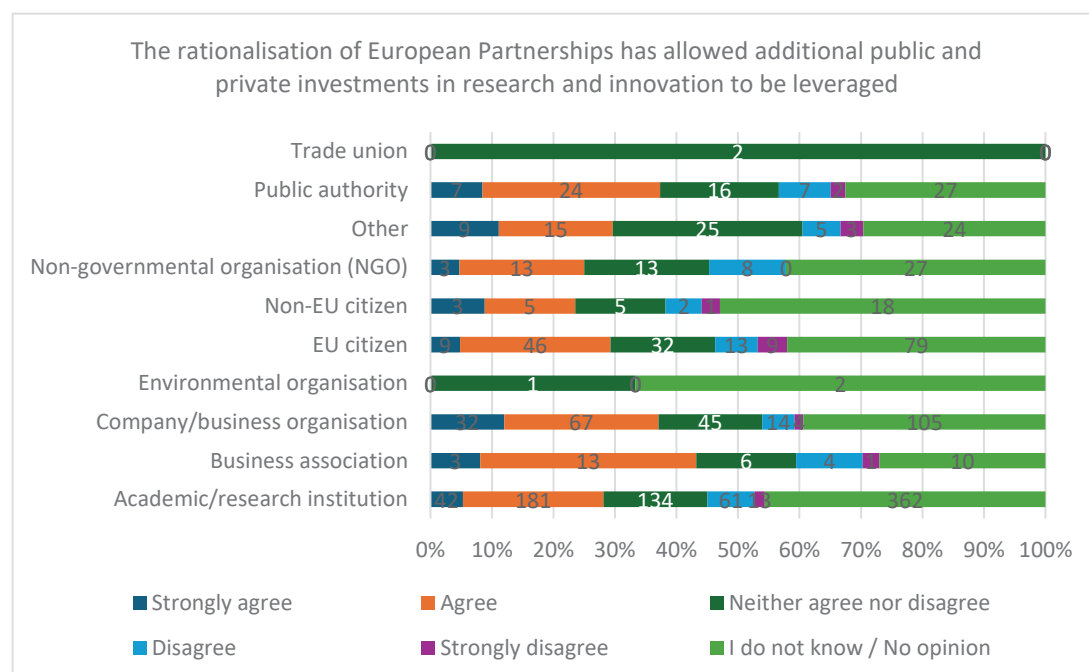
While the simplification process from Horizon 2020 to Horizon Europe was generally appreciated by stakeholders, some event participants called for further simplification, harmonization and greater synergies between the different types of Partnerships. Conversely, representatives from the industry underlined the importance of flexibility and of leaving room for each partnership to decide its own procedures (considering that a Single Act is already in force).

Figure 103. To what extent do you agree with the following statements?



After excluding the responses of those who selected “I do not know”, respectively 57% (491) and 71% (694) of respondents maintained that EU Missions and European Partnerships were “somewhat” or “to a great extent” “more effective compared to regular collaborative research”. Respondents from businesses and business associations valued the partnership approach more than those from other groups.²²⁴ As a matter of fact, some research organisations participating in the event stated that collaborative research should remain the bulk of the programme.

Figure 104: The rationalisation of European Partnerships has allowed additional public and private investments in research and innovation to be leveraged (N= 1552)



²²⁴ The results of the analysis differentiating by type of respondent are reported in Table 33 and Table 34 – additional statistics..

Figure 105: The rationalisation of European Partnerships has led to delivering more solutions for the benefits of society, the environment and the economy (N= 1546)

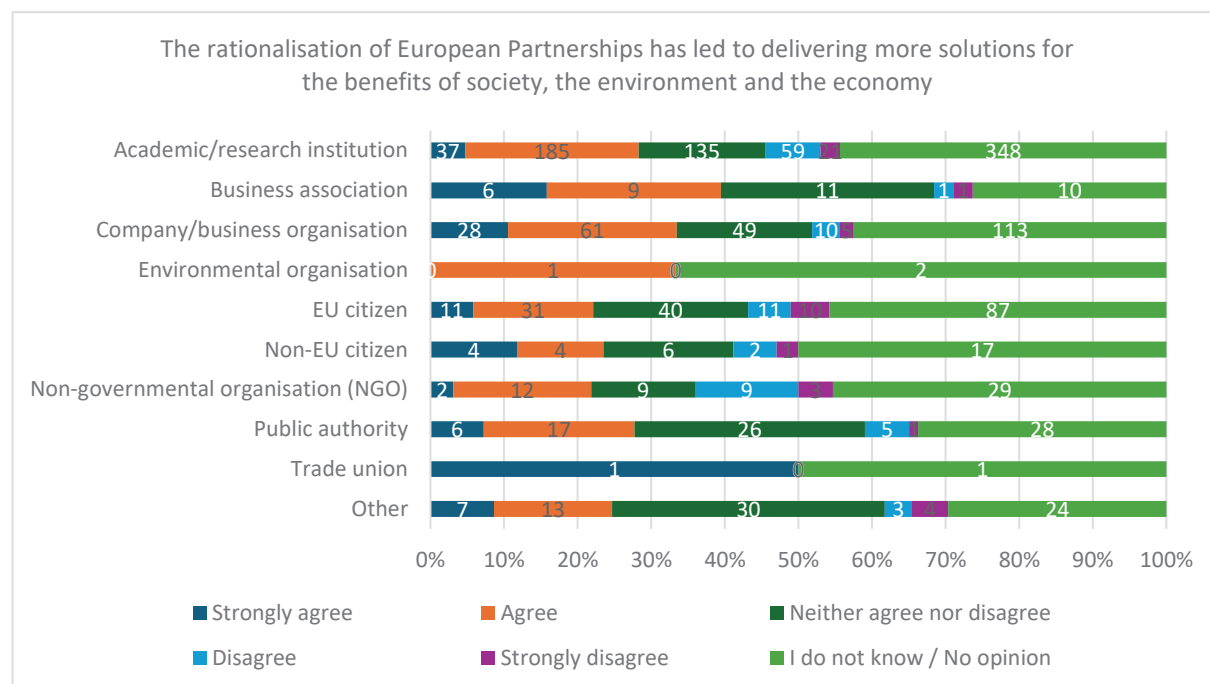


Figure 106: In your opinion, to what extent are European Partnerships and EU Missions supported by Horizon Europe effective compared to regular collaborative research projects in achieving Horizon Europe's objectives?

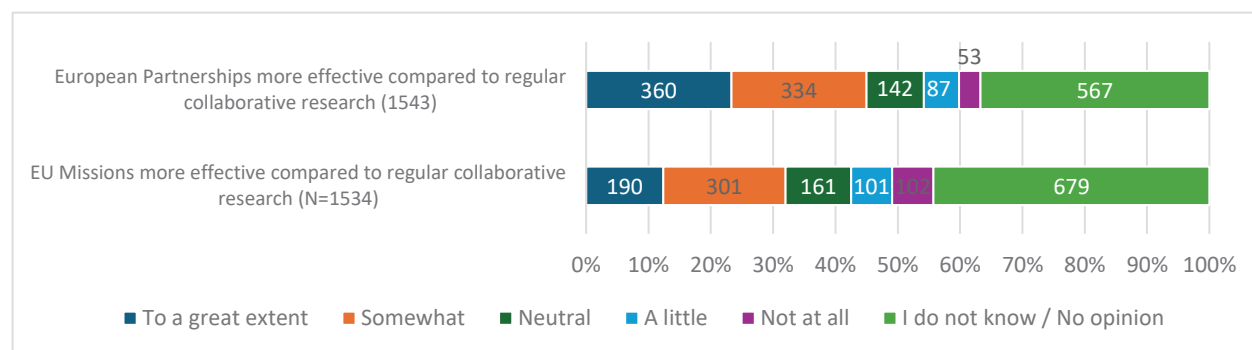


Figure 107: Additional breakdown - European Partnerships (N=1543)

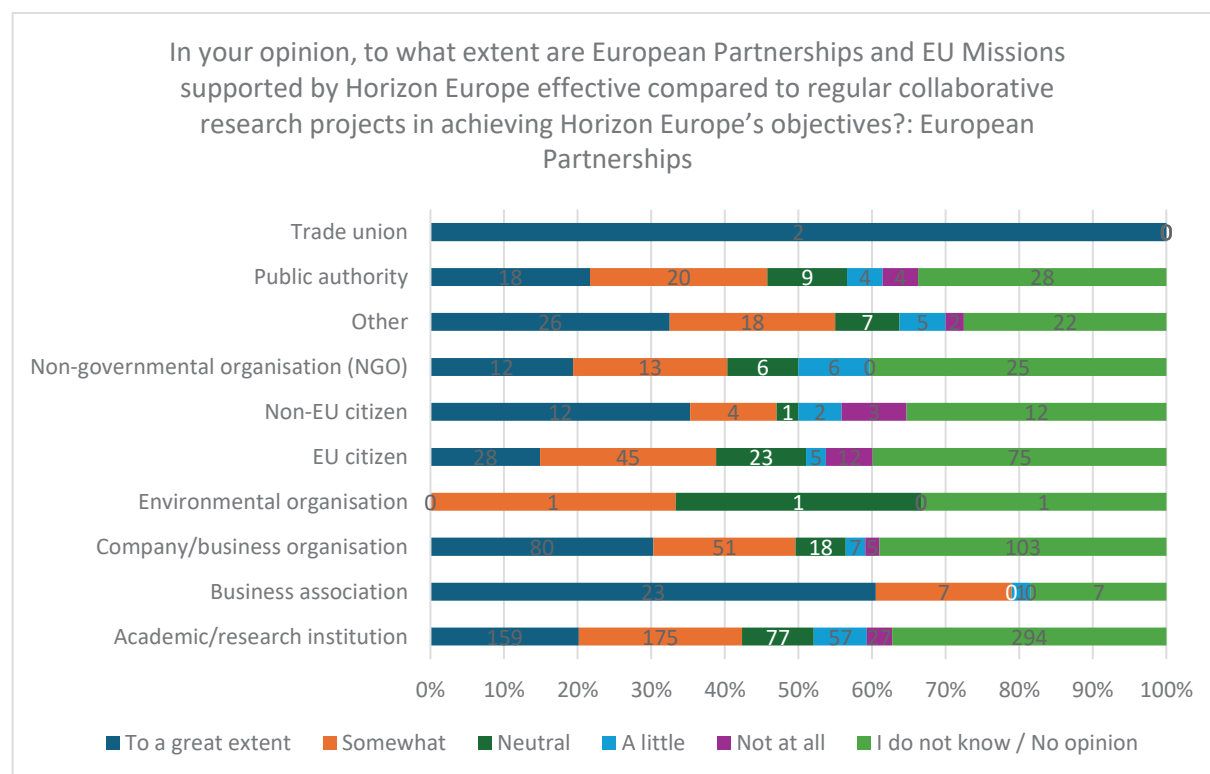
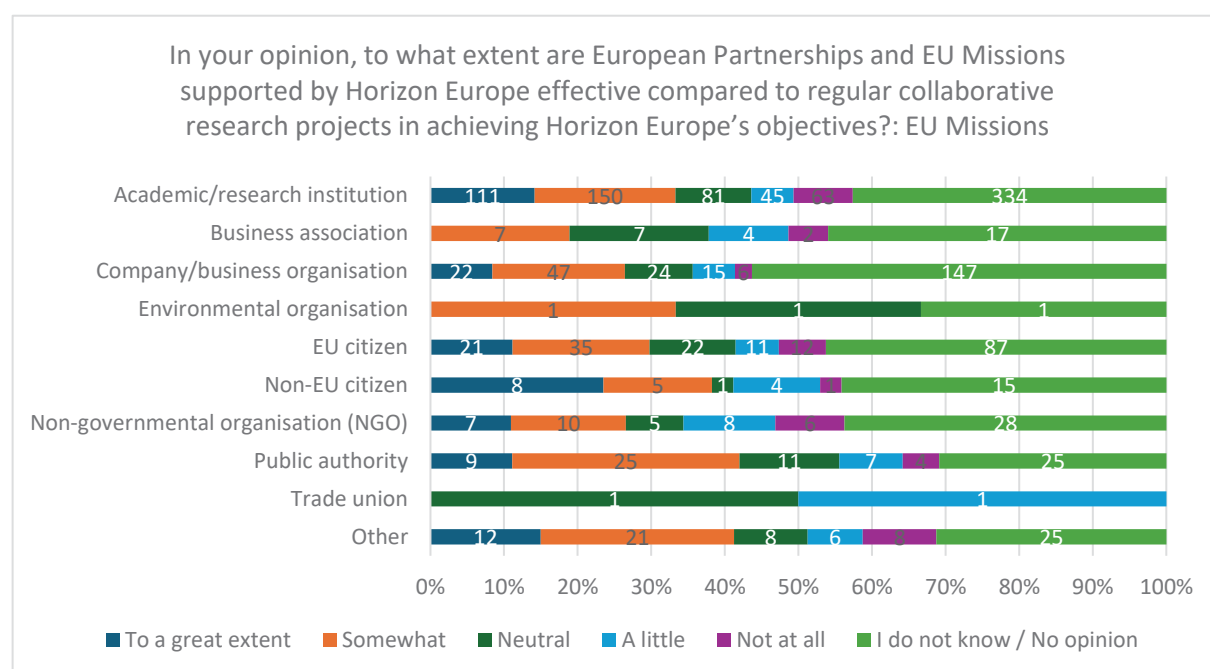


Figure 108: Additional breakdown - EU Missions (N= 1534)



Box 8: Specific comments on the European Partnerships

49 position papers included comments on the European Partnerships. The key messages from the position papers and the discussion during the public event are the following:

- Partnerships were considered by different types of actors (academia, research and technology organisations, businesses, public authorities) a key instrument to ensure a quick transfer from knowledge into application and innovation. Businesses highly appreciated partnerships as a means to support the European industrial policy.
- Whilst in general the streamlining of partnerships under Horizon Europe was seen positively, some respondents (especially research organisations) maintained that the partnerships have remained fragmented and overly complicated, discouraging newcomers from joining. Concerns on the difficulty in accessing relevant information on the opportunities available, the applicable rules and the reporting requirements were raised also by some event participants from different stakeholder categories (i.e., industry, National Contact Point, research organisation).
- There have been implementation issues and delays at the start of the activities.
- There seems to be a lack of clarity on the governance structures and on the synergies and complementarities with other European and national instruments (including EU Missions). Representatives from regional public administrations and academia participating in the event underlined the difficulties in being involved in the institutionalised partnerships' activities while not being involved in its governance. This contradiction makes it difficult to create synergies between the Partnerships' activities and other R&I actions funded at local / regional / national level. Similarly, some stakeholders from national research promotion agencies observed that there should be better coordination efforts to ensure availability of matching funds from national sources.
- According to some academic and research actors, the conditions of participation of some partnerships have not been transparent. In particular, the rules for participation of research performing organisations raised concerns since organisations that participate in the governing structure of the partnership have been excluded from the calls for proposals.

Other points discussed during the event with stakeholders were the following:

- Deterring factors to participation: the applicable rules for private partners and public bodies, as well as the cost reporting requirements, have been identified as a deterring factor to participation, especially from academic stakeholders. According to an industry stakeholder, the request to commit on a certain funding level from the beginning as a pre-requisite to participation can disincentivize companies from joining.
- Centralised / decentralised management of the Partnerships: some participants from research organisations suggested to centralize the Partnerships management, either by the EC or by an Executive Agency to ensure better a more consistent management and to avoid duplicating governing structures. Conversely, industry stakeholders urged to avoid an excessive involvement of the EC and allow flexibility, considering the amount of funding committed by the private sector.
- Level of knowledge and experience of policy officers managing the partnerships: participants from different stakeholder categories (i.e., National Contact Point, research organisations, academia) pointed out the need for training for all the actors involved in managing and implementing partnerships (especially co-funded), including policy officers.

Impact of exceptional limitations

After excluding the responses of those who selected “I do not know”, the majority (56%; 650) of respondents stated that their project was not “impacted by the exceptional limitations on participation in Horizon Europe by non-EU legal entities” or was impacted a little. Only 13% (151) of respondents indicated that their project was impacted “to a great extent”.

Figure 109. According to you, to what extent is your research or innovation project impacted by the exceptional limitations on participation in Horizon Europe by non-EU legal entities?

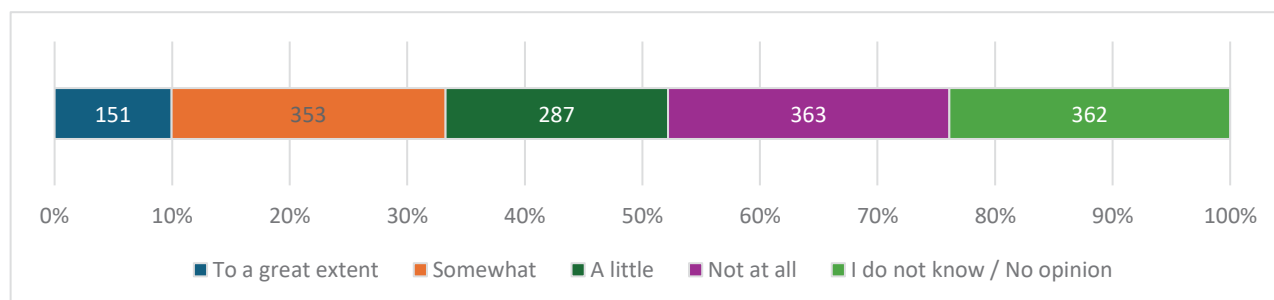
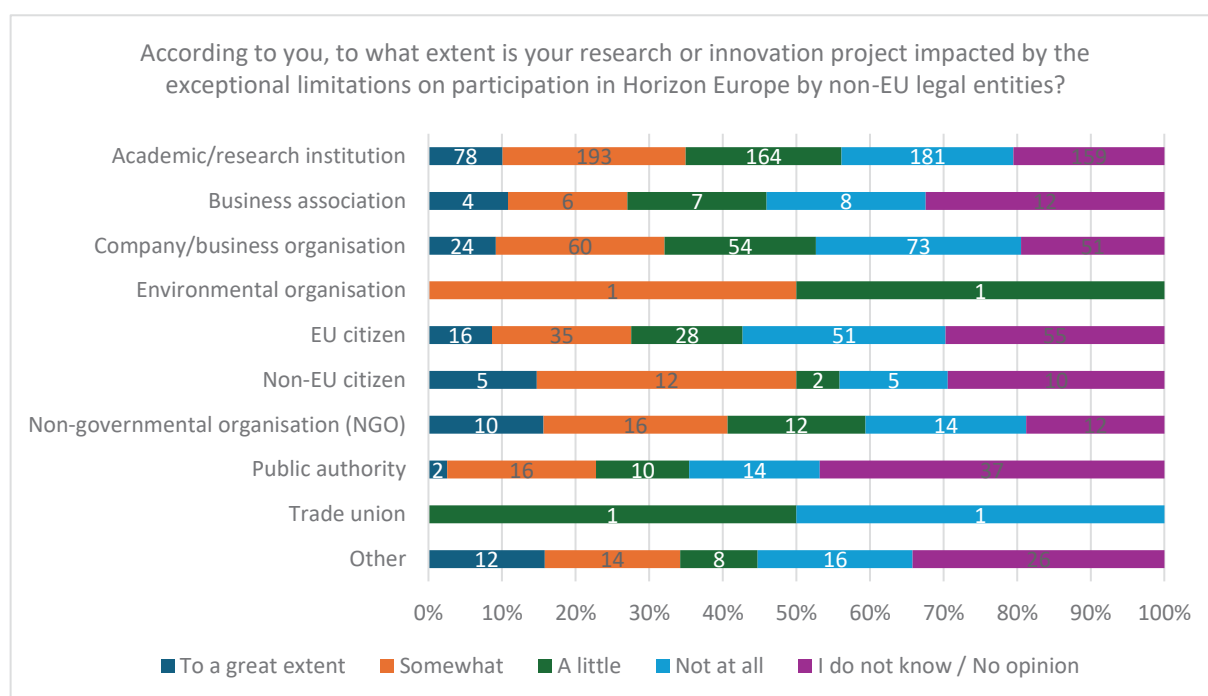


Figure 110: Additional breakdown - impact of exceptional limitations on participation (N=1516)



Synergies with other EU programmes

55% (823) of respondents expressed an opinion on the synergies between Horizon Europe and Erasmus+. Between 13% and 41% of all the respondents expressed an opinion on the synergies between Horizon Europe and other EU programmes²²⁵. After removing the responses of those

²²⁵ Common Agricultural Policy (CAP), LIFE - Programme for Environment and Climate Action, European Maritime, Fisheries and Aquaculture Fund (EMFAF), Creative Europe Programme, European Social Fund Plus (ESF+), European Regional Development Fund (ERDF), Just Transition Mechanism, Recovery and Resilience

who selected “I do not know / no opinion”, the majority of respondents selected that “synergies were exploited” or “fully exploited” with Erasmus+ (63%; 518), Digital Europe Programme (62%; 838), Euratom Research and Training Programme (62%; 225), EU4Health Programme (57%; 275), Connecting Europe Facility (CEF) (56%; 237), Programme for Environment and Climate Action (LIFE) (55%; 339), European Regional Development Fund (ERDF) (52%; 299).

45 position papers provided comments on the synergies between Horizon Europe and other EU programmes. Most contributions, from academia, business and public actors, focused on synergies with structural funds (ERDF). They concluded that it was too early to assess to what extent these synergies will be possible, as the operational programmes are not fully approved. However, they also pointed out that synergies with the ERDF had proved difficult to harness in the past because financing modalities were different or incompatible. Stakeholders also believe that the creation of various new EU programmes in the current MFF period is positive because they create more opportunities for applying research discoveries (e.g., Innovation fund). However, at the same time, beneficiaries face a complex EU financing landscape with a multitude of programmes, each with its own rules for participation. Stakeholders asked for clearer rules, guidance, and more clarity about the possible pathways between programmes.

Facility, EU4Health Programme, Connecting Europe Facility (CEF), Digital Europe Programme (DEP), Single Market Programme, InvestEU, Innovation Fund under the Emission Trading Scheme, Union Space Programme, Neighbourhood, Development and International Cooperation Instrument (NDICI) and the Instrument for Pre-accession, Assistance (IPA III), Internal Security Fund (ISF), Border Management and Visa Instrument (BMVI), European Defence Fund, Euratom Research and Training Programme.

Figure 111. How do the following EU programmes work in synergy (complement and reinforce) with Horizon Europe?

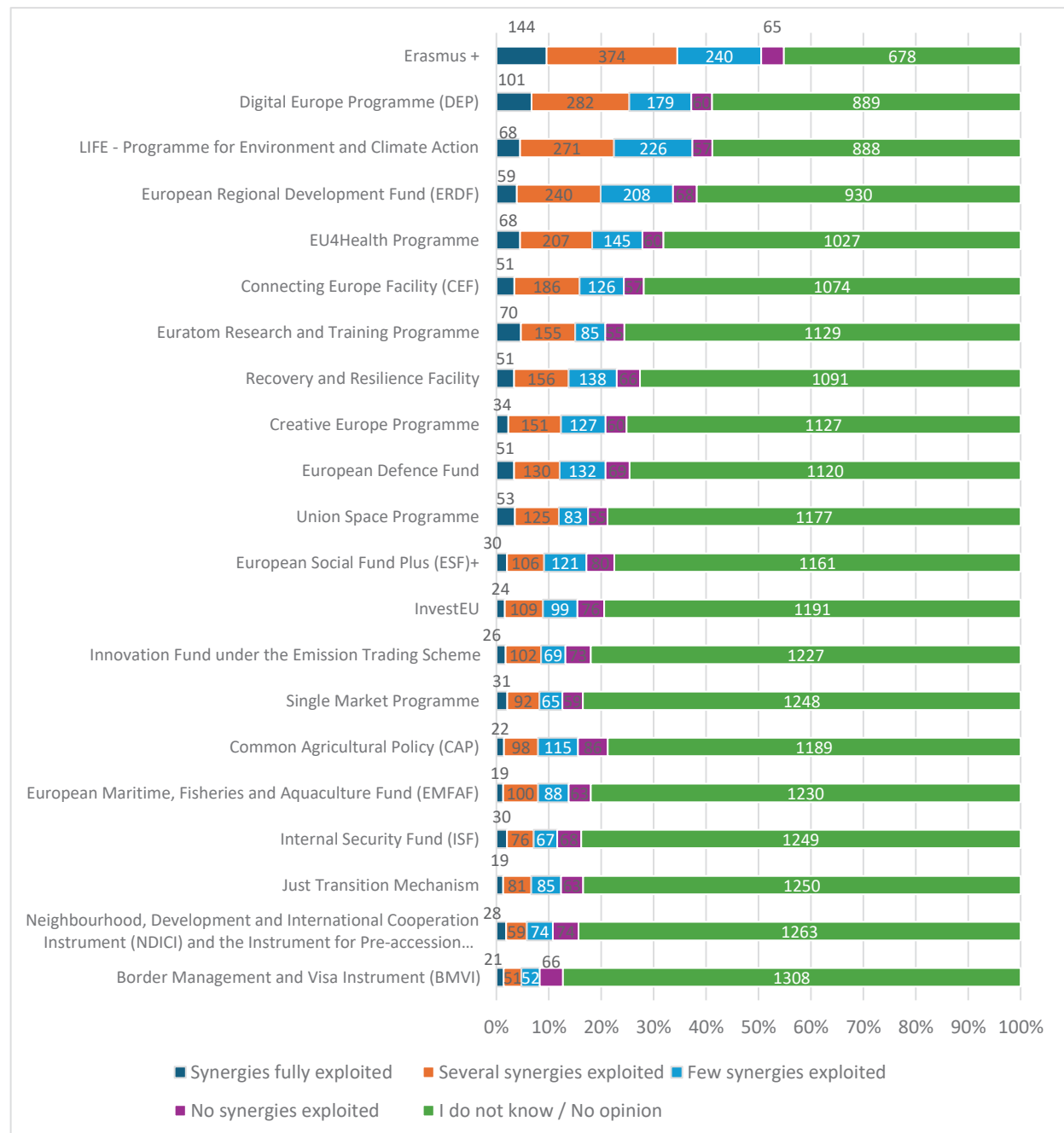


Figure 112: Additional breakdown - LIFE (N= 1510)

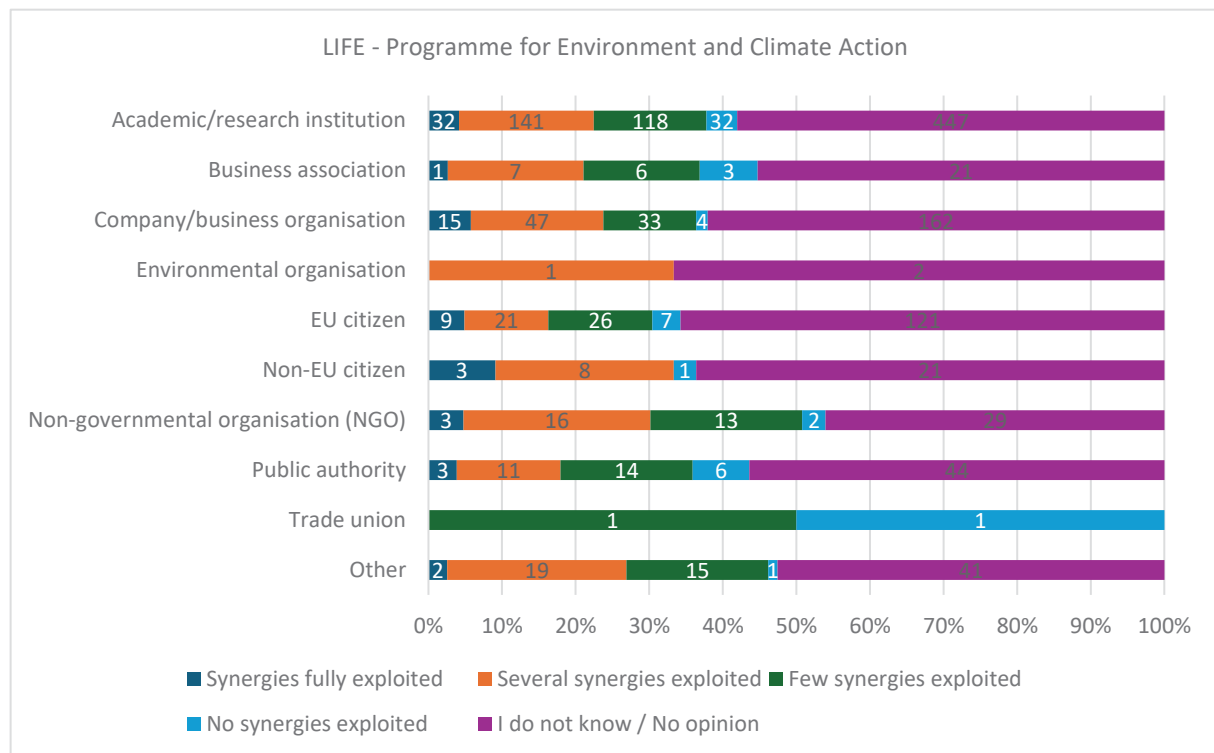


Figure 113: Additional breakdown - Erasmus+ (N= 1511)

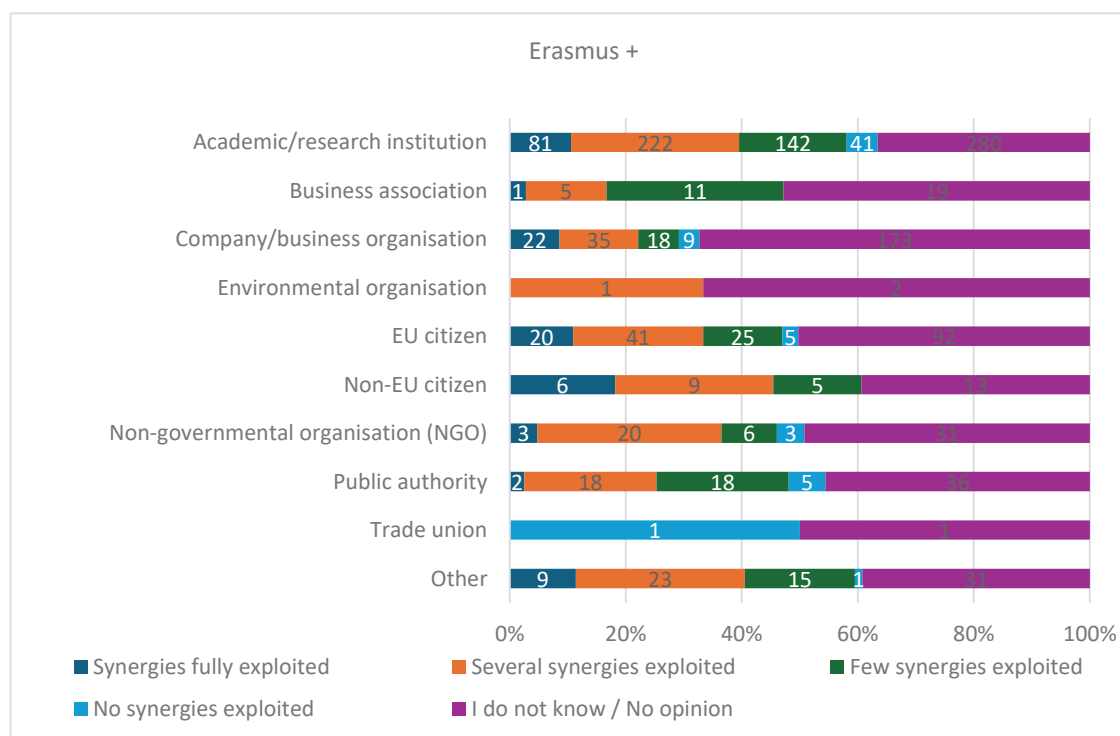
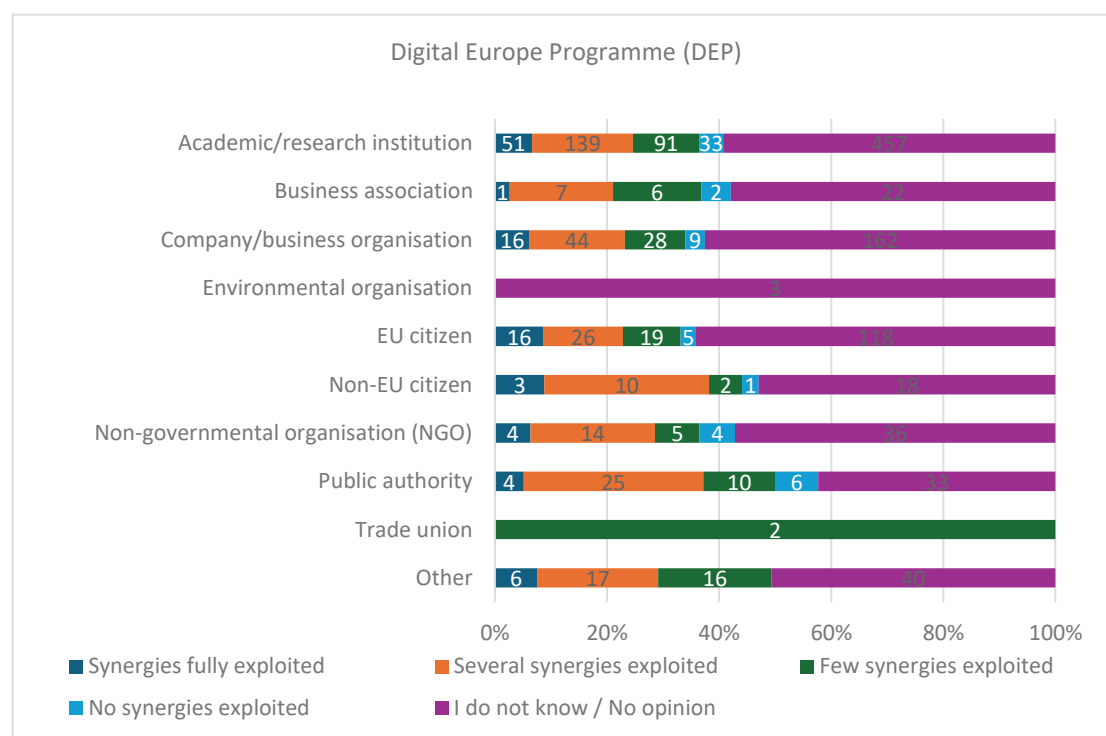


Figure 114: Additional breakdown - DEP (N= 1511)

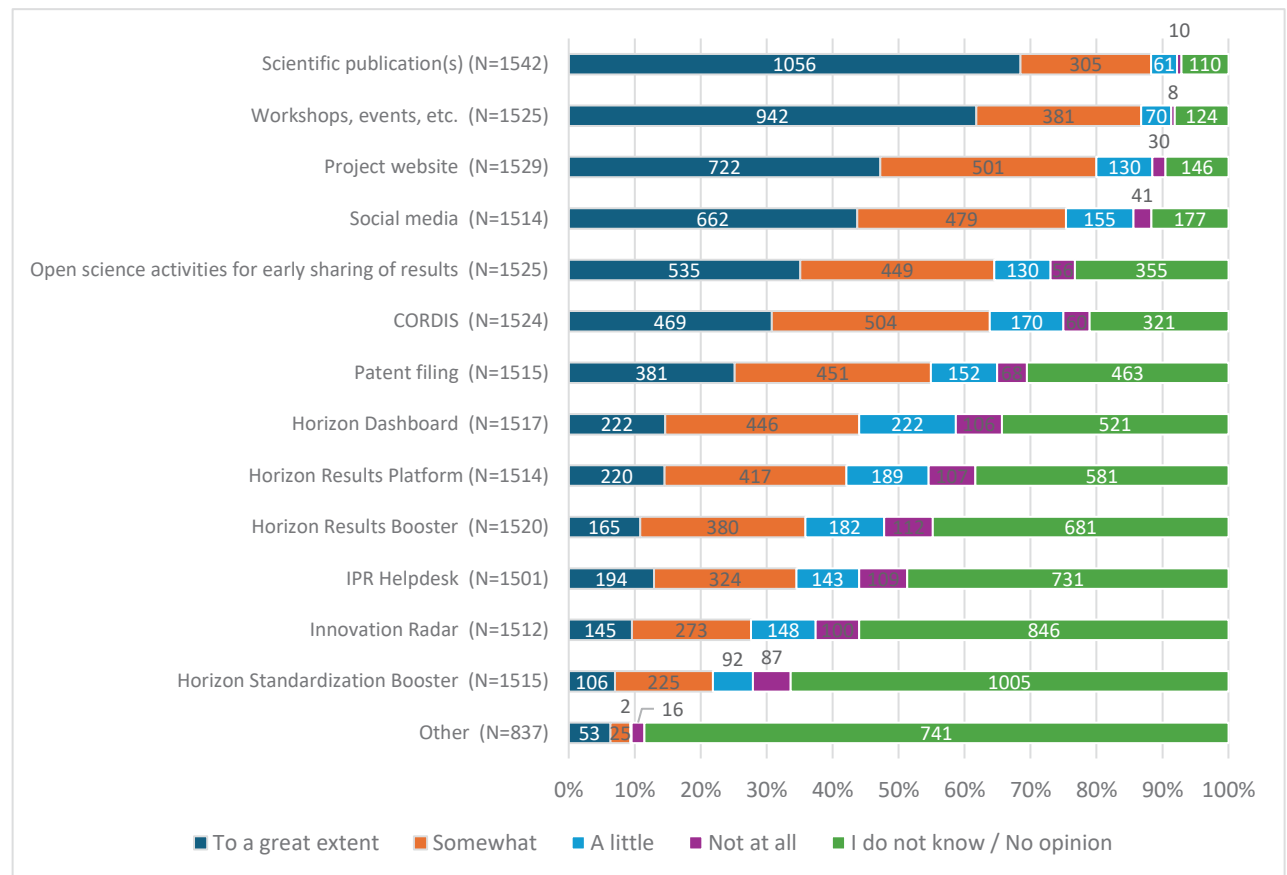


Exploitation and dissemination of results

Respondents indicated scientific publication(s), workshops or other events, project website and social media (especially LinkedIn) as the initiatives that mostly helped dissemination, exploitation and access to research and innovation results. In particular, 68% (1 056) and 62% (942) of respondents respectively stated that scientific publication(s) and workshops or other events “helped disseminate, exploit and access research and innovation results” ”to a great extent”.

13 position papers provided comments on Horizon Europe dissemination and exploitation initiatives. Stakeholders agreed that increased efforts in knowledge valorisation were key to ensure greater impacts. They advocated for continued investment, better monitoring and further awareness raising of dissemination and exploitation activities.

Figure 115: To what extent do the following initiatives help disseminate, exploit and access research and innovation results?



EC support services for dissemination and exploitation:

Figure 116: Additional breakdown - Horizon Dashboard (N= 1517)

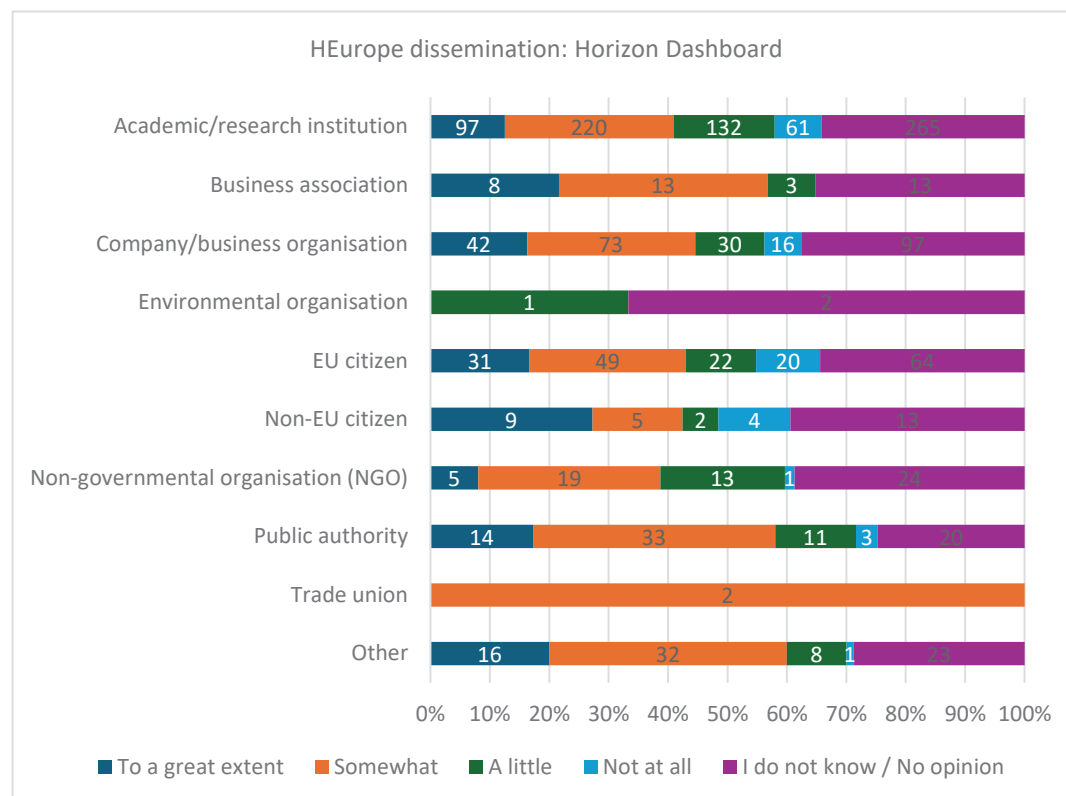


Figure 117: Additional breakdown - Horizon Results Booster (N= 1520)

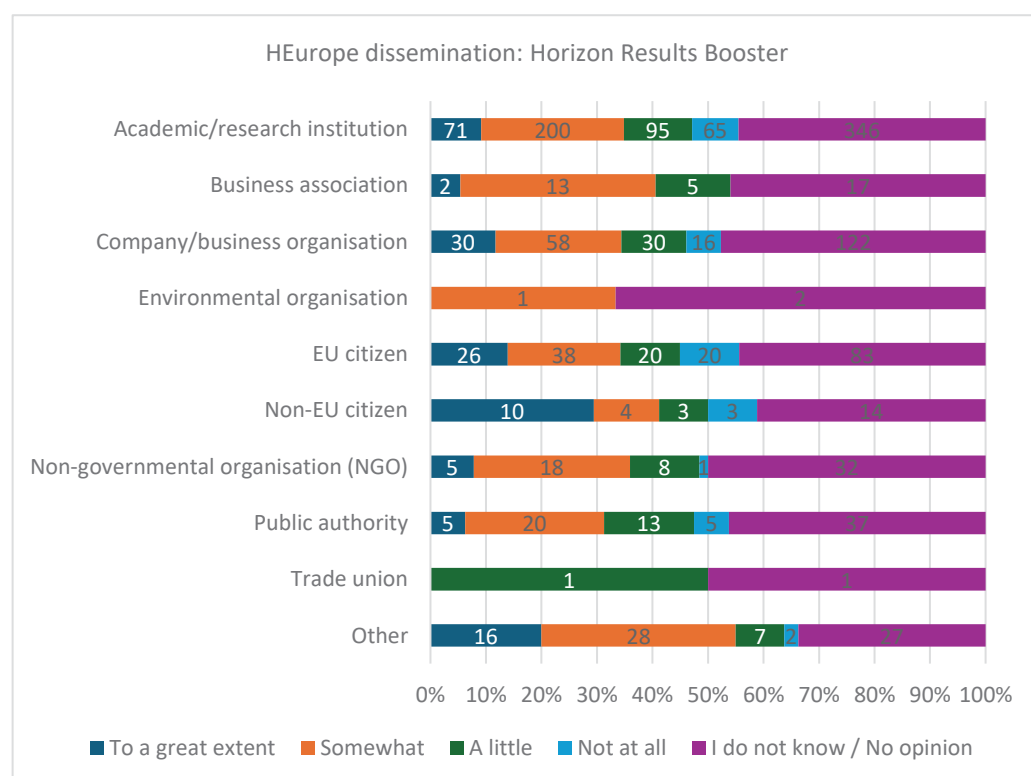


Figure 118: Additional breakdown - Horizon Results Platform (N= 1514)

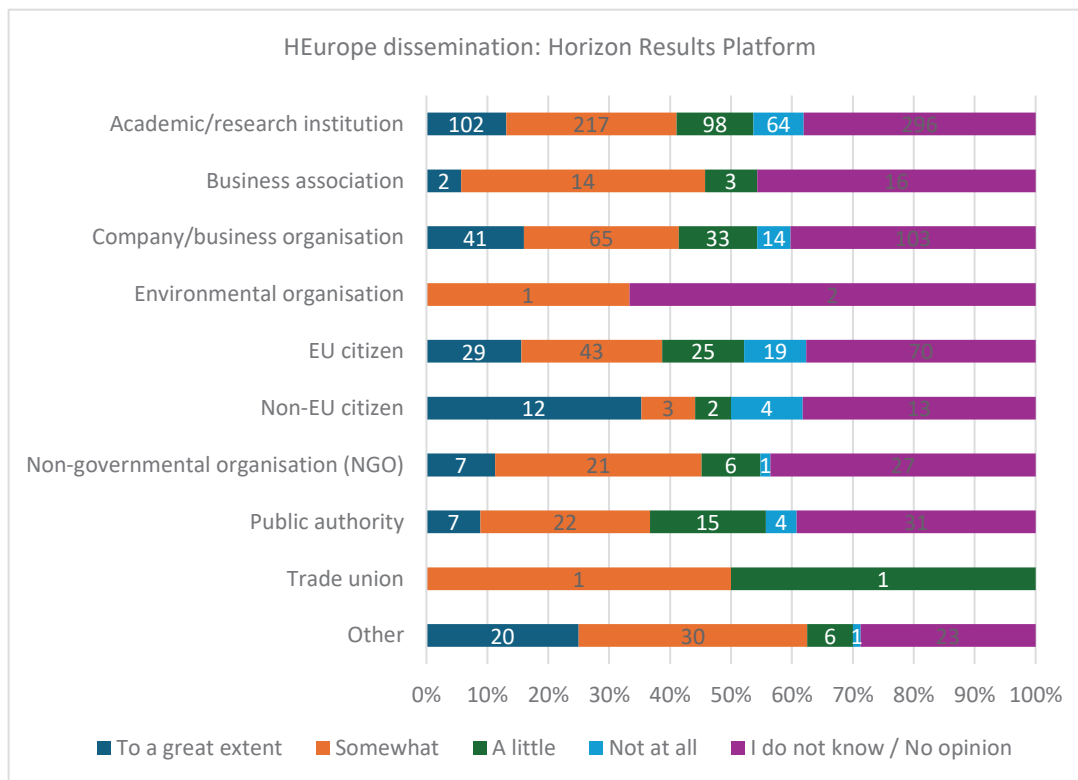


Figure 119: Additional breakdown - CORDIS (N= 1524)

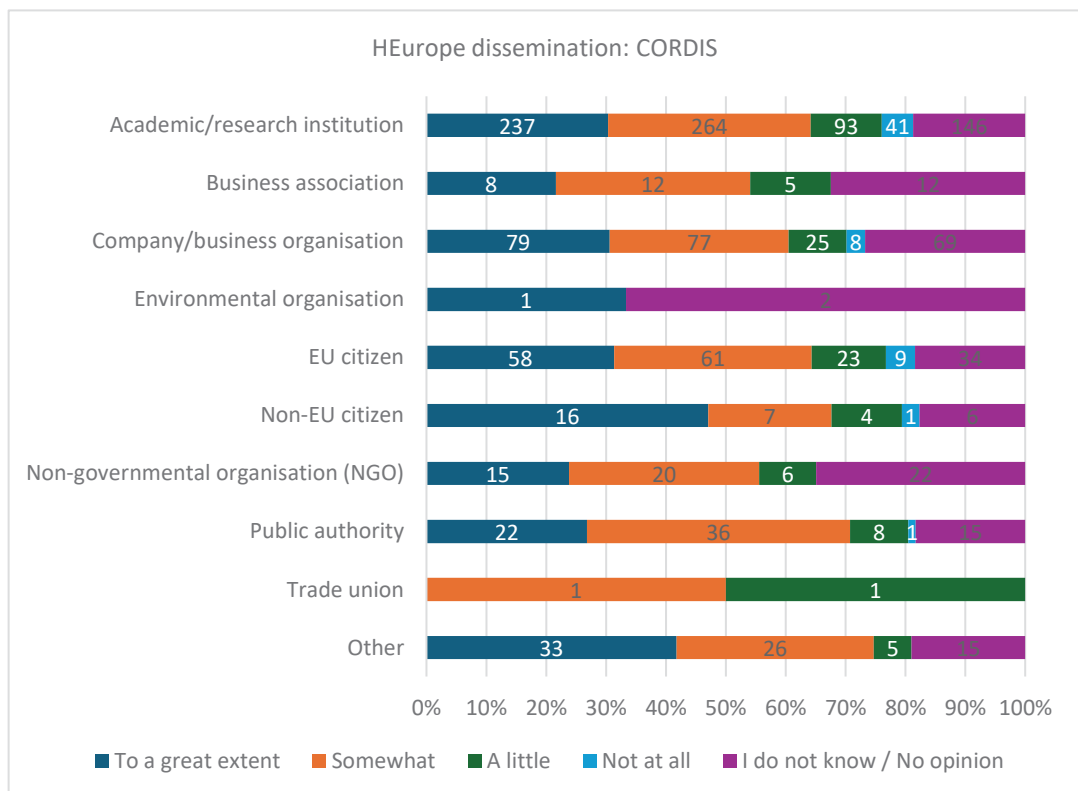


Figure 120: Additional breakdown - Innovation Radar (N= 1512)

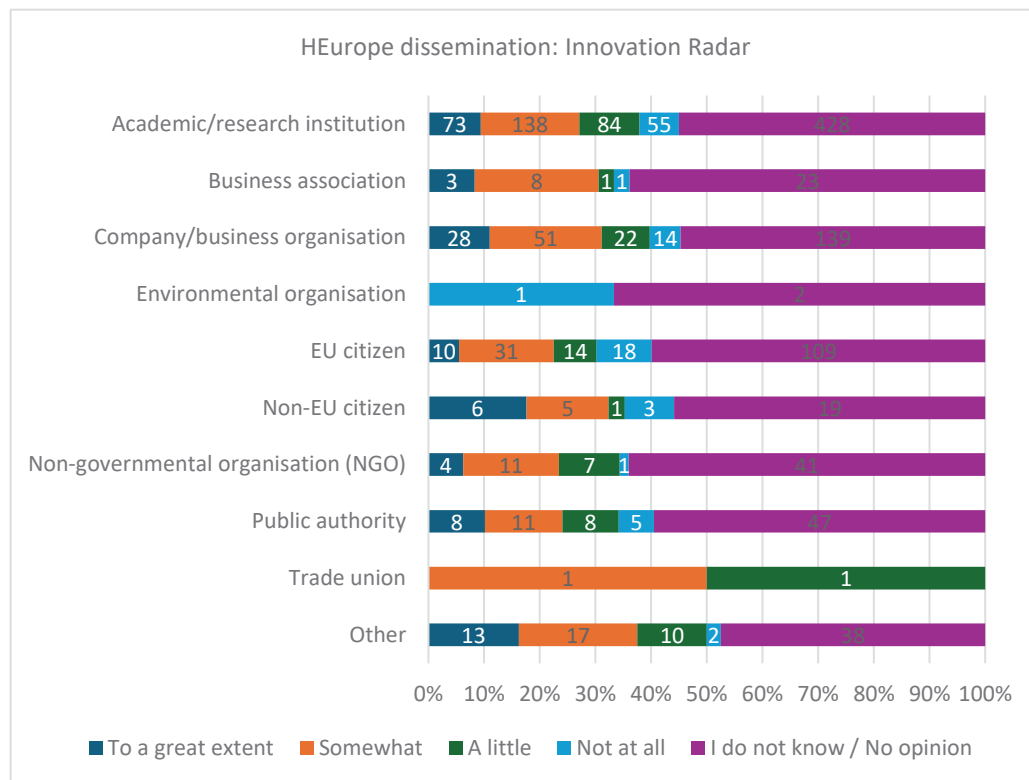


Figure 121: Additional breakdown - IPR Helpdesk (N= 1501)

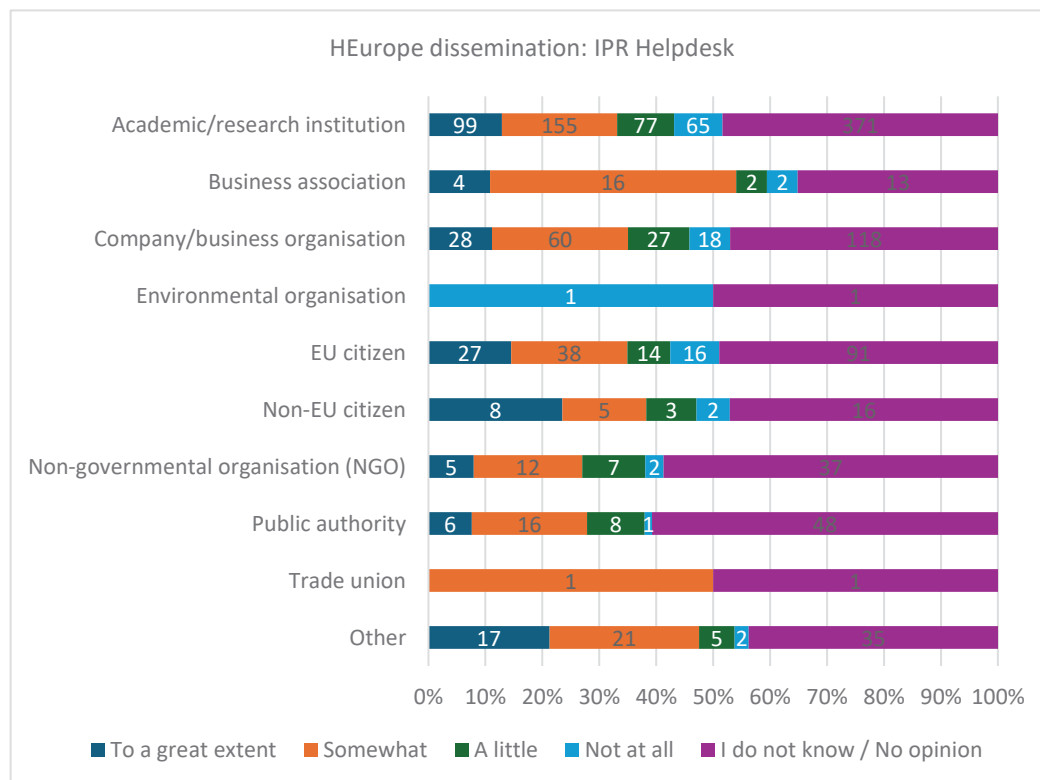
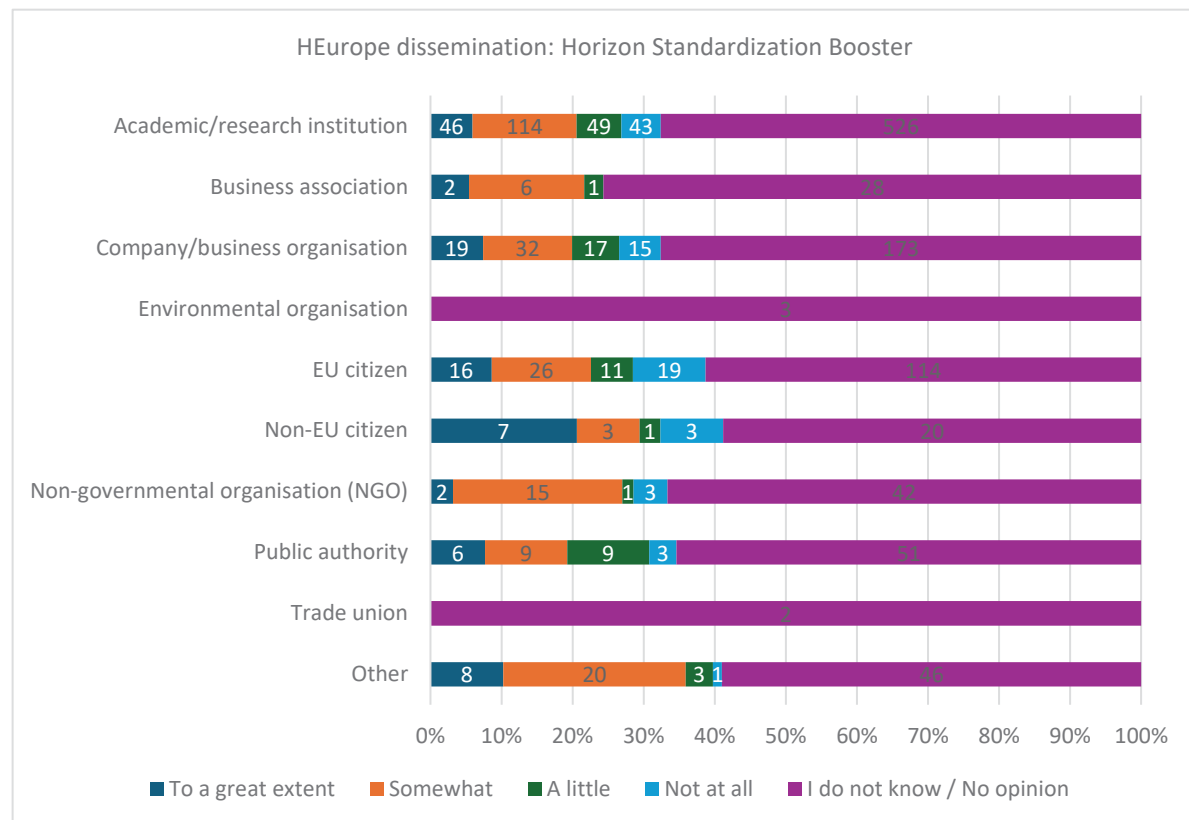


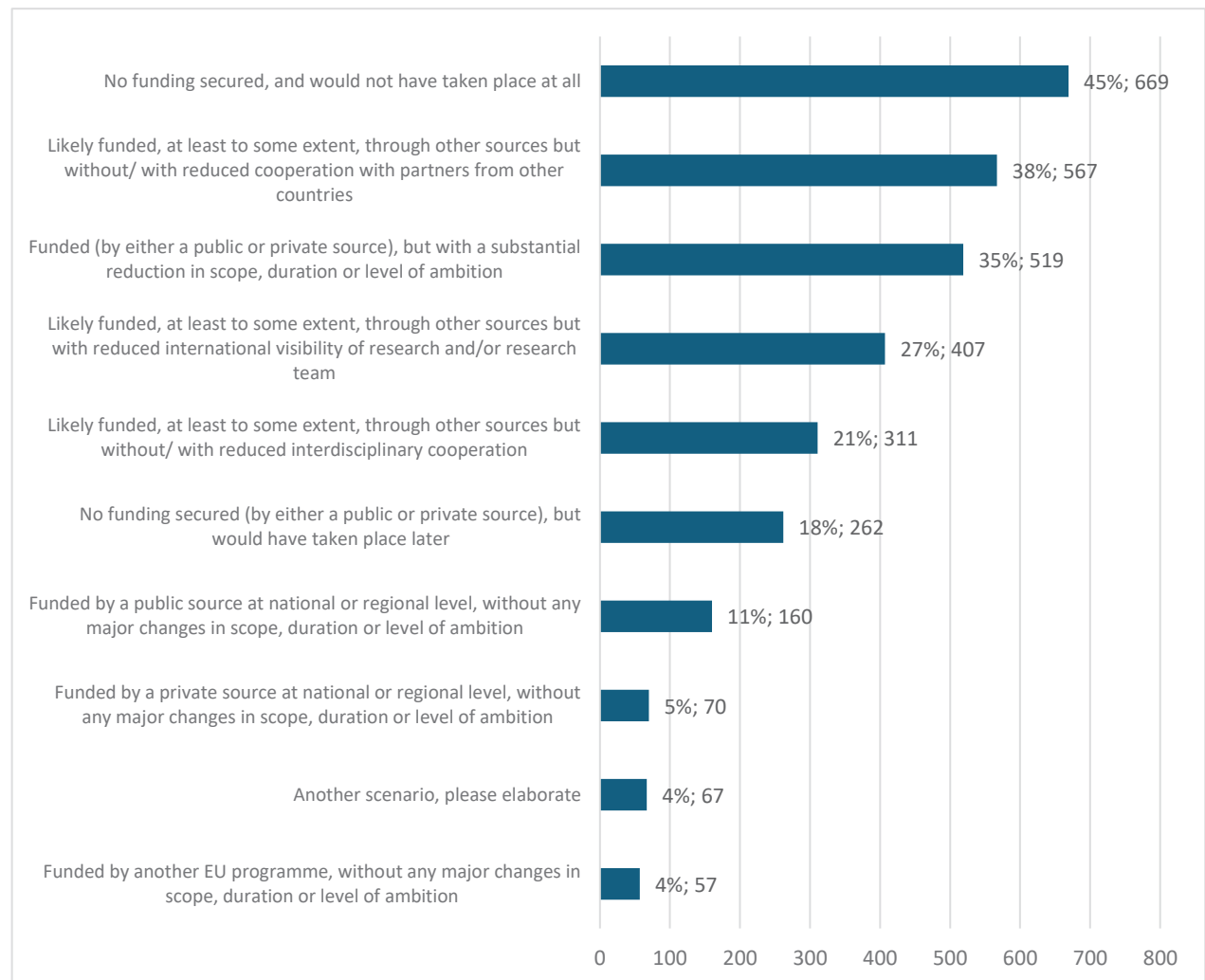
Figure 122: Horizon Standardization Booster (N= 1515)



Horizon Europe added value

Asked about what would happen to their “research and innovation project(s) without European-level funding through Horizon Europe”, 45% (669) of respondents maintained that their project “would not have taken place”, 38% (567) that, likely, it “would have been funded but with reduced cooperation with partners from other countries” and 35% (519) that it would have been “funded but with substantial reduction in scope, duration or level of ambition”.

Figure 123: What would happen to your research and innovation project(s), without European-level funding through Horizon Europe? Multiple answers possible. (N=1490)



No major differences were observed among the various stakeholder groups.

Key lessons learned and messages for the future

On budgeting for the future and work programmes

- Consider budget increases for the next Framework Programme, especially for those parts of the Framework Programme in which many excellent proposals could not be funded.
- A long-term, stable budget is key for R&I stakeholders. Therefore, avoid reallocating the Framework Programme budget to other EU priorities.
- Consult more extensively and timely when drafting the work programmes.
- Improve coordination among EC services when preparing the Work Programmes to ensure coherence among topics of different Work Programmes.
- Improve the integration of social sciences and humanities in the Work Programmes.

On intervention modes and types of action

- Ensure to cover the entire TRL spectrum, addressing the gap between fundamental research in Pillar I and Innovation Actions in Pillar II - e.g., by introducing more Research and Innovation Actions targeting medium TRLs in Pillar II.
- Ensure a balance between bottom-up and top-down calls for proposals combining different types of calls in all the Pillars.
- Ensure a balance between large and small projects in the different calls for proposals.
- Enhance the synergy between clusters in Pillar II by introducing cross-cluster calls of proposals.

On the identification of funding priorities

- The co-design approach was appreciated and should be continued. Improve the transparency of the process and streamline consultation practices.
- To identify funding priorities, define the goals but leave more room for stakeholders to define the pathways to achieve those goals.
- Ensure that excellent, fundamental and frontier research remain at the centre of Horizon Europe (especially according to academic actors) and reinforce the support for research infrastructures.
- Ensure that the budget of single Innovation Actions is sufficient to carry out pilot and demonstration activities.
- Introduce new measures to bring research into the market and increase participation from SMEs via targeted actions.
- Continue to support international cooperation by promoting collaborations of national and European research infrastructures with research infrastructures outside the EU.

On the implementation of the programme/projects and procedures

- Publish the Annotated Model Grant Agreement.
- Ensure continuity and stability in the rules of participation.
- Further simplify the administrative procedures (e.g., rules to reimburse personnel costs).
- Publish clear guidelines to support administrative processes during project implementation.
- Monitor the effects of using the lump-sum model and consider for which projects it could be extended. Provide more guidance on this type of instrument.

- Consolidate and streamline the EU funding programmes and instruments.
- Enhance the possibility of exploiting synergies with other EU programmes by clarifying the mechanisms to access the different programmes and further harmonising the rules and procedures.

Additional statistics

Calls for proposals – Breakdown by type of respondents

Table 23: To what extent do you agree with the following statements concerning the calls for proposals under Horizon Europe? Finding the right call for my proposal was easy.

TYPE OF RESPONDENT	N	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	I DO NOT KNOW / NO OPINION
Academic/research institution	807	8.4%	30.0%	29.6%	24.8%	5.5%	1.7%
Company/business organisation	269	10.8%	34.6%	28.3%	23.4%	2.2%	0.7%
EU citizen	194	2.9%	37.1%	25.7%	17.1%	5.7%	11.4%
Public authority	83	8.4%	31.3%	27.7%	18.1%	4.8%	9.6%
Other	82	11.0%	28.0%	25.6%	26.8%	3.7%	4.9%
Non-governmental organisation (NGO)	65	10.8%	29.2%	18.5%	21.5%	4.6%	15.4%
Business association	38	7.9%	42.1%	13.2%	26.3%	7.9%	2.6%
Non-EU citizen	35	2.9%	37.1%	25.7%	17.1%	5.7%	11.4%
Environmental organisation	3	0.0%	33.3%	33.3%	33.3%	0.0%	0.0%
Trade union	2	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%

Table 24: To what extent do you agree with the following statements concerning the calls for proposals under Horizon Europe? There is an adequate mix of calls for proposals addressing specific topics (top-down) and calls for proposals without a pre-defined topic (bottom-up).

TYPE OF RESPONDENT	N	STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE	I DO NOT KNOW / NO OPINION
Academic/research institution	841	6.0%	28.2%	23.7%	24.8%	8.4%	8.9%
Company/business organisation	277	9.7%	29.6%	19.1%	22.1%	5.2%	14.2%
EU citizen	202	3.1%	29.7%	24.5%	22.4%	5.7%	14.6%
Public authority	87	7.1%	28.6%	22.6%	16.7%	7.1%	17.9%
Other	93	8.5%	29.3%	19.5%	23.2%	7.3%	12.2%
Non-governmental organisation (NGO)	72	1.5%	23.1%	29.2%	21.5%	7.7%	16.9%
Business association	49	5.3%	28.9%	10.5%	39.5%	7.9%	7.9%
Non-EU citizen	36	14.3%	34.3%	17.1%	14.3%	2.9%	17.1%
Environmental organisation	4	0	0	0	33.3%	0	66.7%
Trade union	2	0	50.0%	0	50.0%	0	0

Types of support – breakdown by type of respondents

Table 25: What is your level of satisfaction with the way the European Commission implements the following types of support under Horizon Europe? Co-funding (e.g., European Partnerships). The number of respondents (N) and the calculation of % exclude the respondents who selected “I do not know / I have not used it”.

TYPE OF RESPONDENT	N	VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
Academic/research institution	486	9.5%	35.8%	30.7%	18.9%	5.1%
Business association	25	16.0%	36.0%	36.0%	12.0%	0
Company/business organisation	144	16.7%	39.6%	34.7%	6.3%	2.8%
EU citizen	102	6.9%	44.1%	25.5%	11.8%	11.8%
Non-EU citizen	19	15.8%	57.9%	5.3%	15.8%	5.3%
Non-governmental organisation (NGO)	38	5.3%	34.2%	31.6%	23.7%	5.3%
Other	58	20.7%	19.0%	36.2%	19.0%	5.2%
Public authority	57	10.5%	35.1%	22.8%	21.1%	10.5%
Trade union	2	50.0%	50.0%	0	0	0

Table 26: What is your level of satisfaction with the way the European Commission implements the following types of support under Horizon Europe? EU Missions. The number of respondents (N) and the calculation of % exclude the respondents who selected “I do not know / I have not used it”.

TYPE OF RESPONDENT	N	VERY SATISFIED	SATISFIED	NEUTRAL	DISSATISFIED	VERY DISSATISFIED
Academic/research institution	459	9.6%	28.3%	37.0%	18.5%	6.5%
Business association	17	0%	41.2%	35.3%	23.5%	0%
Company/business organisation	98	21.4%	30.6%	34.7%	0%	4.1%
EU citizen	94	9.6%	30.9%	39.4%	11.7%	8.5%
Non-EU citizen	15	26.7%	26.7%	26.7%	20.0%	0%
Non-governmental organisation (NGO)	34	5.9%	20.6%	35.3%	29.4%	8.8%
Other	52	11.5%	19.2%	40.4%	25.0%	3.8%
Public authority	57	7.0%	29.8%	38.6%	21.1%	3.5%
Trade union	2	0%	0%	100.0%	0%	0%
Environmental organisation	1	0	100%	0	0	0

The efforts to participate in Horizon Europe compared to Horizon 2020 – breakdown by country group

Table 27: The effort needed to participate in Horizon Europe compared to Horizon 2020 is: (EU14 N= 1 216; EU13 N= 177; EU Associated Countries N= 82; Third Countries N= 106)

	GREATER	SIMILAR	LOWER	I DON'T KNOW
EU14	15.4%	66.9%	6.7%	11.1%
EU13	14.1%	61.6%	10.7%	13.6%
EU Associated Countries	18.3%	59.8%	9.8%	12.2%
Third Countries	17.9%	62.3%	4.7%	15.1%

The efforts to participate in Horizon Europe compared to Horizon 2020 – breakdown by type of respondents

Table 28: The effort needed to participate in Horizon Europe compared to Horizon 2020 is:

TYPE OF RESPONDENT	N	GREATER	SIMILAR	LOWER	I DON'T KNOW
Academic/research institution	809	16.2%	68.7%	5.6%	9.5%
Company/business organisation	268	13.8%	61.2%	11.9%	13.1%
EU citizen	194	16.5%	61.3%	5.7%	16.5%
Public authority	85	14.1%	63.5%	5.9%	16.5%
Other	81	18.5%	66.7%	6.2%	8.6%
Non-governmental organisation (NGO)	66	9.1%	66.7%	7.6%	16.7%
Business association	38	13.2%	73.7%	7.9%	5.3%
Non-EU citizen	35	17.1%	45.7%	20.0%	17.1%
Environmental organisation	3	33.3%	33.3%	0.0%	33.3%
Trade union	2	50.0%	50.0%	0.0%	0.0%

The efforts to participate in Horizon Europe compared to other research and innovation programmes – breakdown by country group

Table 29: The effort needed to participate in Horizon Europe compared to that of other research and innovation programmes was: (EU14 N= 1 212; EU13 N= 173; EU Associated Countries N= 83; Third Countries N= 107)

	GREATER	SIMILAR	LOWER	I DON'T KNOW
EU14	36.6%	32.7%	8.2%	22.6%
EU13	34.7%	37.6%	6.9%	20.8%
EU Associated Countries	36.1%	38.6%	8.4%	16.9%
Third Countries	38.3%	37.4%	4.7%	19.6%

The efforts to participate in Horizon Europe compared to other research and innovation programmes – breakdown by type of respondents

Table 30: The effort needed to participate in Horizon Europe compared to that of other research and innovation programmes was:

TYPE OF RESPONDENT	N	GREATER	SIMILAR	LOWER	I DON'T KNOW
Academic/research institution	803	41.8%	35.5%	7.3%	15.3%
Company/business organisation	38	34.2%	31.6%	13.2%	21.1%
EU citizen	270	27.4%	36.7%	11.9%	24.1%
Public authority	3	33.3%	0.0%	0.0%	66.7%
Other	194	38.1%	28.4%	6.2%	27.3%
Non-governmental organisation (NGO)	35	28.6%	48.6%	2.9%	20.0%
Business association	65	30.8%	23.1%	10.8%	35.4%
Non-EU citizen	82	24.4%	32.9%	4.9%	37.8%
Environmental organisation	83	30.1%	27.7%	3.6%	38.6%
Trade union	2	50.0%	0.0%	0.0%	50.0%

Costs of proposal preparation – breakdown by country group

Table 31: Approximately, how much time did the proposal preparation for Horizon Europe take overall? Please indicate the total number of person-days. (EU14 N= 1 105; EU13 N= 166; EU Associated Countries N= 77; Third Countries N= 92)

RESPONSE OPTIONS	EU14	EU13	EU ASSOCIATED COUNTRIES	THIRD COUNTRIES
Less than 10 person-days	1.8%	3.6%	2.6%	5.4%
More than 10 but below 20 person-days	7.2%	7.8%	10.4%	9.8%
More than 20 but below 30 person-days	15.0%	10.8%	16.9%	17.4%
More than 30 but below 40 person-days	11.7%	12.7%	14.3%	8.7%
More than 40 but below 50 person-days	15.8%	15.7%	18.2%	19.6%
More than 50 but below 60 person-days	14.7%	13.9%	7.8%	8.7%
More than 60 but below 100 person-days	14.7%	14.5%	14.3%	5.4%
More than 100 person-days	19.1%	21.1%	15.6%	25.0%

Costs of proposal preparation – breakdown by type of respondents

Table 32: Approximately, how much time did the proposal preparation for Horizon Europe take overall? Please indicate the total number of person-days.

TYPE OF RESPONDENT	<10 M/DAYS	10 - 20 M/DAYS	20 - 30 M/DAYS	30 - 40 M/DAYS	40 - 50 M/DAYS	50 - 60 M/DAYS	60 - 100 M/DAYS	>100 M/DAYS
Academic/research institution (N=755)	1.5%	4.4%	9.9%	16.0%	12.8%	15.4%	24.2%	15.8%
Company/business organisation (N=256)	3.9%	12.5%	13.7%	17.6%	11.3%	10.5%	14.8%	15.6%
EU citizen (N=176)	2.3%	5.1%	10.2%	15.9%	22.2%	17.6%	13.1%	13.6%
Other (N=69)	0.0%	14.5%	18.8%	8.7%	18.8%	13.0%	10.1%	15.9%
Public authority (N=64)	6.3%	18.8%	12.5%	17.2%	10.9%	7.8%	17.2%	9.4%
Non-governmental organisation (NGO) (N=55)	0.0%	12.7%	20.0%	7.3%	14.5%	14.5%	20.0%	10.9%
Business association (N=32)	3.1%	6.3%	9.4%	28.1%	15.6%	9.4%	12.5%	15.6%
Non-EU citizen (N=29)	10.3%	13.8%	20.7%	31.0%	3.4%	3.4%	10.3%	6.9%
Environmental organisation (N=2)	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%
Trade union (N=2)	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Effectiveness of the European partnerships and EU Missions supported by Horizon Europe compared to regular collaborative research – breakdown by type of respondent

Table 33: In your opinion, to what extent are European Partnerships supported by Horizon Europe effective compared to regular collaborative research projects in achieving Horizon Europe's objectives? Breakdown by type of respondent.

TYPE OF RESPONDENT	N	TO GREAT EXTENT	SOMEWHAT	NEUTRAL	A LITTLE	NOT AT ALL	I DON'T KNOW
Academic/research institution	789	20.2%	22.2%	9.8%	7.2%	3.4%	37.3%
Company/business organisation	264	30.3%	19.3%	6.8%	2.7%	1.9%	39.0%
EU citizen	188	14.9%	23.9%	12.2%	2.7%	6.4%	39.9%
Public authority	83	21.7%	24.1%	10.8%	4.8%	4.8%	33.7%
Other	80	32.5%	22.5%	8.8%	6.3%	2.5%	27.5%
Non-governmental organisation (NGO)	62	19.4%	21.0%	9.7%	9.7%	0.0%	40.3%
Business association	38	60.5%	18.4%	0.0%	2.6%	0.0%	18.4%
Non-EU citizen	34	35.3%	11.8%	2.9%	5.9%	8.8%	35.3%
Environmental organisation	3	0.0%	33.3%	33.3%	0.0%	0.0%	33.3%
Trade union	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 34: In your opinion, to what extent are EU Missions supported by Horizon Europe effective compared to regular collaborative research projects in achieving Horizon Europe's objectives?

TYPE OF RESPONDENT	N	TO GREAT EXTENT	SOMEWHAT	NEUTRAL	A LITTLE	NOT AT ALL	I DON'T KNOW
Academic/research institution	784	14.2%	19.1%	10.3%	5.7%	8.0%	42.6%
EU citizen	261	8.4%	18.0%	9.2%	5.7%	2.3%	56.3%
Other	188	11.2%	18.6%	11.7%	5.9%	6.4%	46.3%
Environmental organisation	81	11.1%	30.9%	13.6%	8.6%	4.9%	30.9%
Non-EU citizen	80	15.0%	26.3%	10.0%	7.5%	10.0%	31.3%
Business association	64	10.9%	15.6%	7.8%	12.5%	9.4%	43.8%
Company/business organisation	37	0.0%	18.9%	18.9%	10.8%	5.4%	45.9%
Non-governmental organisation (NGO)	34	23.5%	14.7%	2.9%	11.8%	2.9%	44.1%
Public authority	3	0.0%	33.3%	33.3%	0.0%	0.0%	33.3%
Trade union	2	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%

Table 35: To what extent do you agree with the following statement: the rationalisation of European Partnerships has allowed additional public and private investments in research and innovation to be leveraged. Breakdown by cluster of interest of the respondent.²²⁶

	CLUSTER 1 (N=640)	CLUSTER 2 (N=469)	CLUSTER 3 (N=472)	CLUSTER 4 (N=820)	CLUSTER 5 (N=900)	CLUSTER 6 (N=677)
Strongly agree	6%	5%	7%	9%	9%	6%
Agree	24%	25%	23%	26%	24%	24%
Neither agree nor disagree	19%	19%	20%	20%	21%	19%
Disagree	9%	8%	10%	9%	9%	10%
Strongly disagree	2%	2%	2%	2%	2%	2%

²²⁶ The same respondent could select one or more clusters.

I do not know / No opinion 40% 41% 38% 34% 35% 39%

Table 36: To what extent do you agree with the following statement: the rationalisation of European Partnerships has led to delivering more solutions for the benefits of society, the environment and the economy. Breakdown by cluster of interest of the respondent.²²⁷

	CLUSTER 1 (N=640)	CLUSTER 2 (N=470)	CLUSTER 3 (N=472)	CLUSTER 4 (N=817)	CLUSTER 5 (N=897)	CLUSTER 6 (N=674)
Strongly agree	6%	6%	6%	8%	8%	6%
Agree	19%	21%	20%	22%	23%	23%
Neither agree nor disagree	23%	21%	23%	24%	23%	22%
Disagree	8%	6%	8%	7%	7%	8%
Strongly disagree	4%	4%	4%	4%	3%	3%
I do not know / No opinion	41%	42%	38%	36%	36%	38%

Table 37: In your opinion, to what extent are European Partnerships supported by Horizon Europe effective compared to regular collaborative research projects in achieving Horizon Europe's objectives? Breakdown by cluster of interest of the respondent.²²⁸

	CLUSTER 1 (N=635)	CLUSTER 2 (N=466)	CLUSTER 3 (N=471)	CLUSTER 4 (N=822)	CLUSTER 5 (N=899)	CLUSTER 6 (N=675)
To a great extent	18%	18%	21%	27%	26%	21%
Somewhat	25%	27%	26%	24%	25%	24%
Neutral	11%	9%	9%	10%	10%	12%
A little	7%	8%	8%	6%	7%	8%
Not at all	5%	5%	4%	4%	4%	5%
I do not know / No opinion	34%	33%	32%	30%	29%	31%

²²⁷ The same respondent could select one or more clusters.

²²⁸ The same respondent could select one or more clusters.

Table 38: In your opinion, to what extent are EU Missions supported by Horizon Europe effective compared to regular collaborative research projects in achieving Horizon Europe's objectives? Breakdown by cluster of interest of the respondent.²²⁹

	CLUSTER 1 (N=631)	CLUSTER 2 (N=462)	CLUSTER 3 (N=467)	CLUSTER 4 (N=813)	CLUSTER 5 (N=892)	CLUSTER 6 (N=671)
To a great extent	12%	12%	11%	11%	12%	14%
Somewhat	20%	23%	19%	21%	24%	20%
Neutral	13%	11%	12%	11%	12%	14%
A little	9%	9%	9%	8%	7%	8%
Not at all	9%	10%	12%	9%	8%	9%
I do not know / No opinion	37%	36%	38%	39%	37%	35%

²²⁹ The same respondent could select one or more clusters.

Synergies with other EU programmes

Table 39: How do the following EU programmes work in synergy (complement and reinforce) Horizon Europe? **ERASMUS +**. Breakdown by part of Horizon Europe in which the respondent is interested / active.²³⁰

	N	SEVERAL SYNERGIES EXPLOITED	SYNERGIES EXPLOITED FULLY
European Research Council	615	29%	11%
Marie Skłodowska-Curie Actions	707	31%	12%
European Research Infrastructures	469	29%	10%
CLUSTER 1	614	29%	11%
CLUSTER 2	452	31%	12%
CLUSTER 3	459	27%	8%
CLUSTER 4	795	27%	9%
CLUSTER 5	879	25%	9%
CLUSTER 6	657	28%	9%
European Innovation Council	510	25%	8%
European Innovation Ecosystems	343	30%	11%
European Institute of Innovation and Technology	357	33%	10%
Widening and ERA	480	32%	10%

²³⁰ The respondents could select one or more programme parts.

Table 40: How do the following EU programmes work in synergy (complement and reinforce) Horizon Europe? **DIGITAL EUROPE PROGRAMME**. Breakdown by part of Horizon Europe in which the respondent is interested / active.²³¹

	N	SEVERAL SYNERGIES EXPLOITED	SYNERGIES FULLY EXPLOITED
European Research Council	616	21%	6%
Marie Skłodowska-Curie Actions	708	20%	7%
European Research Infrastructures	469	27%	7%
CLUSTER 1	619	25%	7%
CLUSTER 2	454	26%	9%
CLUSTER 3	462	28%	9%
CLUSTER 4	806	26%	9%
CLUSTER 5	884	20%	8%
CLUSTER 6	663	23%	8%
European Innovation Council	515	26%	7%
European Innovation Ecosystems	345	28%	11%
European Institute of Innovation and Technology	360	29%	12%
Widening and ERA	481	25%	9%

²³¹ The respondents could select one or more programme parts.

Table 41: How do the following EU programmes work in synergy (complement and reinforce) Horizon Europe? **LIFE**. Breakdown by part of Horizon Europe in which the respondent is interested / active.²³²

	N	SEVERAL SYNERGIES EXPLOITED	SYNERGIES FULLY EXPLOITED
European Research Council	617	15%	3%
Marie Skłodowska-Curie Actions	708	15%	5%
European Research Infrastructures	471	17%	5%
CLUSTER 1	619	16%	4%
CLUSTER 2	454	19%	5%
CLUSTER 3	462	18%	4%
CLUSTER 4	802	18%	6%
CLUSTER 5	883	21%	6%
CLUSTER 6	664	24%	6%
European Innovation Council	514	20%	4%
European Innovation Ecosystems	344	23%	6%
European Institute of Innovation and Technology	359	21%	6%
Widening and ERA	477	18%	5%

²³² The respondents could select one or more programme parts.

Table 42: How do the following EU programmes work in synergy (complement and reinforce) Horizon Europe? **European Regional Development Fund**. Breakdown by part of Horizon Europe in which the respondent is interested / active.²³³

	N	SEVERAL SYNERGIES EXPLOITED	SYNERGIES FULLY EXPLOITED
European Research Council	614	18%	5%
Marie Skłodowska-Curie Actions	705	17%	5%
European Research Infrastructures	470	20%	6%
CLUSTER 1	616	18%	4%
CLUSTER 2	453	19%	5%
CLUSTER 3	460	18%	4%
CLUSTER 4	797	19%	5%
CLUSTER 5	880	18%	5%
CLUSTER 6	661	19%	4%
European Innovation Council	511	18%	4%
European Innovation Ecosystems	344	22%	6%
European Institute of Innovation and Technology	357	23%	5%
Widening and ERA	478	21%	5%

²³³ The respondents could select one or more programme parts.

Annex 6 Description of synergies, by programme

The following text provides a summary of synergies found by the evaluation between Horizon Europe and other EU programmes identified in annex IV of the legal base. It is based on data collected through 5 impact area evaluation support studies²³⁴ and a meta-analysis²³⁵.

Among programmes in shared management, **the ERDF** presents a clear case for synergies as one of its investment priorities focuses on innovation and support to SMEs, as well as digitisation and digital connectivity”, with the overall objective of fostering regional development and closing regional disparities.²³⁶ In the *ex post* evaluation of Horizon Europe, findings on synergies with the ERDF were mixed: this fund’s programmes build human and infrastructural capacities needed to compete in Horizon 2020 but “measures to create synergies allowing the ERDF to deploy results of Horizon 2020 projects were hardly implemented”.²³⁷ In the current MFF, synergies with the ERDF focused on:

- the Seal of Excellence (see separate section in the SWD),
- combined funding: Teaming, a type of Widening action, has been implemented with EUR 383 million of total EU contribution, and mobilised EUR 217 million from ERDF programmes for complementary funding,

Table 43: Combined funding through Teaming (ERDF)

Country	Overall budget (EUR)	ERDF (EUR)	ERDF %
PT	87,760,000	56,900,000	64.8%
PL	79,976,317	21,600,000	27.0%
CZ	50,035,742	32,390,068	64.7%
CY	50,000,000	0	0.0%
EL	35,303,140	22,500,000	63.7%
SK	31,935,000	18,103,500	56.7%
EE	30,000,000	0	0.0%
ES70 Canary Islands (Outermost region)	30,000,000	0	0.0%
LT	25,032,000	24,552,000	98.1%
LV	20,000,000	0	0.0%
SI	15,000,000	15,000,000	100.0%
BG	15,000,000	12,750,000	85.0%
HR	15,000,000	12,750,000	85.0%
TR	10,000,000	0	0.0%
TOTAL	495,042,199	216,545,568	43.7%

²³⁴ All published in 2024, on Excellent Science: <https://data.europa.eu/doi/10.2777/2295765>, Resilient Europe: <https://data.europa.eu/doi/10.2777/797281>, Digital & Industrial Transition: <https://data.europa.eu/doi/10.2777/845650>, Green Transition: <https://data.europa.eu/doi/10.2777/67934>, Innovative Europe: <https://data.europa.eu/doi/10.2777/499132>

²³⁵ Catalano G., Consiglio, G. and Delponte L. *Horizon Europe Internal and External Coherence (Synergies): Supporting the Interim Evaluation of Horizon Europe*. Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/5616419>

²³⁶ Funding priorities presented at https://ec.europa.eu/regional_policy/funding/erdf_en

²³⁷ SWD on the ex post evaluation of Horizon Europe, SWD(2024) 29 final, pp. 77-78.

- transfers from ERDF to Horizon Europe - this is a new modality for creating synergies with the ERDF. As of May 2024, two Member States – Lithuania and Malta – transferred ERDF funds to Horizon Europe activities, under pillars 1 and 3. Lithuania has requested a transfer of EUR 18.5 million from ERDF to ERC, MSCA PF and WIDERA (ERA) for 2024 and 2025. In particular, out of a total of EUR 18.5 million, EUR 12.5 million was directed to the EIC and EUR 6 million to the Excellent Science and WIDERA pillars. Similarly, Malta has requested a transfer of EUR 5 million to Horizon Europe for the period 2023-2027, mainly for mono-beneficiary projects under Excellent Science, Innovative Europe and WIDERA.
- cumulative funding (e.g. ERDF as national contribution to European Partnerships – see separate section on Partnerships as a synergy mechanism in the main SWD),
- cooperation on the Regional Innovation Valleys (RIVs): The RIVs are supported by the European Innovation Ecosystems (EIE) and the ERDF's Interregional Innovation Investments (I3) instrument. Early findings showed that this synergy – not foreseen by design – was labour-intensive to implement.²³⁸ More recently, 13 EIE regions declared that they will use the ERDF to co-fund 50% their activities.²³⁹

ERASMUS+ is the programme where stakeholders responding to the public consultation perceived the most synergies with Horizon Europe: 35% reported that several synergies were being exploited or that they were fully exploited (518 respondents). The Erasmus+ Mobility Projects, facilitate the incorporation of participants into MSCA research teams via traineeships and staff exchanges, and the participation of MSCA researchers in Erasmus+-funded blended intensive programmes. The Erasmus+ European Universities Initiative and Horizon Europe have also demonstrated synergies, particularly through the MSCA. European University Alliances have participated in MSCA COFUND actions, linking projects to these alliances and fostering partnerships between European Universities and WIDERA projects. Moreover, Horizon Europe calls on the European Excellence Initiative foresee competitive calls for cooperation on the R&I dimension related to the ERA Policy Agenda. These calls are open to all types of alliances, including the European Universities alliances. European University alliances are also eligible to compete for other opportunities under Horizon Europe to fund transformative aspects (under the WIDERA (ERA) component) and collaborative research and innovation activities.²⁴⁰

With **InvestEU**, the *potential* for synergies was confirmed but evidence of its realization in practice has been challenging to obtain. The rationale for this synergy focuses on the EIC which bridges the funding gap for high-risk innovations until they are suitable for InvestEU co-financing. Up to 10% of EIC Accelerator calls (from 2021) can be allocated for blending with InvestEU instruments to support EIC Accelerator-selected companies, follow-on investments, or Seal of Excellence companies.²⁴¹ The Commission has found anecdotal evidence of the same companies being supported by the EIC and InvestEU, by comparing names of companies (but

²³⁸ Naujokaitytė, R., Cakić, M., Didžiulytė, M., Zharkalliu-Roussou, K. et al., Evaluation study of the European framework programmes for research and innovation for an innovative Europe, Publications Office of the EU, 2024, p. 92, <https://data.europa.eu/doi/10.2777/499132>

²³⁹ EISMEA internal monitoring data, September 2024.

²⁴⁰ Evaluation study on Excellent Science, 2024, p. 49.

²⁴¹ Innovative Europe evaluation study, 2024, p. 90, <https://data.europa.eu/doi/10.2777/499132>

lacking individual identifiers and other details). Limited reporting on the beneficiaries of indirectly managed programmes prevents more in-depth analysis of this synergy.²⁴²

With **EU4Health**, development of synergies focused on **coordination of work programmes and cross-referencing** to raise the applicants' awareness of complimentary interventions is underway between several programmes. The EU4Health Work Programmes invite applicants to build upon the results of Horizon Europe programme, especially EU Mission Cancer.²⁴³ In turn, the WPs of Horizon Europe also make references to EU4Health initiatives, for example the networks of young cancer survivors established under EU4Health.²⁴⁴ An examination of e-grants data (covering 50% of the EU4Health budget) shows a significant extent of cross-participation of entities, benefitting from both programmes (see Figure 124 below).

Evidence of synergies is similar with the **Connecting Europe Facility**: the main activities comprised cross-referencing of calls and knowledge exchange activities.²⁴⁵ The CEF is also funding the EuroHPC JU. The Regulation establishing Horizon Europe foresaw that the synergy with CEF would consist in “large-scale roll-out and deployment of innovative new technologies and solutions in the fields of transport, energy and digital physical infrastructures”.

Horizon Europe's synergy with the **LIFE programme** focuses on the uptake of R&I results and their deployment at national, interregional and regional scale to help address environmental, climate or clean energy transition issues.²⁴⁶ For Standard Action Projects, which represent the main type of grants, the LIFE programme awards bonus points to project proposals that are substantially building or scaling up the results of other EU programmes. In 2021-2023 calls, the bonus was granted to 184 projects for substantially building on or up-scaling the results of other European programmes – indicating mainly Horizon Europe.²⁴⁷ Some activities supported by the LIFE programmes (focusing on demonstration of innovative solutions) are similar to activities implemented by the EU Missions in Horizon Europe.²⁴⁸

The Horizon Europe Regulation refers to potential synergies with the **European Defence Fund** (EDF), and the EDF Regulation states that ‘positive spill-over effects to the civilian sector can also be expected, where applicable’²⁴⁹ and that ‘the Commission will take into account other

²⁴² No individual identifiers of benefitting companies. No start and end dates of InvestEU support provided by, inter alia, the EIB, EIF (equity), CDP equity and the EIF (guarantees). See <https://www.eib.org/attachments/general/lists/investeu-final-recipients-beneficiaries-en.pdf>, https://www.eif.org/InvestEU/guarantee_products/ieu-debt-visibility-report-final-recipients.pdf, <https://www.eib.org/attachments/general/lists/investeu-final-recipients-beneficiaries-en.pdf> and https://www.cdp.it/sitointernet/en/accordo_investeufund_cdpequity.page#:~:text=Please%20find%20in%20the%20table%20below%20the%20list.

²⁴³ The study supporting the interim evaluation of EU4Health is forthcoming in 2025 and includes the list of relevant Work Programmes in an annex.

²⁴⁴ For example, references to the EU-CAYAS-NET network or the ERN-Padcan initiatives, both supported by the EU4Health programme are included in the topic “HORIZON-MISS-2024-CANCER-01-05: Improving the understanding and management of late-effects in adolescents and young adults (AYA) with cancer”, Horizon Europe work programme 2023-2025, 12. Missions and Cross-cutting Activities (European Commission Decision C(2024) 2371 of 17 April 2024), pp. 94-96

²⁴⁵ Green Transition evaluation support study, 2024, <https://data.europa.eu/doi/10.2777/67934>, p. 60.

²⁴⁶ Annex IV of the regulation establishing Horizon Europe, point 9.

²⁴⁷ CINEA internal monitoring of 2021-2023 calls as of October 2024. NB: the LIFE Clean Energy Transition sub-programme mainly uses Coordination and Support Actions, which do not use bonus points in project evaluation.

²⁴⁸ Study supporting the interim evaluation of LIFE, forthcoming in 2025.

²⁴⁹ Recital 35 of Regulation (EU) 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) 2018/1092.

activities financed under Horizon Europe [...] in order to avoid unnecessary duplication and ensure cross-fertilisation and synergies between civil and defence research’.²⁵⁰ The White Paper on options for enhancing support for research and development involving technologies with dual-use potential²⁵¹ reviews the existing R&D support framework which is characterised by a strict separation in EU funding for civil and defence R&D activities. This has implications for the exploitation and market uptake of results of technologies with dual-use potential. The White Paper found that the EU institutions continuously need to explore possible options to strengthen this cross-fertilisation in the context of R&D support involving technologies with a dual-use potential, while taking into account the fundamental differences between civil and military spheres. For this purpose, the Commission launched a public consultation on options for strategic support to technologies with a dual-use potential, whose results indicate an overall tendency mostly favourable to keeping civil and defence R&D separate, in particular among research institutions, NGOs and citizens.²⁵² Some public authorities, business associations and private companies showed more openness to removing the exclusive focus on civil applications subject to further discussion on the details of implementation.

When it comes to security resilience and EU preparedness, synergies are exploited between Horizon Europe (in particular Cluster 3) and **the Internal Security Fund (ISF), the Integrated Border Management Fund (IBMF), the European Maritime and Fisheries Fund (EMFF) and the civil protection mechanism**. These synergies aim to further the uptake of innovations and solutions developed by security research funded under Horizon Europe. A study on civil security research²⁵³ reports that, to bridge the ‘Valley of Death’, stakeholders highlighted the potential to use security-related funding schemes, such as the ISF and IBMF, for funding targeted follow-up projects promoting market uptake.

While these options exist, beneficiaries may not always be aware of them and how to leverage them in combination with known funding sources.²⁵⁴ Nevertheless, there are some examples of synergies such as the European Union’s Internal Security Fund Police project on drone detection, tracking and identification CORAGEOUS²⁵⁵ which was based on the results of three Horizon 2020 projects: SafeShore²⁵⁶, ALFA²⁵⁷ and ALADDIN.²⁵⁸

Security capabilities addressed by Cluster 3 are focussing on civil end-users, which have different needs from defence/military users, thus limiting potential synergies. While certain technologies have a dual use potential (e.g. cybersecurity or drones), especially at low-TRL level, the technological requirements will differ depending on the intended final use (civil or military), which means that higher TRL projects are by nature rarely dual use. While synergies between civil and defence research can be exploited, innovators also want to ensure that both civil and defence capabilities are supported.²⁵⁹ To facilitate this, the ISF and IBMF published

²⁵⁰ Recital 33 of Regulation (EU) 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) 2018/1092.

²⁵¹ COM (2024) 27 of 24.01.2024

²⁵² https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14060-RD-on-dual-use-technologies-options-for-support_en

²⁵³ “2024 Study on Strengthening EU-Funded Security Research and Innovation - 20 Years of EU-Funded Civil Security Research and Innovation”, p.105 (forthcoming).

²⁵⁴ Ibid, p. 110.

²⁵⁵ <https://courageous-isf.eu/>

²⁵⁶ <https://cordis.europa.eu/project/id/700643>

²⁵⁷ <https://cordis.europa.eu/project/id/700002>

²⁵⁸ <https://cordis.europa.eu/project/id/740859>

²⁵⁹ European Commission, DG HOME, Study on Strengthening EU-Funded Security Research and Innovation - 20 Years of EU-Funded Civil Security Research and Innovation, forthcoming in 2025, p. 41.

dedicated calls supporting the testing, validation or deployment of new methods and technologies resulting from Horizon Europe projects.²⁶⁰

With the **Digital Europe Programme**, as shown in Figure 124 further below, there is a noteworthy level of cross-participation: 1 512 common participants (representing 50% of DEP beneficiaries in the 70% of its budget that is visible in e-grants). The public consultation on Horizon Europe also shows that “synergies were (fully) exploited” with the DEP (62%; 838 respondents). Collaboration between the responsible Commission services (e.g., joint design of calls, evaluation of proposals and workshops) fosters synergies between Cluster 3 and DEP and more specifically enabling digital actions to capitalize on outputs from Cluster 3 and its predecessors.²⁶¹

Synergies with the **Recovery and Resilience Facility (RRF)** were foreseen in the Horizon Europe’s legal base through the take-up and deployment of innovative solutions, making Member States economies and society more resilient and better prepared for the future. As of December 2023, five Member States (BG, CZ, EL, ES, SK) have leveraged synergies between Horizon Europe and the RRF by supporting projects with the EIC Seal of Excellence²⁶². The Work programme of MSCA under Horizon Europe also encourages synergies with the Cohesion policy funds and the RRF, notably in COFUND and the Seal of Excellence.

In addition, a new instrument, Pathways to Synergies, has been established to stimulate synergies between Horizon Europe and the RRF: focusing on human resource development and internationalization (so-called upstream synergies) and the valorization and upscaling of research results into marketable solutions (downstream from Horizon Europe). A call for proposals was launched in March 2023, with projects starting in June 2024. This is a rather complex instrument requiring significant effort from the National Contact Points.²⁶³

With the **Common Agricultural Policy (CAP)**, synergies have been identified only with Cluster 6, as the CAP Network²⁶⁴ (established in 2023) raises awareness about Horizon Europe Cluster 6 projects and Mission Soil²⁶⁵. The Horizon Europe regulation foresaw a broader synergy with “the CAP making the best use of R&I results and promoting the use, implementation and deployment of innovative solutions”.

For the **Single Market Programme (SMP)**, the Regulation establishing Horizon Europe foresaw a synergy through the Enterprise Europe Network (EEN) and this was confirmed by the evaluation (an improvement to the Horizon 2020 period when no synergies were found²⁶⁶). The EEN provides information on various types of EU funding and alternative sources of finance tailored to the specific needs of SMEs. In addition, there is a collaboration between the EIT and SMP, where the EIT has received a budget of EUR 4 million from the SMP to establish the European Solar Academy.²⁶⁷ This initiative facilitates the upskilling and reskilling of the

²⁶⁰ Five dedicated calls in 2021-2024: ISF/2022/SA/3.4.1, BMVI/2021-2022/SA/1.2.1, BMVI/2024/SA/1.1.5, ISF/2024/SA/3.4.2, ISF/2024/SA/3.4.1.

²⁶¹ Resilient Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/797281>, p. 71.

²⁶² Innovative Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/499132>, p. 91.

²⁶³ Evaluation study on Excellent Science, 2024, p. 225, <https://data.europa.eu/doi/10.2777/2295765>.

²⁶⁴ The EU CAP Network is a forum through which the National CAP Networks, organisations, administrations, researchers, entrepreneurs and practitioners can share knowledge and information (e.g. via peer-to-peer learning and good practices) about agriculture and rural policy. https://eu-cap-network.ec.europa.eu/index_en

²⁶⁵ Green Transition evaluation study, 2024, p. 59-61.

²⁶⁶ Study on the external coherence and synergies of Horizon 2020, 2023, p. 81.

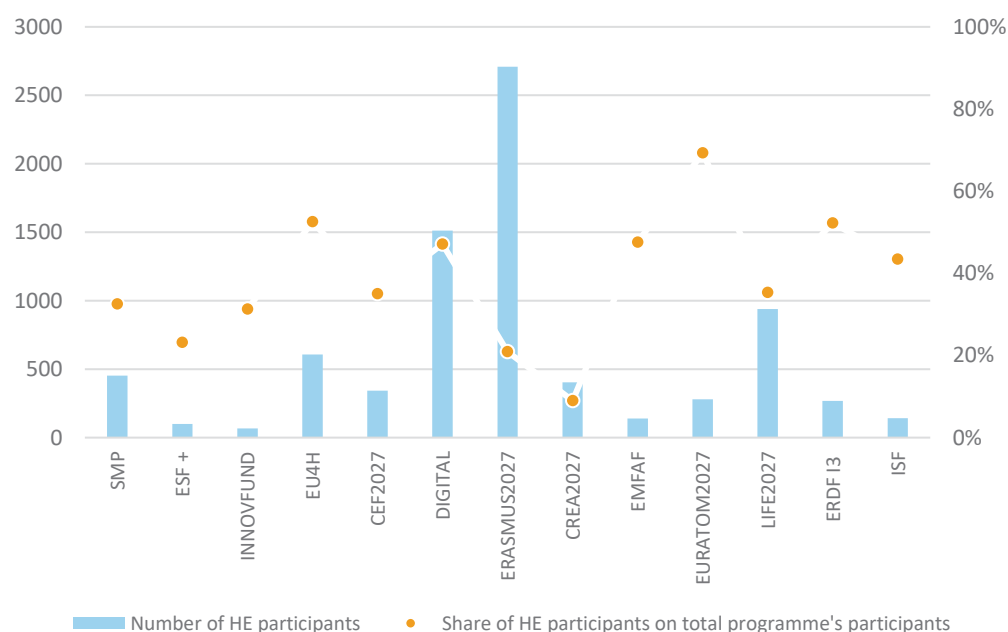
²⁶⁷ Call SMP-COSME-2024-EIT-EUSOLARACADEMY.

solar photovoltaic technologies workforce, with a specific focus on SMEs, through education and training providers in EU Member States.²⁶⁸

With the **Union Space Programme (USP)**, the synergy revolves around bolstering innovation among SMEs in the space sector. The EIC integrates regular space challenges into its work programmes and its beneficiaries have expedited access to key Horizon Europe Cluster 4 activities, including the CASSINI business accelerator.²⁶⁹ While it is not possible for both frameworks to procure together, cooperation is organised around activities of both initiatives such as hackathons or matchmaking.²⁷⁰ Within Cluster 4, synergies have developed with the European Space Agency (ESA) – the Technology Mapping Exercise plays a role in avoiding overlap and duplication between the EU and ESA activities.²⁷¹ The approach adopted for Cluster 4 includes the Cassini accelerator, an EU initiative aimed at supporting startups and SMEs in the space sector. It provides tailored business development services, mentoring, and access to funding opportunities to help these companies grow and scale their innovations.²⁷²

For grants directly managed by the Commission services, data is available on participants who engage in both Horizon Europe and other EU programmes²⁷³ (see figure below). This data indicates of the strongest *potential* synergies between Horizon Europe and Erasmus+, Digital Europe Programme and LIFE.

Figure 124: Cross-participants between Horizon Europe and other programmes managed in e-grants



Source: e-grants data extracted on 28 February 2024

Note: only 10-20% of ISF and ERASMUS+ projects is managed in e-grants. EU4Health data in e-grants is limited to around 50% of the budget, while for DEP this share is 70%.

²⁶⁸ Innovative Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/499132>, pages 88-89.

²⁶⁹ The accelerator is part of the broader CASSINI Space Entrepreneurship Initiative, which seeks to foster innovation and competitiveness in the European space industry by leveraging EU space assets and data.

²⁷⁰ Digital and Industrial Transition evaluation study, 2024, p. 114.

²⁷¹ Ibid, Annex V - Stakeholders' consultations results and synopsis report, p. 65.

²⁷² Innovative Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/499132>, p. 91.

²⁷³ Data are available only for 13 programmes, including Horizon Europe.

There are 67 entities benefitting both from the **Innovation Fund under the Emission Trading Scheme** and Horizon Europe (31% of total Innovation Fund's participants as of 28 February 2024). This is not necessarily indicative of the degree of synergies between the two programmes, but shows the interest of entities in applying to different EU funding programmes. They received a relatively high amount of resources, € 3 billion amounting to 46.6% of total Innovation Fund budget as of the reference date. Horizon Europe work programmes encourage applicants to include in their proposals a business case strategy and feasibility study with a view towards possible future applications for the Innovation Fund. In this context, five coordination and support actions (CSA) have been launched, with consortia consisting of participants from mature Horizon 2020 projects, to promote the dissemination of best practices and produce sound Innovation Fund applications. According to CINEA, out of the 34 Horizon 2020 projects considered potentially mature/relevant for an Innovation Fund application and involved as beneficiaries in the CSAs, five are in the process of preparing an application for the call closing in April 2025.

In order to further explore these potential synergies and cross-participation in EU programmes, text analysis of project abstracts offers additional insights.²⁷⁴ Projects identified as highly similar to Horizon Europe's were more frequently funded by Euratom and ERDF I3 – 85% of all these project pairs were rated as highly similar. This level of similarity was less frequently found with projects funded by Creative Europe, ESF+, ERASMUS+ and the SMP. Almost all (94%) of the identified project pairs were concurrent rather than sequential – not surprising considering the relatively early stage of programme implementation. With Creative Europe, ESF+, Euratom – the evaluation found relatively limited evidence of synergies.

The **Creative Europe** programme is complimentary to Cluster 2 (Destination culture and, to a lower extent, democracy). For instance, Creative Europe introduced a mobility scheme for artists and professionals, offering residencies and location-based cultural initiatives in line with the New European Bauhaus.²⁷⁵ However, the remainder of Creative Europe programme (66% of its budget), covers subsectors such as the audiovisual industry, video games and news media – in these sectors, evidence of synergies was not found.

For the **Neighbourhood, Development and International Cooperation Instrument (NDICI)**, the synergies relate to the close interaction of the [Global Health EDCTP3 Joint Undertaking](#) (EUR 1.86 billion of which up to EUR 910 million from Horizon Europe) and the Team Europe Initiative on local manufacturing of vaccine and other medical products in Africa ([MAV+](#), EUR 1 billion from NDICI).²⁷⁶ These initiatives are proposed in the [EU Global Health Strategy](#) that the Commission adopted in November 2022. This collaboration supports the process of bringing innovative products to citizens in Africa from end-to-end: research and development of innovative products, regulatory capacity for clinical trials and product approval, local production, and procurement and delivery to the population. Additionally, the DeSIRA initiative, which seeks to enhance an inclusive, sustainable and climate-relevant transformation of agrifood systems in low and medium income countries through R&I based

²⁷⁴ Between a Horizon Europe project and a project funded by one of the other EU programmes analysed (based on e-grants data availability). Catalano G., Consiglio, G. and Delponte L. *Horizon Europe Internal and External Coherence (Synergies): Supporting the Interim Evaluation of Horizon Europe*. Publications Office of the European Union, 2025, <https://data.europa.eu/doi/10.2777/5616419>

²⁷⁵ Resilient Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/797281>, page 68.

²⁷⁶ Resilient Europe evaluation study, 2024, <https://data.europa.eu/doi/10.2777/797281>, pages 66, 126

on multistakeholder approaches, is complementary to actions for food systems transformation supported by Horizon Europe.

The evaluation did not find evidence of synergies with the **Instrument for Pre-Accession Assistance (IPA III) and Just Transition Mechanism**.

Several **networks** facilitate the development of synergies: the R&I and Cohesion Management Authorities (RIMA) network of MS representatives²⁷⁷, the Seal of Excellence Community of Practice (management bodies implementing the Seal, with DG REGIO) and an interservice group of Commission DGs focusing on synergies (coordinated by DG RTD).

²⁷⁷ More information is available at <https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=103692>

Annex 7 European Partnerships: Leverage analysis

Glossary

Term	Meaning or definition
Co-investment (or ‘direct call leverage’)	In R&I projects, the difference between the project’s total eligible costs and the EU contribution to the project. This is equal to Key Impact Pathway 9, short-term indicator (‘co-investment’).
Total direct leverage	For European partnerships only: co-investment plus additional activities linked to the goal of the partnership, where applicable. It therefore represents the difference between the total costs of the partnership’s R&I activities (operational project costs, and additional activities) and the EU’s contribution to such activities. Contributions to the partnership’s administrative costs are not included. For non-partnerships, or partnerships without additional activities, this indicator is identical to co-investment.
Leverage factor	The ratio (expressed as a number or a value in euro) between the total costs borne by partners other than the EU for R&I activities and the EU contribution to R&I activities. It is calculated for all measures of leverage set out above. For co-investment, the formula is: CA_{Part} / CA_{EU} And for total direct leverage (including additional activities): $(CA_{Part} + AA_{Part}) / (CA_{EU} + AA_{EU})$. No financial data is available for this evaluation on additional activities funded by the EU (AA_{EU}) which therefore equals to zero: this means other funding sources with their origin in the EU budget, such as cohesion policy funds, are not accounted for in additional activities.
Funding rate	The EU contribution to a project as a percentage of a project’s total eligible costs. Also ‘reimbursement rate’.
Co-funding rate	The partners’ contribution to a project (see ‘co-investment’) as a percentage of the total eligible costs of that project. It is the opposite of the funding rate. It differs from the leverage factor, as the denominator is the total project costs, not the EU contribution to the project.

Is Horizon Europe leveraging additional resources for R&I?

The simplest measure of financial leverage of Horizon Europe is the **co-investment** (also ‘co-funding’) by participants in R&I projects. This is the proportion of project costs that, while eligible for reimbursement, are not covered by the grant provided by the EU – the measure that the EU Financial Regulation calls ‘**leverage effect**’²⁷⁸. This measure is monitored as the short-term indicator of Key Impact Pathway 9 (‘Co-investment – Amount of public & private investment mobilised with the initial investment from the Programme’).

As of 6 January 2025, project participants invested a total of EUR 10.17 billion of their own resources in Horizon Europe projects. This is equivalent to a leverage factor of 0.236: in other words, each euro the EU is investing in Horizon Europe R&I projects directly attracts additional R&I investment of about EUR 0.24. To date, the programme-wide leverage factor for Horizon Europe is identical to the ratio observed in Horizon 2020 projects (0.236).

Direct leverage factor of Horizon Europe programme parts based on project co-investment vary widely. In several programme parts, particularly in Pillar 1 and in WIDERA actions, but also in Cluster 2 under Pillar II, EU contribution covers essentially all project costs (leverage factor of zero). Some programme parts instead have much higher leverage factors than the average for Horizon Europe. These are broadly the ones where there is higher industry participation (e.g. Cluster 4 and Cluster 5 under Pillar II, as well as the EIC), or where all or a prominent part of the budget is allocated to European Partnerships (EIT, EIE).

Table 44: Co-investment rates of Horizon Europe programme parts

Programme part	Leverage factor
European Research Council (ERC)	0.001
Marie Skłodowska-Curie Actions (MSCA)	0.04
Research infrastructures	0.09
Total Pillar 1	0.02
CL1 - Health	0.29
CL2 - Culture, creativity and inclusive society	0.01
CL3 - Civil Security for Society	0.10
CL4 - Digital, Industry and Space	0.36
CL5 - Climate, Energy and Mobility	0.35
CL6 - Food, Bioeconomy Natural Resources, Agriculture and Environment	0.22
Total Pillar 2	0.30
The European Innovation Council (EIC) (grants only)	0.38
European innovation ecosystems	1.57
The European Institute of Innovation and Technology (EIT)	0.39
Total Pillar 3	0.45
Widening participation and spreading excellence	0.003
Reforming and enhancing the European R&I System	0.02
Total Pillar 4 (WIDERA)	0.004
Total Horizon Europe	0.24

Source: CORDA, data as of 6 January 2025.

For partnerships with cascading grant (EIT KICs, co-funded partnerships), the leverage factor is calculated based on the grant initiating the partnership (*ex ante* value) rather than on actual activities.

²⁷⁸ EU Financial Regulation, art. 2(40) (“Definitions”).

Wherever available – particularly for EIT KICs – the rest of this annex uses data based on implemented activities of the partnership.

The co-investment rate is primarily a function of the funding rate for each action, which is defined by the Commission in advance²⁷⁹. However, even within the same type of action or the same consortium, participants may be reimbursed differently: in general, costs from private for-profit entities are covered to a lesser extent than those of universities or non-profit organisations²⁸⁰.

Table 45: Co-investment rates of main Horizon Europe types of action

Type of action	Leverage factor (co-investment to Horizon Europe projects)
Coordination and support actions (CSA)	0.03
European Innovation Council (grants only)	0.39
European Research Council	0.001
Innovation actions (IA)	0.22
Joint undertakings (JU)	0.8
Marie Skłodowska-Curie Actions (MSCA)	0.04
Research and innovation actions (RIA)	0.02

Source: CORDA, data as of 6 January 2025.

For each euro of EU contribution, Horizon Europe leveraged EUR 0.49 in co-investment from private for-profit entities (EUR 5.8 billion), roughly the same ratio observed in Horizon 2020. SMEs contributed EUR 2.6 billion in own funding to support project costs, equivalent to a co-investment ratio of 0.36 (an increase from 0.33 at the end of Horizon 2020). For comparison, co-investment from higher education institutions is EUR 0.03 per euro invested by the EU.

²⁷⁹ In fundamental research actions (such as research and innovation actions or European Research Council grants), the EU contribution covers in principle all project costs (100% reimbursement rate). For applied research actions, such as innovation actions and most European Innovation Council grants, the reimbursement rates are lower.

²⁸⁰ There is also the case of non-associated third-country participants from high-income countries, which in most cases are not eligible for funding. However, since they do not submit eligible costs declarations, this analysis cannot take into account the co-investment leveraged from these participants.

Among the main types of actions, **joint undertakings (JUs)** have, the highest leverage factor (0.8 as of January 2025), mainly due to their design. In the average JU project, 55% of total eligible costs are covered by the EU, and the remaining 45% by project participants. Co-investment ratios in JUs are higher for participants classified as for-profit companies: they brought in additional resources for projects in the amount of EUR 2.83 billion, a direct leverage factor of EUR 1.23 per each euro in EU contribution the projects received. Out of this, at least EUR 2.17 billion comes specifically from privately-owned enterprises, and at least EUR 313 million from state-controlled enterprises²⁸¹. These have a comparatively high leverage factor of 2.25 (against 1.15 for companies without public ownership).

However, the leverage potential of JUs – and, more generally, of European partnerships – goes beyond co-investment in projects. The rest of this section will present the available evidence on resources leveraged by European partnerships and highlight existing information and analysis gaps.

A distinction is made between institutionalised partnerships – which include JUs, public-public Article 185 (TFEU) initiatives, and EIT Knowledge and Innovation Communities (KICs) – and non-institutionalised co-programmed and co-funded partnerships. In general, data availability on leverage is better for institutionalised partnerships. This is the effect of stricter reporting requirements on these types of partnerships.

Leverage of European Partnerships: an overview

Achieving a ‘strong leverage effect on a sufficient scale’ is a legal requirement for European Partnerships²⁸². The legal base of the programme also requires partnerships to provide ‘information on quantitative and qualitative leverage effects, including on committed and actually provided financial and in-kind contributions’.²⁸³

Examining co-investment alone shows that partnerships do indeed leverage higher resources than

Box 9: What are additional activities of partnerships?

For European Partnerships, **additional activities** are activities arranged by the partnership and implemented under the responsibility of the partners. They do not receive EU funding, but that are linked and support the general objective of the partnership. They may include support to additional R&I projects, promotion of technologies and standards, training, communication activities, and others.

In Joint Undertakings, these activities are called “in-kind contributions to additional activities” (**IKAA**): private members often have to provide IKAA to match their legal contribution commitments. Most European Partnerships arrange, however, some forms of additional activities that are not funded by the Horizon Europe budget.

²⁸¹ Source on state ownership of Horizon Europe companies: LexisNexis World Compliance (through Orbis database). For around EUR 200 million in co-investment, no status in terms of state ownership can be determined.

²⁸² Regulation establishing Horizon Europe, art. 10(2), point (a).

²⁸³ For all European Partnerships, Annex III of the Regulation establishing Horizon Europe, point 3 “Monitoring”, letter (b), and for JUs specifically, SBA Art. 171(2), letter f). The provision is identical in both sources.

the rest of the Framework Programme²⁸⁴. When all partnerships are removed, the leverage ratio for the ‘mainstream’ FP is around 0.09, equivalent to EUR 2.96 billion in co-investment. For partnerships the co-investment ratio is 0.62 (EUR 7.22 billion).

All types of partnerships also arrange **additional activities** (see Box 9). The monetised value of the members’ additional activities counts towards the partnership’s leverage objectives. For some partnerships, in particular the co-programmed ones, these activities represent the main source of leverage. However, availability and quality of data on additional activities varies – as does the level of oversight from the Commission on their content.

²⁸⁴ This indicator is called “direct call leverage” in the Biennial Monitoring Report on partnerships, with identical definition and calculation method.

Key figures as of 31 December 2023

The following sections offer a state of play in terms of current²⁸⁵ monetised contributions to R&I activities, by type of partnership and for each partnership. Administrative expenditure supporting the running costs of the partnership is not taken into account²⁸⁶.

The reference date for all sources (EU funding²⁸⁷, project co-investment, and additional activities) is 31 December 2023, the last date for which data on both co-investment in projects and additional activities are available for most partnerships. Only grants signed before this date are included in the analysis.

As intended by the design of different partnerships, the highest co-investment ratios are achieved by grants initiating co-funded European Partnerships (approximately 2:1) followed by other institutionalised partnerships (including joint undertakings and Article 185 public-to-public initiatives) and EIT KICs, while co-programmed partnerships have a lower leverage ratio of 0.15.

Once additional activities are included, leverage ratios for institutionalised partnerships increase significantly, with partners already contributing more to R&I activities than the EU contribution received to date (leverage factor higher than 1). The increase is particularly remarkable for co-programmed partnerships: the total amount of additional activities declared up to the end of 2023 is over three times as high as the EU contribution allocated to call activities, and considerably higher than the amounts declared by JUs.

Some institutionalised partnerships have a long track-record by now, having existed in a similar organisational setup for at least two programming periods (i.e. since before the start of Horizon 2020). In Horizon Europe, these ‘older’ partnerships have a substantially higher leverage factor than those that have been created more recently. In particular, the three older EIT KICs have a leverage factor including additional activities close to 3:1, but a gap between ‘older’ and ‘newer’ partnerships is also visible for the JUs.

²⁸⁵ This report uses contributions to projects that are stated in grant agreements, as they appear in the Commission’s monitoring systems (in most cases, the CORDA database). This is done even if the activities to be reimbursed by the Commission, and associated payments by beneficiaries, have not yet taken place. The main exception is the EIT, for which data from the EIT’s own monitoring system is used: this allows to keep track of the actual stage of implementation of the activities of the EIT KICs. For additional activities, only “incurred” costs are considered (regardless of whether they have been already certified by external auditors, which is a requirement for Joint Undertakings).

²⁸⁶ For partnerships that manage their own call activities (such as Joint Undertakings), contributions to administrative costs form a steady revenue stream for and reflect a legal commitment by members. However, these costs in itself provide no indications on the capacity of the JU to stimulate additional funding for R&I activities.

²⁸⁷ It is to be noted that some partnerships bring together several sources of EU funding. For instance, the EuroHPC Joint Undertaking is largely supported by resources from the Digital Europe programme; the Clean Steel co-programmed partnership also arranges calls supported by the Research Fund from Coal and Steel. This section takes into account all EU contribution (and co-investment) in activities from directly managed programmes.

Table 46: Contribution and leverage of European partnerships in Horizon Europe, by type, as of 31 December 2023

Type of partnership	Horizon Europe contribution (a) (EUR)	Other EU contribution (b) (EUR)	Participants co-investment in EU R&I projects (c) (EUR)	Additional activities of JU members, costs incurred (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
JUs/Art.185	2 986 133 799	187 108 681	2 869 777 262	1 753 655 258	0.90	1.46
<i>Older partnerships</i>	2 108 863 823	0	2 445 045 874	1 259 902 814	1.16	1.76
<i>Newer partnerships</i>	877 269 976	187 108 681	424 731 388	493 752 444	0.40	0.86
Co-programmed	3 126 851 284	24 710 696	472 755 667	10 113 314 067	0.15	3.36
Co-funded	750 858 915	unknown	1 482 259 292	not disclosed	1.97	not disclosed
EIT KICs	1 014 095 224	unknown	512 462 324	510 380 000	0.51	1.01
<i>Older KICs</i>	256 905 842		269 356 882	458 630 000	1.05	2.83
<i>Newer KICs</i>	757 189 382		243 105 443	51 750 000	0.32	0.39
Total	7 877 939 223	211 819 377	5 337 254 545	12 377 349 325	0.66	2.19 *

Sources: CORDA (Horizon Europe contribution and costs, for all excluding KICs and Art. 185), eGrants dashboard (other EU contribution and costs, for all excluding KICs and Art. 185), Annual Activity Reports of JUs (for additional activities), EIT monitoring system (for EIT KICs), additional activity reporting of co-programmed partnerships, partnership secretariat (for Art. 185 and procurement actions under EuroHPC JU). For lump sum projects, co-investment amounts are estimated based on ex-ante assumptions.

'Older' partnerships are initiatives that were launched before the start of Horizon 2020 under the same or similar legal form. 'Newer' partnerships were launched during Horizon 2020 or at the start of Horizon Europe. All partnerships that changed their form in Horizon Europe (e.g. GH-EDCTP3 and SNS JU) are considered 'newer'.

* When additional activities are not disclosed, the values for call-level co-investment (column c) are used for this calculation. For some JUs and co-programmed partnerships, data on additional activities is not yet available (see dedicated sections).

Institutionalised partnerships

Joint undertakings

Main statistics about co-investment in JU Horizon Europe projects, as well as additional activities from JU members as of 31 December 2023, are available in Table 47.

Co-investment is defined here as the difference between total eligible project costs and EU contribution to project activities. This definition is consistent with the approach used in the entire Horizon Europe programme to estimate the same indicator.

The only partial exception is Europe's Rail JU, as it is the only JU where all projects have been supported through lump sum grants. The value presented in the table is an *ex-ante* estimate; JU administrative figures reported by the European Court of Auditors suggest that this may become an underestimate once all contributions from partners are validated ²⁸⁸.

There is large variation across the JUs in leverage factors, whether additional activities are included or not. A finding common to almost all JUs is that equal contributions by EU and partners (leverage factor of 1) is not normally achieved through call activities alone. There are

²⁸⁸ Since lump sum projects do not report costs, it is not possible to know directly from administrative sources the total co-investment. This analysis presents both estimated figures (based on expected funding rates) and the values of members' contributions presented in the 2023 Report on Joint Undertakings by the European Court of Auditors.

nonetheless two exceptions: the Clean Hydrogen JU and the Key Digital Technologies JU ('KDT', the current Chips JU), where co-investment from participants in projects significantly exceeds EU contribution.

In the case of KDT, the high co-investment ratio is linked to the 'tripartite' structure of the partnership, involving Member States alongside private partners. Part of the co-investment in projects consists of Member State contributions at the level of project beneficiaries. The Commission monitoring systems do not directly capture the extent of such contributions.²⁸⁹ This would be particularly significant for assessing the amount of private co-investment in the EuroHPC JU, the other tripartite JU, where the majority of participants are universities and research organisations rather than private for-profit companies.

The nominal value of costs for additional activities varies between zero (KDT, EuroHPC²⁹⁰) and over EUR 900 million. For some partnerships, reporting on additional activities started only in 2023 (Circular Bio-based Enterprises JU, Innovative Health Initiative JU) or is incomplete at the reference date²⁹¹, and therefore the figure may not be representative of future trends²⁹². Nevertheless, it is already apparent that some JUs rely more on additional activities to leverage resources from partners. Two partnerships, Global Health-EDCTP3 (successor of an Article 185 partnership in Horizon 2020) and Smart Networks and Services (whose predecessor was a 'contractual public-private partnership', the equivalent of Horizon Europe's co-programmed partnerships) have fairly low leverage at call level, with most project participation covered by the EU. Even at this early stage of implementation, the vast majority of the funding they leveraged comes from expenditures on additional activities.

Table 47: Contribution and leverage of Joint Undertakings in Horizon Europe

JU name	Horizon Europe contribution (a) (EUR)	Other EU contribution (b) (EUR)	Participants' co-investment in EU R&I projects (c) (EUR)	Additional activities of JU members, costs incurred (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
CBE	116 257 141	0	29 591 423	61 539 083	0.25	0.78
CAJU	805 807 009	0	267 948 600	65 617 750 ²⁹³	0.33	0.41*
CLEANH2	498 985 785	0	873 864 986	930 463 076	1.75	3.62
EuroHPC	45 905 466	187 108 681	223 022 492	0	0.96	0.96
EURAIL	243 907 308	0	123 455 961 (146 100 000 ***)	69 944 330	0.51 (0.60 ***)	0.79 (0.89 ***)
GH-EDCTP3	103 090 624	0	18 520 603	152 821 896	0.18	1.66

²⁸⁹ The Commission monitoring systems also cannot capture whether the resources brought in by Member States actually originate from the EU budget through shared management funds, such as cohesion funds and the ERRF.

²⁹⁰ For EuroHPC: "As the EuroHPC Joint Undertaking's Council Regulation (EU) 2021/1173 does not provide for a legal base to collect IKAA from its private members, the Private members of the Joint Undertaking do not provide contributions in the form of IKAA" (EuroHPC annual accounts 2023, p. 50). For KDT: the Private members of the Chips Joint Undertaking do not provide contributions in the form of IKAA" (Annual accounts 2023, p. 23), even if there is the legal option to do so. Plausibly the members do not account for IKAA as the partnership achieves already high leverage through call-based activities.

²⁹¹ Clean Aviation JU, for which 2023 additional activities are missing.

²⁹² Partnership-specific annexes within this evaluation may include estimates of total additional activities planned by partners, as well as estimates of the expected leverage ratio over the entire partnership duration. This section only focuses on incurred costs reported at the end of 2023.

²⁹³ Figures are for 2021 and 2022: incurred costs of in-kind additional activities for 2023 are not available in the 2023 Annual Report. The direct leverage factor is therefore underestimated compared to other JUs.

JU name	Horizon Europe contribution (a) (EUR)	Other EU contribution (b) (EUR)	Participants' co-investment in EU R&I projects (c) (EUR)	Additional activities of JU members, costs incurred (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
IHI	183 837 301	0	168 183 428	3 419 717	0.91	0.93
KDT (now Chips JU)	349 454 010	0**	878 293 945	0	2.51	2.51
SESAR	203 081 665	0	168 449 916	193 300 000	0.83	1.78
SNS	368 109 437	0	30 140 908	209 447 135	0.08	0.65

Source: CORDA (Horizon Europe contribution and costs), eGrants dashboard (other EU contribution and costs), Annual Activity Reports of JUs (for additional activities). For lump sum projects in EURAIL, the co-investment value is estimated based on *ex ante* coefficients.

* For CAJU, additional activities for 2023 are not included, as they are not reported in the 2023 AAR.

** No funding from Digital Europe was awarded at the reference date.

*** Value for 'Members' contributions' as of 31 December 2023, reported by Europe's Rail JU to the European Court of Auditors, and published in the annual report on EU Joint Undertakings for the financial year 2023. Both validated contributions (EUR 75.8 million) and contributions undergoing validation (EUR 70.3 million) are accounted for. The figure does not include contribution by non-JU members.

Most JUs operating under Horizon Europe have a predecessor in Horizon 2020, with some projects funded under the previous programme still being implemented by the successor partnership.

Table 48 presents data on main leverage indicators for these partnerships in the Horizon 2020.

For co-investment based on eligible project costs, the data is collected and calculated in the same process used for Horizon Europe – except for contributions from other EU spending programmes, which are not available to this evaluation.

For leverage measures including non-project activities, the methodology has been slightly adapted to reflect the different taxonomy used in Horizon 2020 on reporting of non-eligible costs borne by partners. Under the predecessor FP, some co-investment from JU members that today would be reported as 'additional activities' was reported and validated under the same umbrella as contribution to project activities. This means that, for some JUs, it is not possible to determine exactly the direct leverage factor including additional activities in the same way between the two programmes.

Despite some differences in methodology, the closest replacement is the data on JU members' contribution released in the 2023 annual report on JUs by the European Court of Auditors, which includes the full extent of contributions from JU members (both to projects and as additional activities) ²⁹⁴.

²⁹⁴ European Court of Auditors, Annual Report on EU Joint Undertakings for the financial year 2023 (https://www.eca.europa.eu/ECAPublications/SAR-JUS-2023/SAR-JUS-2023_EN.pdf). The main difference in methodology is that the reports from the Court of Auditors do not distinguish between contributions to project activities and contributions for administrative costs, and do not include contributions from participants that are not member of the JU.

Several JUs in Horizon 2020 did not match EU contributions with co-investment in project activities only. Four JUs (fewer than in Horizon Europe) also reported additional activities, which constitute the majority of the funding they leverage from partners.

CORDA data and ECA data, even if taken at the same reference date, sometimes differ in ways that cannot be explained by differences in methodology. Compared with data published by ECA, CORDA shows:

- a higher amount for partners' contribution in ECSEL (predecessor of the current Chips JU), which cannot be explained by the role of Member States contribution (both sources include them as part of co-investment).
- lower EU contribution for EuroHPC, which significantly affects its leverage factor. While this is partly explained by EUR 100 million from the CEF programme not appearing in the CORDA-based analysis, there are more than EUR 100 million in EU contribution still not accounted for.

Table 48: Contribution and leverage of JUs in Horizon 2020

		Project co-investment (source: CORDA)		Leverage including additional activities (source: European Court of Auditors, JU AARs)		
JU name	Horizon Europe contribution (a) (EUR)	Participants co-investment in EU R&I projects (c) (EUR)	Direct 'call' leverage factor (c) / (a)	JU members contributions to project activities (ECA 2023) (x)	Additional activities of JU members, costs incurred (y) (EUR)	Direct leverage factor including additional activities (x + y) / (a)
BBI-CBE	820 647 794	391 606 355	0.48	172 700 000	2 150 572 377	2.83
CS2-CAJU	1 646 763 050	324 042 268	0.20	1 104 100 000	1 407 000 000	1.52
ECSEL-Chips	1 153 801 145	3 480 250 749	3.02	2 676 100 000	0	2.32
EuroHPC*	142 404 897	138 767 919	0.97	199 900 000	0	1.40
FCH-CLEANH2	638 885 191	548 788 058	0.86	134 700 000	1 039 000 000	1.84
IMI2-IHI	1 463 289 940	1 547 184 225	1.06	1 298 300 000	0	0.89
S2R-EURAIL	372 397 665	63 891 076	0.17	373 100 000	266 794 243	1.72
SESAR	545 246 497	534 783 461	0.98	644 000 000	0	1.18

Source: CORDA (Horizon 2020 contribution and costs), Annual Activity Reports of JUs (for additional activities), European Court of Auditors 2023 report on JUs, table 2.1.

Note: figures on the right-hand side of the table cover only JU members. Figures on the left-hand side may include co-investment from any participant in JU projects.

* For EuroHPC, no data on in eGrants funding from CEF (EUR 100 million according to ECA).annual progress report 2023 of EDCTP2.

For the Horizon 2020 implementation period, this evaluation also covers the EDCTP2 Article 185 initiative, whose successor is a JU. The concepts of co-investment and additional activities also apply to this partnership, although no data sources are available beyond the partnership's own progress reports. Figures for the Horizon 2020 period are presented in the table below.

Partnership name	Horizon Europe contribution (a) (EUR)	Participants co-investment in EU R&I projects (c) (EUR)	Additional activities of JU members, costs incurred (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
EDCTP2 (Art. 185)	604 334 900	168 830 000	666 779 018	0.28	1.38

Source: annual progress report 2023 of EDCTP2.

In-cash vs. in-kind contributions

In Horizon Europe, JUs are required to report periodically on committed and actually provided financial and in-kind contributions. Due to the complex legal obligations associated with the amount of contributions required from JU members, the definition of 'financial' and 'in-kind' take a specific meaning in this context.

'Financial contribution' (sometimes called 'cash' contribution²⁹⁵) encompasses:

- expenditure to cover the administrative costs of the partnership, from any partner (the EU, Member States or international organisation, and other partners);
- contributions to operational (project) activities from Member States and international organisations, where applicable;
- contributions from JU members other than the EU to project beneficiaries eligible to receive funding, if these are provided for.

This multiple usage can create confusion, as the phrase 'cash contributions' may describe both revenue contributing to the JUs' running costs and project-specific investments²⁹⁶.

For this analysis, it is important to make a distinction between these types of financial contributions. Financial contributions for project activities are an integral part of co-investment as defined here, while contributions to administrative costs are not included in the calculations.

In-kind contributions come specifically from members of the JU, and are of two types:

- **In-kind contributions to operational activities (IKOP).** These are defined in the legal basis ('Single Basic Act') for JUs as 'the eligible costs incurred by [members of the partnership²⁹⁷] in implementing indirect actions less the contribution of that joint undertaking and of the participating states of that joint undertaking to those costs'.²⁹⁸

²⁹⁵ Some sources – especially, annual reports on EU Joint Undertakings by the European Court of Auditors – call these financial contributions "cash contributions". Under this definition, the highest cash contribution will always be in partnerships where project participants receive substantial financial support from EU Member States.

²⁹⁶ See for instance ECA Report on Joint Undertakings (2022), p. 26. Link: https://www.eca.europa.eu/ECAPublications/SAR-JUS-2022/RAS-Jus-FY2022_EN.pdf

²⁹⁷ "private members, constituent entities or the affiliated entities of either, by international organisations and by contributing partners"

²⁹⁸ In principle, the sum of IKOP and financial contributions to operational activities (including from Member States) is identical to the co-investment as measured elsewhere in this section. IKOP however also undergo a certification process whose outcome cannot be pre-empted. For most leverage measures, the report intentionally refers only to "co-investment" as captured in CORDA, rather than to IKOP.

- **In-kind contributions to additional activities (IKAA)**, which are the costs incurred by members of the partnership to implement additional activities as defined in Box 9, excluding any contribution from the EU and from participating states.

At the current stage of reporting, it is unclear for most JUs whether any financial contributions *to operational activities* beyond IKOP are provided for, or even monitored. From the latest Activity Reports, a distinction is apparent for only two partnerships.

- Innovative Health Initiative, which distinguishes between IKOP and financial contributions (defined as ‘contribution from IHI private members and contributing partners to IHI project beneficiaries eligible to receive funding’) for all grant agreements signed before 31 December 2023. Financial contributions account for approximately 12.4% of all project co-investment.²⁹⁹
- Global Health – EDCTP3, for which the legal basis does not provide for any IKOP obligations (Single Basic Act of JUs, Article 103(2)). Some project costs that are not covered by EU contributions are classified as ‘financial contribution’³⁰⁰.

Even though private members of JUs may always make cash contributions to project activities³⁰¹, the Horizon Europe regulation states that financial contributions from partners and Member States ‘should be aimed primarily at covering administrative costs as well as coordination and support of other non-competitive activities’³⁰². While this suggests that JU members other than the EU are not expected to provide *financial* contributions to R&I activities, Member States in tripartite JUs do in fact provide substantial contributions to R&I projects, even when selected competitively.

To sum up, for most JUs under Horizon Europe, the entire co-investment from private partners to date in signed grant agreements consists of in-kind contributions. This is also true for additional activities, which are by definition ‘in kind’ for JUs.

It is to be noted that, in the EU Financial Regulation, ‘in-kind contribution’ means ‘non-financial resources made available free of charge by third parties to a beneficiary’³⁰³. However, in the legal basis for JUs, IKOP are defined more broadly, as *any* eligible project cost not covered by the EU or by other partners. From this definition, it is unclear whether in-kind contributions in the form of IKOP show any meaningful difference with co-investment from beneficiaries in non-partnership R&I projects – which are normally not referred to as ‘in-kind’ contributions.

Article 185 initiatives

Only one ‘Article 185’ initiative is covered by this interim evaluation, the European Partnership on Metrology (EPM) with its Horizon 2020 predecessor, the European Metrology Programme for Innovation and Research (EMPIR)³⁰⁴.

Data availability on the activities of this partnership is limited: its grants are not managed with Commission corporate tools, implementation data for Horizon Europe is not yet integrated in

²⁹⁹ IHI JU Consolidated Annual Activity report, pp. 102-103

³⁰⁰ GH-EDCTP3 annual report 2023, section 2.4, p. 53.

³⁰¹ JU SBA art. 11

³⁰² Annex III HE Regulation, point 1 “Selection”, last paragraph.

³⁰³ EU financial regulation, article 2(38) (“Definitions”).

³⁰⁴ The other Article 185 partnership funded under Horizon Europe, [PRIMA \(Partnership for Research and Innovation in the Mediterranean Area\)](#), has separate evaluation provisions and is not covered in this Staff Working Document.

CORDA, and no annual activity report is made public. The information found here has been communicated directly by the partnership secretariat. Unlike other partnerships, total costs can only be estimated based on the EU contribution provided rather than calculated precisely.

Figures suggest that, if the same estimation methodology is applied, the European Partnership on Metrology in Horizon Europe has higher leverage than its predecessor in Horizon 2020, EMPIR. This is due in particular, but not exclusively, to the inclusion of additional activities from Member States in EPM – whereas these were not reported in EMPIR.

Table 49: Contribution and leverage of Art. 185 initiatives

Partnership name	Horizon Europe contribution (a) (€)	Other EU contribution (b) (€)	Participants' contribution to EU R&I projects (c) (€)	Additional activities of partners, costs incurred (d) (€)	Direct 'call' leverage factor (c) / (a + b) (€)	Direct leverage factor including additional activities (c + d) / (a + b) (€)
European Partnership on Metrology (Horizon Europe)	67 698 053	0	88 305 000 (estimate)	67 102 272	1.30	2.30
EMPIR (H2020)	299 629 630		261 847 645 (estimate)	NA	0.87	NA

Source: Figures provided by EURAMET as of 31/12/2023.

Note: Co-funding estimated.

EIT Knowledge and Innovation Communities

Implementation data on EIT Knowledge and Innovation Communities (EIT KICs) is not fully available in Commission monitoring systems. These capture the grants initiating the KIC and any Horizon Europe grant which the KICs – which are bodies with an independent legal personality – may have received in other FP calls. Due to long-standing data integration difficulties, they do not yet fully capture the activities arranged by the KICs. Nor do they capture revenues of the KIC and non-EU funded KIC activities, which are the equivalent of additional activities for other European partnerships.

A monitoring system for KIC activities arranged by EIT distinguishes between the following:

- EIT contribution to the KIC
- partners' co-funding (co-investment)
- The KICs' revenues,³⁰⁵ which may include participation fees or a share of the profits from the products launched by partners
- Additional activities, called 'non-EU funded activities' (NEFA). These may include other sources of EU funding, such as grants received in other parts of Horizon Europe. The amount of EU resources supporting additional activities is not known to this evaluation.

This data makes it possible to get an approximation of the amounts leveraged by KICs beyond the EU grants supporting it. Nevertheless, an exact estimate of the funding leveraged in

³⁰⁵ This metric and corresponding leverage factors is shown for EIT KICs only, and not used for comparisons with other types of partnerships.

Horizon Europe is still not possible, because data is disaggregated only by year, and not by source of funding.

For the Horizon Europe implementation period, there is a clear distinction between EIT Climate-KIC, EIT Digital and EIT InnoEnergy – the KICs that were launched in 2009, during the FP7 programming period – and the others. These ‘first-wave’ KICs all have leverage factors close to or above 1, indicating that resources from partners exceed the EU contribution. For the KICs launched under Horizon 2020, leverage factors are well below 1, indicating that most activities of these KICs are directly funded by the Horizon Europe budget. This is in line with the KIC funding model as defined in the EIT Strategic Innovation agenda³⁰⁶, based on a gradual decreasing of the EIT funding rate during the KIC’s life cycle and gradual increase of the level of private and public investment from partners (excluding revenues).

The three first-wave KICs have reached the 15-year term by which they are expected to become financially sustainable without the financial contribution of the EIT. Figures show that these KICs have increased their capacity to leverage resources through co-investment and additional activities beyond the EIT grant, which is part of the definition of financial sustainability used for KICs³⁰⁷. There has been a change compared to Horizon 2020: during the previous programming period, the leverage factor of these ‘older’ KICs was generally similar to that seen for the newer ones. This is also in line with the KIC funding model, where the highest amount of external funding for KICs is intended to materialise over the last 4 years (exit from EIT grant phase) of the KIC’s 15-year life cycle.

EIT KICs’ leverage effect in Horizon 2020 included the concept of ‘KIC Complementary Activities (KCA)’, i.e. non-EIT-funded additional activities of EIT KICs triggered by the EIT intervention. The concept was however abandoned in Horizon Europe, based on the recommendation in the ECA special report, No. 4 / 2016³⁰⁸; accordingly, it is not included in the leverage factors in Table 51. Owing to the change in methodology, the amount of additional activities declared as NEFA is significantly lower than the amounts accounted under KCAs in the previous programme. In line with the KIC model, the amounts of NEFAs are expected to increase towards the end of each KIC’s life cycle.

The EIT also reports the investment collected by companies supported by EIT KICs³⁰⁹, and includes as part of leverage in its own reporting. This source of *indirect* leverage is not included in our calculations for consistency with other partnerships. Figures are however presented later in this annex (“Are Horizon Europe participants collecting additional investments?” subsection) and in partnership specific annexes, as they are particularly important to capture the leverage potential of the KICs and their progress towards financial sustainability. For the most mature EIT KICs, the ratio between these additional investments and EU contribution ranges between 3:1 (EIT Climate-KIC) to 32:1 (EIT InnoEnergy).

³⁰⁶ Decision (EU) 2021/820 of the European Parliament and of the Council of 20 May 2021 on the Strategic Innovation Agenda of the European Institute of Innovation and Technology (EIT) 2021-2027; chapter 3.6.2. “KIC funding model”.

³⁰⁷ Decision 13/2021 of the Governing Board of the European Institute of Innovation and Technology: https://eit.europa.eu/sites/default/files/2021-13_20210317-gb66-13_new_eit_fs_principles.pdf

³⁰⁸ European Court of Auditors, Special report no 04/2016: The European Institute of Innovation and Technology must modify its delivery mechanisms and elements of its design to achieve the expected impact. Luxembourg: Publications Office of the European Union, 2016.

Link: https://www.eca.europa.eu/Lists/ECADocuments/SR16_04/SR_EIT_EN.pdf

³⁰⁹ This indicator captures a similar measure as one of the indicators under Key Impact Pathway #9 medium-term (“Scaling-up - Amount of public & private investment mobilised to exploit or scale-up results from the Programme”)

Table 51: Contribution and leverage of EIT KICs, Horizon Europe period

Partnership name	Horizon Europe contribution (a) (EUR)	Participants' contribution to EU R&I projects (c) (EUR)	Additional activities of partners, costs incurred (NEFA) (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)	KIC revenues (e) (EUR)	Direct leverage factor including additional activities and revenues (c + d + e) / (a + b) (EUR)
EIT-Climate	65 980 000	47 820 000	15 450 000	0.72	0.96	30 780 518	1.43
EIT-Digital	79 574 358	49 144 817	335 650 000	0.62	4.84	24 996 942	5.15
EIT InnoEnergy	111 351 484	172 392 066	107 530 000	1.55	2.51	108 881 000	3.49
EIT Food	174 870 085	39 016 977	2 010 000	0.22	0.23	18 614 854	0.34
EIT Health	168 614 546	49 987 028	14 020 000	0.30	0.38	27 122 643	0.54
EIT Manufacturing	116 940 356	42 029 568	14 200 000	0.36	0.48	18 421 215	0.64
EIT RawMaterials	169 078 233	91 995 523	1 510 000	0.54	0.55	29 906 809	0.73
EIT Urban Mobility	127 686 161	20 076 344	20 010 000	0.16	0.31	12 693 752	0.41

Source: Figures provided by EIT as of 31/12/2023. 'Other EU contribution' omitted as not known. KIC revenues not included in the calculation for consistency with other partnerships.

Table 52: Contribution and leverage of EIT Knowledge and Innovation Communities, Horizon 2020 period

Partnership name	Horizon Europe contribution (a) (EUR)	Participants' contribution to EU R&I projects (c) (EUR)	Additional activities of partners (KCA) (d) (EUR)	KIC revenues (e) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including revenues (c + e) / (a + b) (EUR)
EIT-Climate	554 145 243	98 674 162	1 657 120 000	17 197 636	0.18	0.21
EIT-Digital	464 239 920	130 542 884	1 380 120 000	18 227 714	0.28	0.32
EIT-InnoEnergy	526 143 929	86 098 276	1 511 040 000	62 851 641	0.16	0.28
EIT-Food	129 670 630	31 832 416	284 410 000	14 271 010	0.25	0.36
EIT-Health	283 219 403	69 004 172	797 440 000	36 623 641	0.24	0.37
EIT-Manufacturing	32 658 504	5 719 037	68 870 000	4 639 228	0.18	0.32
EIT-RawMaterials	273 328 932	64 673 354	783 760 000	41 656 653	0.24	0.39
EIT-UrbanMobility	31 322 415	5 761 949	48 120 000	2 783 022	0.18	0.27

Source: Figures provided by EIT as of 31 December 2023. 'Other EU contribution' (column (b) in other tables) omitted as not known. KIC revenues not included in the calculation of leverage factors for consistency with other partnerships.

Non-institutionalised partnerships

Co-programmed partnerships

Research activities under co-programmed partnerships are defined within a Strategic Research and Innovation Agenda (SRIA), co-designed with partners, and implemented through standard

Pillar II calls. Each partnership operates according to the requirements set by a specific memorandum of understanding (MoU). Funding rates are not significantly different from those in the rest of Pillar II and, accordingly, co-investment ratios are lower than for other types of European partnerships (Table 53). The only exception is the Clean Steel partnership, which has a high call leverage factor of EUR 0.68 per euro invested by the EU.

The added value of these partnerships in terms of leverage is supposed to come primarily from *in-kind* additional activities. Similarly to the JUs³¹⁰, these are defined as additional activities that are within the scope of the SRIA and the objectives of the partnerships but are not covered by EU funding. Co-programmed partnerships are required to monitor and regularly report on agreed and provided contributions alongside with additional activities from private members³¹¹³¹². Contrary to JUs, however, these activities are not subject to any formal certification process.

To date, information on additional activities under the scope of the partnership is reported primarily by its members to the Commission through confidential IT channels, on a periodic basis (every year or every two years, according to the MoU). While the exact scope of the activities remains confidential, all MoUs of co-programmed partnerships provide that the outcome of periodic reporting from partners should feed into the Horizon Europe evaluation process³¹³.

Compared to the EU contribution they receive, the value of additional activities reported by partners is very high: even with some data gaps (see Table 53), the total investments declared amount to over EUR 10 billion for all partnerships combined. However, due to the way this data is reported and constraints relating to confidentiality and competitiveness, very little is known about the actual extent of these activities – for instance, on whether the same activities are declared by multiple partners, or whether EU funding from other sources is used.

Table 53: Contribution and leverage of Co-programmed partnerships

Partnership name	Horizon Europe contribution (a) (EUR)	Other EU contribution (b) (EUR)	Participants' contribution to EU R&I projects (c) (EUR)	Additional activities of partners, incurred costs (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
2ZERO	305 398 972	0	60 476 390	673 506 087	0.20	2.40
AI, Data and Robotics	606 528 909	0	54 004 190	144 581 063 **	0.09	0.33 **
Built4People	175 969 111	0	34 480 935	not disclosed	0.20	not disclosed
CCAM	208 302 018	0	36 592 313	519 897 048	0.18	2.67
Clean Steel	64 294 037	24 710 696 *	60 861 599	162 995 000	0.68	2.52
EOSC	162 604 303	0	2 234 950	614 007 650	0.01	3.79
Batt4EU	308 590 260	0	14 192 116	1 141 660 899	0.05	3.75

³¹⁰ One of the differences between additional activities in co-programmed partnerships and in Joint Undertakings is the absence of any certification mechanisms on these additional activities.

³¹¹ Co-programmed Partnership MoU, Section 6, "Monitoring"

³¹² In-kind additional activities are addressed in the Annual Activities Plan (AAP) of each Partnership and (as for JUs) should be planned and reported via a dedicated IT tool, in such a way as to ensure future integration in the EC corporate systems. Additional activities require close monitoring, since if contributions from non-EU partners fall significantly below the agreed estimations in the AAP, EC contributions must be adjusted. Co-programmed Partnership MoU, Section 5.5. "Fulfilment of Commitments"

³¹³ Section 6 of MoUs of all co-programmed partnerships.

Partnership name	Horizon Europe contribution (a) (EUR)	Other EU contribution (b) (EUR)	Participants' contribution to EU R&I projects (c) (EUR)	Additional activities of partners, incurred costs (d) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)	Direct leverage factor including additional activities (c + d) / (a + b) (EUR)
Made in Europe	462 613 569	0	58 235 406	2 734 830 000 **	0.13	6.04 **
Photonics	259 183 714	0	21 878 617	1 257 792 356	0.08	4.94
Processes4Planet	506 463 819	0	102 653 959	1 218 131 688	0.20	2.61
ZEWT	239 757 594	0	58 200 225	1 645 912 276	0.24	7.11

Source: CORDA and eGrants dashboard, grant agreements signed at 31 December 2023, and additional activity reports of co-programmed partnerships (2021-2022, 2023). Only incurred expenditures are taken into account.

* Funding from the Research Fund for Coal and Steel (RFCS)

** Additional activity reports available for 2021 and 2022 only.

Co-funded partnerships

Co-funded partnerships are implemented through a grant agreement, established following a call for proposals³¹⁴. Typically, the co-funding rate is either 30% or 50% of the total project cost, leading to a substantial level of co-investment from partners. These are in most cases public organisations, namely funding bodies at national or regional level.

All data presented in the analysis is related to the grant agreement and therefore *ex-ante*. There is no guarantee that the partnerships' partners will actualise their political commitments and estimated contributions. This uncertainty makes it difficult to accurately assess whether the estimated leverage set out above will materialise as planned.

All grants initiating co-funded partnerships have leverage factors above 1: partners are expected to bring in at least as many resources as the EU. Agroecology, and Assessment of risks from chemicals (PARC), exhibit the lowest leverage factor of 1.00, indicating that for every euro contributed by Horizon Europe, consortia members also contribute EUR 1 to the partnerships' total costs. Several other partnerships have a leverage ratio of 2.33, which is equivalent to a 30%-70% split in resources between the EU and partners. Sustainable Blue Economy and Driving Urban Transitions reported much higher leverage factors, at 3.86 and 3.79 respectively.

It is to be noted that co-funded partnerships may receive the EU contribution throughout multiple work programmes, via 'top-up calls' that result in amendments to grant agreements. These amendments increase the EU contribution, typically within the constraints of the resources available in the work programme they are funded under. Leverage factors may therefore vary in the future as the resources committed with the first grant are 'topped-up' in following years. This is especially likely for partnerships with leverage factors above 2.33. Due to their implementation through different phases, partners may have included activities and anticipated costs on their initial proposals that will only be 'matched' by an increased EU contribution in future work programmes.

However, the high leverage factor for co-funded partnerships does not show the source of the funds committed by national authorities. In the context of the 2024 Biennial Monitoring Report on partnerships, at least four Member States reported having financially supported their participation in co-funded partnerships through the use of ESIF and ERDF funds³¹⁵, as well as the Recovery and Resilience Fund³¹⁶. While these examples are ideal cases of synergies between different types of EU funds, they do not technically represent additional spending in R&I compared to the EU budget. Despite these reporting exercises, no granular monitoring on the amounts committed by Member States from other EU funds is available for this evaluation.

Another major limitation to the analysis of leverage for co-funded partnerships is that the amounts shown in Table 54 only account for the grants signed between the consortia and the EU. Most co-funded partnerships³¹⁷ arrange their own funding schemes for third-party beneficiaries, a form of 'cascade granting'³¹⁸. They may also arrange non-EU funded activities, such as funding schemes aimed at beneficiaries beyond EU Member States and Horizon Europe associated countries.

³¹⁴ Horizon Europe Work Programme 2023-2025, General Annexes

³¹⁵ BMR 2024, p. 77.

³¹⁶ BMR 2024, p. 196. The case of Italy is specifically mentioned.

³¹⁷ The exception is PARC, where partners are the only beneficiaries of EU funding.

³¹⁸ Cascading schemes might include various financial mechanisms, such as grants, prizes, procurement, and Horizon Europe blended finance.

Each partnership implements its own work programme, disbursing funds to end-point beneficiaries. Rules of participation may vary, and there may be additional co-funding from beneficiaries (or non-EU funded participation, such as from third country entities that are supported by other parties), as well as other additional non-EU-funded activities.

This layered financing structure could allow for a more comprehensive assessment of leverage, since it would make it possible to estimate additional contributions and activities, beyond the EU contribution to the specific partnership grant agreement. However, the impact of cascade granting, specifically the additional contributions of beneficiaries and end-point beneficiaries, cannot be quantified as reporting data on the cascading component are not currently available in Commission monitoring systems in a manner that allows for appropriate aggregation. Moreover, beside contributions to R&I projects (in-kind and other), there are also membership contributions in some cases. Details on such contributions are not reported.

In essence, as of today, it is not possible through Commission monitoring systems to capture and consolidate all the data necessary to quantify additional contributions to co-funded partnerships from members and end-point beneficiaries.

Table 54: Contribution and leverage of co-funded partnerships

Partnership name	Horizon Europe contribution (a) (EUR)	Partners contribution to EU R&I projects (c) (EUR)	Direct 'call' leverage factor (c) / (a + b) (EUR)
Agroecology	60 000 000	60 000 000	1.00
Assessment of risks from chemicals (PARC)	200 000 000	200 000 000	1.00
Biodiversa+	40 000 000	96 144 162	2.40
Clean Energy Transition	70 000 000	208 350 377	2.98
Driving Urban Transitions	37 000 000	140 266 254	3.79
ERA4Health	33 045 067	77 105 156	2.33
Innovative SMEs	69 644 027	162 502 734	2.33
Personalised Medicine	100 575 465	234 676 086	2.33
Sustainable Blue Economy	23 000 000	88 827 683	3.86
Transforming health and care systems	91 574 573	213 674 014	2.33
Water4All	26 019 783	60 712 827	2.33

Source: CORDA, 31 December 2023.

Note: All figures are *ex-ante*. Implementation figures on cascade grants and additional activities not yet available.

Top-up EU grants supplementing the resources of the partnership are not included, as none was signed at 31/12/2023.

Are Horizon Europe participants collecting additional investments?

The concept of leverage may also be used to encompass funding received by beneficiaries after project participation (a form of 'indirect' leverage). For example, the Horizon 2020 ex post evaluation reports that SMEs participating in the LEIT parts of the programme (largely equivalent to Cluster 4 in Horizon Europe) collected at least EUR 9.4 billion in investment after project signature.³¹⁹

Information on additional investment collected by participants is available only in a fragmented way, also in Horizon Europe. Suitable data is currently not available to this evaluation for most

³¹⁹ Horizon 2020 ex post evaluation Staff Working Document, p. 83.

programme parts: the first programme-wide data – as captured under the Key Impact Pathway 9 medium-term indicator³²⁰ – will become available from 2025 onwards.

The only programme part for which structured figures about additional investments are already available is the EIT. The EIT collects data on investment collected by *start-ups* participating in KICs on an annual basis: these constitute a prominent component of the EIT’s own leverage framework.

The data shared by EIT indicates that the value of these investments is considerably larger than the amount of the EIT grant in most KICs. While the values cannot be aggregated across KICs to give a single leverage factor for all EIT KICs – as the same company may be involved in multiple KICs – there are visible differences between them, with some KIC participants attracting much more investments than others. In the InnoEnergy KIC, the amount of investment collected by supported startups is over 30 times higher than the EIT grant, which leads to a very high implied leverage factor. Most of the amount invested is reported for 2023. This KIC has the peculiarity of acting itself as a venture capital fund, managing a portfolio of over 200 investments in the energy and transportation sectors³²¹.

Table 55: Additional investments collected by start-ups participating in EIT KICs, 2021-2023

Partnership name	EIT contribution (EUR) (a)	Additional investments to start-ups (EUR) (b)	Ratio between additional investments and EIT grant (b / a)
EIT-Climate	65 980 000	179 420 000	2.7
EIT-Digital	79 574 358	340 620 000	4.3
EIT-InnoEnergy	111 351 484	3 593 970 000	32.3
EIT-Food	174 870 085	840 060 000	4.8
EIT-Health	168 614 546	1 175 440 000	7.0
EIT-Manufacturing	116 940 356	113 930 000	1.0
EIT-RawMaterials	169 078 233	395 120 000	2.3
EIT-Urban Mobility	127 686 161	92 230 000	0.7

Source: Figures provided by EIT as of 31 December 2023. Figures for additional investments are rounded to the closest 10 000. EIT contribution refers specifically to the grant the KICs received from the EIT between 2021 and 2023 – other sources of funding from the EU are not included as not structurally collected in EIT reporting.

³²⁰ ‘Scaling-up - Amount of public & private investment mobilised to exploit or scale-up results from the Programme (including foreign direct investments)’

³²¹ See European Partnership Annex on EIT InnoEnergy, p. 8.

Annex 8 Additional data on state-of-play, including for the European Partnerships and EU Missions

Five EU Missions aim to provide concrete solutions to some among the greatest challenges and to directly support EU priorities.

Horizon Europe work programmes allocate up to EUR 2.55 billion exclusively for Mission-specific calls for the first four years of the programme (2021-2024). By the end of December 2024, **236** grants had been signed for a total of **EUR 1.84 billion**³²².

The **average grant size** for Missions is **EUR 7.8 million**, higher than for Horizon Europe (EUR 288 million) but closer to the average of Pillar II (EUR 6.4 million).

Of the **3 302 beneficiaries**, 87% are from Member States, 34% of which from Widening countries. **902** participants in Missions projects are SMEs, collectively receiving **EUR 303 million**.

Missions have been designed to facilitate participation from a diverse array of beneficiaries. Research organisations lead in the funding received (27%, EUR 499.4M), followed by higher education (25%, EUR 459.3M) and private for-profit entities (23%, EUR 428.1M). Private for-profit entities have the most distinct participants (917) and highest participation rate (30%), followed by “Other” entities, which are often civil society organisations (584 beneficiaries, 19%).

Figure 125: Horizon Europe funding allocated to EU Missions

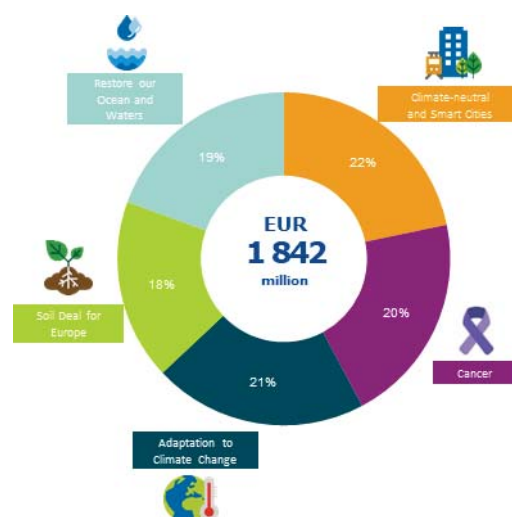
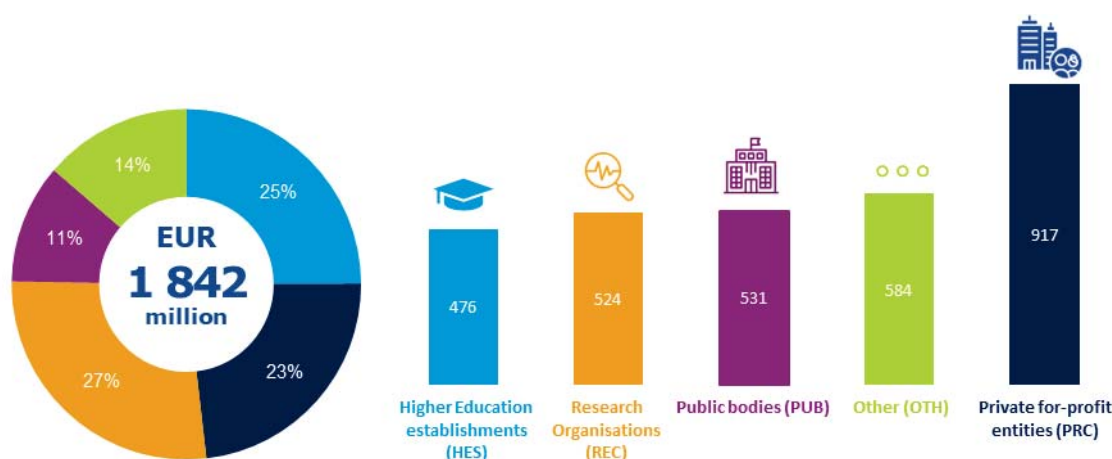


Figure 126: Horizon Europe Mission beneficiaries by type of organisation



As of January 2025, 50 European partnerships were identified (three are still under preparation), and another ten are announced in the Strategic Plan for 2025-2027. The JUs have awarded **530 grants** as of 6 January 2025, which include **4 281 participants** (engaged in 9 186

³²² There are two types of mission calls in Horizon Europe: calls that are 100% dedicated to one specific mission and horizontal calls that benefit to all 5 missions or joint calls that benefit to two or three missions. Funding for these calls is split between missions according to a weighting defined by the EC, while Participants and Participations are counted for each mission separately.

participations). The total EU funding allocated to this has been **EUR 4.8 billion** (towards total project costs of EUR 7 billion).

Table 56: Key figures for Joint Undertakings

JU name	Grants	Participants	Participation	EU funding (EUR)	Total Cost (EUR)
Circular Bio-based Europe JU	52	588	788	330,864,460	430,584,418
Clean Aviation JU	28	282	627	805,855,802	1,066,919,085
Clean Hydrogen JU	102	840	1,294	642,578,756	1,533,550,982
EuroHPC JU	17	119	209	82,291,527	171,866,473
Europe's Rail JU	23	363	747	278,279,609	366,579,075
Global Health EDCTP3 JU	74	305	563	233,973,983	253,828,364
Innovative Health Initiative JU	30	633	967	352,319,886	677,241,398
Key Digital Technologies JU (now Chips JU)	58	1,120	1,979	1,345,275,223	3,221,782,121
Single European Sky ATM Research 3 JU	68	292	809	228,694,245	399,221,417
Smart Networks and Services JU	78	494	1,203	495,989,812	537,171,119
Total	530	4,281	9,186	4,796,123,303	8,658,744,451

Source: CORDA, data as of 6 January 2025. Only Horizon Europe funding included.

More information on the funding provided by EU programmes other than Horizon Europe to the JUs is available in the section on external coherence and synergies below.

The EU contribution to SMEs in institutionalised partnerships is:

- For the JUs: 14.5%, while the share of unique participants that are SMEs is 32.5%.
- For the EIT KICs: 21.9% of total EIT funding.³²³ 726 SMEs participated in the activities of EIT KICs out of 1971 active partners, constituting 36.8% of SME participation.³²⁴

The **11 co-programmed partnerships**³²⁵ have had 589 grants as of 6 January 2025, awarding EUR 4.0 billion of EU funding to 4 753 participants (with 9 650 participations), towards a total project cost of EUR 4.6 billion.

The **14 co-funded partnerships** have had 14 grants (one per partnership), awarding EUR 1.17 billion of EU funding to 673 participants (with 1 228 participations), towards a total grants budget of EUR 3.7 billion.

³²³ The EIT KICs have been awarded EUR 1 740 million of EIT funding in 2021-2024. The EIT contribution to SMEs in EIT KICs over the same period was EUR 381 million.

³²⁴ Participations of active partners under the EIT KICs Grant Agreements 2023-2025 as of January 2025.

³²⁵ See lists of partnerships in the SWD glossary.

Country Tables

Applications

Table 57: Horizon Europe applications by country

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	% of total	Horizon Europe applications in eligible proposals per year	Horizon Europe applications in high quality proposals	% of high quality applications	Retained Applications	Success rate of application in Horizon Europe	'000 of scientists and engineers per country *	Share of scientists and engineers in EU-27	Applications per '000 of scientists and engineers in the population
Austria	AT	Non widening	13,139	2.8%	3,285	9,034	68.8%	2,733	20.8%	459.4	2.5%	29
Belgium	BE	Non widening	21,707	4.7%	5,427	15,514	71.5%	5,241	24.1%	548.8	2.9%	40
Bulgaria	BG	Widening	3,148	0.7%	787	1,854	58.9%	577	18.3%	232.3	1.2%	14
Croatia	HR	Widening	2,882	0.6%	721	1,767	61.3%	487	16.9%	120	0.6%	24
Cyprus	CY	Widening	5,261	1.1%	1,315	3,334	63.4%	841	16.0%	49.5	0.3%	106
Czechia	CZ	Widening	6,264	1.3%	1,566	3,986	63.6%	1,230	19.6%	424.7	2.3%	15
Denmark	DK	Non widening	10,373	2.2%	2,593	7,385	71.2%	2,272	21.9%	345.8	1.8%	30
Estonia	EE	Widening	3,300	0.7%	825	2,133	64.6%	626	19.0%	71.5	0.4%	46
Finland	FI	Non widening	10,632	2.3%	2,658	7,242	68.1%	2,292	21.6%	318.3	1.7%	33

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	% of total	Horizon Europe applications in eligible proposals per year	Horizon Europe applications in high quality proposals	% of high quality applications	Retained Applications	Success rate of application in Horizon Europe	'000 of scientists and engineers per country *	Share of scientists and engineers in EU-27	Applications per '000 of scientists and engineers in the population
France	FR	Non widening	35,620	7.6%	8,905	25,502	71.6%	8,210	23.0%	2876.9	15.4%	12
Germany	DE	Non widening	47,656	10.2%	11,914	33,308	69.9%	10,431	21.9%	3958	21.1%	12
Greece	EL	Widening	23,970	5.1%	5,993	15,972	66.6%	4,282	17.9%	372.9	2.0%	64
Hungary	HU	Widening	3,966	0.9%	992	2,500	63.0%	753	19.0%	340.5	1.8%	12
Ireland	IE	Non widening	8,790	1.9%	2,198	5,980	68.0%	1,741	19.8%	343.4	1.8%	26
Italy	IT	Non widening	48,391	10.4%	12,098	31,425	64.9%	8,788	18.2%	1224	6.5%	40
Latvia	LV	Widening	1,920	0.4%	480	1,149	59.8%	356	18.5%	73.6	0.4%	26
Lithuania	LT	Widening	2,659	0.6%	665	1,574	59.2%	497	18.7%	149.5	0.8%	18
Luxembourg	LU	Non widening	2,291	0.5%	573	1,584	69.1%	436	19.0%	39.9	0.2%	57
Malta	MT	Widening	1,026	0.2%	257	625	60.9%	194	18.9%	26.5	0.1%	39
Netherlands	NL	Non widening	24,916	5.4%	6,229	17,546	70.4%	5,753	23.1%	1228.7	6.6%	20
Poland	PL	Widening	9,329	2.0%	2,332	5,648	60.5%	1,691	18.1%	1630.1	8.7%	6

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	% of total	Horizon Europe applications in eligible proposals per year	Horizon Europe applications in high quality proposals	% of high quality applications	Retained Applications	Success rate of application in Horizon Europe	'000 of scientists and engineers per country *	Share of scientists and engineers in EU-27	Applications per '000 of scientists and engineers in the population
Portugal	PT	Widening	15,329	3.3%	3,832	9,752	63.6%	2,627	17.1%	519.8	2.8%	29
Romania	RO	Widening	6,248	1.3%	1,562	3,506	56.1%	1,039	16.6%	582	3.1%	11
Slovakia	SK	Widening	2,102	0.5%	526	1,251	59.5%	415	19.7%	160.3	0.9%	13
Slovenia	SI	Widening	4,899	1.1%	1,225	3,250	66.3%	1,004	20.5%	96.4	0.5%	51
Spain	ES	Non widening	52,030	11.2%	13,008	35,751	68.7%	10,299	19.8%	1762.9	9.4%	30
Sweden	SE	Non widening	12,968	2.8%	3,242	8,692	67.0%	2,521	19.4%	767.3	4.1%	17
		Total EU-27	380,816	81.8%	95,204	257,264	67.6%	77,336	20.3%	18723	100%	20
		<i>Widening</i>	<i>92,303</i>	<i>19.8%</i>	<i>23,076</i>	<i>58,301</i>	<i>63.2%</i>	<i>16,619</i>	<i>18.0%</i>	<i>4,850</i>	<i>25.9%</i>	<i>19</i>
		<i>Non-Widening</i>	<i>288,513</i>	<i>62.0%</i>	<i>72,128</i>	<i>198,963</i>	<i>69.0%</i>	<i>60,717</i>	<i>21.0%</i>	<i>13,873</i>	<i>74.1%</i>	<i>21</i>
		Associated countries	58,817	12.6%	14,356	37,656	64.0%	10,759	18.9%			

EU-27 Member State	Countr y code	Country group	Horizon Europe application s in eligible proposals over 2021- 2024	% of total	Horizon Europe application s in eligible proposals per year	Horizon Europe application s in high quality proposals	% of high quality application s	Retained Application s	Success rate of applicatio n in Horizon Europe	'000 of scientist s and engineer s per country *	Share of scientist s and engineer s in EU- 27	Application s per '000 of scientists and engineers in the population
		Third countries	25,990	5.6%	6,434	18,292	70.4%	5,598	22.0%			
		Total Horizon Europe	465,623	100.0 %	115,993	313,212	67.3%	93,693	20.12%			

Table 58: Horizon Europe number of applications by type of organization

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	HES	PRC	PUB	REC	OTH
				Number of applications				
Austria	AT	Non widening	13,139	4,824	4,000	258	3,295	762
Belgium	BE	Non widening	21,707	6,772	5,482	560	3,564	5,329
Bulgaria	BG	Widening	3,148	592	1,270	263	520	503
Croatia	HR	Widening	2,882	1,035	782	364	469	232
Cyprus	CY	Widening	5,261	1,277	2,881	320	442	341
Czechia	CZ	Widening	6,264	2,928	1,469	328	1,117	422
Denmark	DK	Non widening	10,373	5,972	2,500	751	655	495
Estonia	EE	Widening	3,300	1,338	1,069	263	176	454
Finland	FI	Non widening	10,632	5,114	2,555	487	1,938	538
France	FR	Non widening	35,620	9,031	12,227	1,147	10,898	2,317
Germany	DE	Non widening	47,656	17,696	14,636	1,038	12,164	2,122
Greece	EL	Widening	23,970	6,514	8,855	1,288	5,821	1,492
Hungary	HU	Widening	3,966	1,218	1,260	280	706	502
Ireland	IE	Non widening	8,790	4,483	3,164	286	319	538

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	HES	PRC	PUB	REC	OTH
Italy	IT	Non widening	48,391	18,699	15,902	1,869	8,865	3,056
Latvia	LV	Widening	1,920	644	453	228	378	217
Lithuania	LT	Widening	2,659	837	770	397	279	376
Luxembourg	LU	Non widening	2,291	434	1,215	78	464	100
Malta	MT	Widening	1,026	380	331	166	89	60
Netherlands	NL	Non widening	24,916	11,974	7,364	638	3,304	1,636
Poland	PL	Widening	9,329	3,756	2,364	641	1,950	618
Portugal	PT	Widening	15,329	4,422	4,735	992	4,222	958
Romania	RO	Widening	6,248	1,565	2,109	669	1,101	804
Slovakia	SK	Widening	2,102	627	692	228	302	253
Slovenia	SI	Widening	4,899	1,201	1,389	344	1,610	355
Spain	ES	Non widening	52,030	13,675	16,262	2,541	16,341	3,211
Sweden	SE	Non widening	12,968	7,351	3,258	795	1,151	413
		Total EU-27	380,816	134,359	118,994	17,219	82,140	28,104
		<i>Widening</i>	<i>92,303</i>	<i>28,334</i>	<i>30,429</i>	<i>6,771</i>	<i>19,182</i>	<i>7,587</i>

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	HES	PRC	PUB	REC	OTH
		<i>Non-Widening</i>	288,513	106,025	88,565	10,448	62,958	20,517
		Associated countries	58,817	31,646	14,639	3,165	6,702	2,665
		Third countries	25,990	12,231	5,765	2,014	4,061	1,919
		Total Horizon Europe	465,623	178,236	139,398	22,398	92,903	32,688

Legend:

HES - Higher Education Institutions

REC- Research Organisations

PRC - Private-for-profit entities

PUB - Public bodies

OTH - Other

Table 59: Horizon Europe % of all applications per country by type of organization

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH
			% of all applications per country				
Austria	AT	Non widening	37%	30%	2%	25%	6%
Belgium	BE	Non widening	31%	25%	3%	16%	25%
Bulgaria	BG	Widening	19%	40%	8%	17%	16%
Croatia	HR	Widening	36%	27%	13%	16%	8%
Cyprus	CY	Widening	24%	55%	6%	8%	6%
Czechia	CZ	Widening	47%	23%	5%	18%	7%
Denmark	DK	Non widening	58%	24%	7%	6%	5%
Estonia	EE	Widening	41%	32%	8%	5%	14%
Finland	FI	Non widening	48%	24%	5%	18%	5%
France	FR	Non widening	25%	34%	3%	31%	7%
Germany	DE	Non widening	37%	31%	2%	26%	4%
Greece	EL	Widening	27%	37%	5%	24%	6%
Hungary	HU	Widening	31%	32%	7%	18%	13%
Ireland	IE	Non widening	51%	36%	3%	4%	6%

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH
Italy	IT	Non widening	39%	33%	4%	18%	6%
Latvia	LV	Widening	34%	24%	12%	20%	11%
Lithuania	LT	Widening	31%	29%	15%	10%	14%
Luxembourg	LU	Non widening	19%	53%	3%	20%	4%
Malta	MT	Widening	37%	32%	16%	9%	6%
Netherlands	NL	Non widening	48%	30%	3%	13%	7%
Poland	PL	Widening	40%	25%	7%	21%	7%
Portugal	PT	Widening	29%	31%	6%	28%	6%
Romania	RO	Widening	25%	34%	11%	18%	13%
Slovakia	SK	Widening	30%	33%	11%	14%	12%
Slovenia	SI	Widening	25%	28%	7%	33%	7%
Spain	ES	Non widening	26%	31%	5%	31%	6%
Sweden	SE	Non widening	57%	25%	6%	9%	3%
		Total EU-27	35.3%	31.2%	4.5%	21.6%	7.4%
		<i>Widening</i>	<i>15.9%</i>	<i>21.8%</i>	<i>30.2%</i>	<i>20.6%</i>	<i>23.2%</i>

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH
		<i>Non-Widening</i>	59.5%	63.5%	46.6%	67.8%	62.8%
		Associated countries	17.8%	10.5%	14.1%	7.2%	8.2%
		Third countries	6.9%	4.1%	9.0%	4.4%	5.9%
		Total Horizon Europe	100.0%	100.0%	100.0%	100.0%	100.0%

Table 60: Horizon Europe % of all applications per organization type

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH
			% of all applications per organisation type				
Austria	AT	Non widening	3%	3%	1%	4%	2%
Belgium	BE	Non widening	4%	4%	3%	4%	16%
Bulgaria	BG	Widening	0%	1%	1%	1%	2%
Croatia	HR	Widening	1%	1%	2%	1%	1%
Cyprus	CY	Widening	1%	2%	1%	0%	1%
Czechia	CZ	Widening	2%	1%	1%	1%	1%
Denmark	DK	Non widening	3%	2%	3%	1%	2%
Estonia	EE	Widening	1%	1%	1%	0%	1%
Finland	FI	Non widening	3%	2%	2%	2%	2%
France	FR	Non widening	5%	9%	5%	12%	7%
Germany	DE	Non widening	10%	10%	5%	13%	6%
Greece	EL	Widening	4%	6%	6%	6%	5%
Hungary	HU	Widening	1%	1%	1%	1%	2%
Ireland	IE	Non widening	3%	2%	1%	0%	2%
Italy	IT	Non widening	10%	11%	8%	10%	9%

Latvia	LV	Widening	0%	0%	1%	0%	1%
Lithuania	LT	Widening	0%	1%	2%	0%	1%
Luxembourg	LU	Non widening	0%	1%	0%	0%	0%
Malta	MT	Widening	0%	0%	1%	0%	0%
Netherlands	NL	Non widening	7%	5%	3%	4%	5%
Poland	PL	Widening	2%	2%	3%	2%	2%
Portugal	PT	Widening	2%	3%	4%	5%	3%
Romania	RO	Widening	1%	2%	3%	1%	2%
Slovakia	SK	Widening	0%	0%	1%	0%	1%
Slovenia	SI	Widening	1%	1%	2%	2%	1%
Spain	ES	Non widening	8%	12%	11%	18%	10%
Sweden	SE	Non widening	4%	2%	4%	1%	1%
		Total EU-27	75%	85%	77%	88%	86%
		<i>Widening</i>	<i>16%</i>	<i>22%</i>	<i>30%</i>	<i>21%</i>	<i>23%</i>
		<i>Non-Widening</i>	<i>59%</i>	<i>64%</i>	<i>47%</i>	<i>68%</i>	<i>63%</i>
		Associated countries	18%	11%	14%	7%	8%
		Third countries	7%	4%	9%	4%	6%
		Total Horizon Europe	100%	100%	100%	100%	100%

Table 61: Horizon Europe number of applications by pillar

EU-27 Member State	Country code	Country group	Horizon Europe applications in eligible proposals over 2021-2024	Pillar I	Pillar II	Pillar III	Widening & ERA
				Number of applications			
Austria	AT	Non widening	13,139	3,371	8,355	1,044	369
Belgium	BE	Non widening	21,707	5,274	14,462	1,507	464
Bulgaria	BG	Widening	3,148	276	2,210	253	409
Croatia	HR	Widening	2,882	515	1,774	217	376
Cyprus	CY	Widening	5,261	588	3,946	227	500
Czechia	CZ	Widening	6,264	1,967	3,257	437	603
Denmark	DK	Non widening	10,373	4,009	5,297	843	224
Estonia	EE	Widening	3,300	579	2,079	251	391
Finland	FI	Non widening	10,632	3,091	6,573	746	222
France	FR	Non widening	35,620	12,344	19,134	3,480	662
Germany	DE	Non widening	47,656	15,532	26,540	4,492	1,092
Greece	EL	Non widening	23,970	2,311	18,886	1,286	1,487
Hungary	HU	Widening	3,966	807	2,465	371	323
Ireland	IE	Non widening	8,790	2,543	5,216	779	252
Italy	IT	Non widening	48,391	13,153	29,734	4,562	942

Latvia	LV	Widening	1,920	285	1,214	161	260
Lithuania	LT	Widening	2,659	317	1,726	302	314
Luxembourg	LU	Non widening	2,291	449	1,658	154	30
Malta	MT	Non widening	1,026	181	568	84	193
Netherlands	NL	Non widening	24,916	8,355	13,704	2,305	552
Poland	PL	Widening	9,329	2,257	5,565	809	698
Portugal	PT	Widening	15,329	3,486	9,206	1,440	1,197
Romania	RO	Widening	6,248	663	4,513	481	591
Slovakia	SK	Widening	2,102	304	1,406	165	227
Slovenia	SI	Widening	4,899	992	3,202	361	344
Spain	ES	Non widening	52,030	13,094	33,371	4,602	963
Sweden	SE	Non widening	12,968	4,487	6,939	1,258	284
		Total EU-27	380,816	101,230	233,000	32,617	13,969
		<i>Widening</i>	<i>92,303</i>	<i>15,528</i>	<i>62,017</i>	<i>6,845</i>	<i>7,913</i>
		<i>Non-Widening</i>	<i>288,513</i>	<i>85,702</i>	<i>170,983</i>	<i>25,772</i>	<i>6,056</i>
		Associated countries	58,817	20,808	31,015	4,110	2,884
		Third countries	25,990	9,295	15,111	1,330	254
		Total Horizon 2020	465,623	131,333	279,126	38,057	17,107

Table 62: Horizon Europe % of applications of the country by pillar

EU-27 Member State	Country code	Country group	Pillar I	Pillar II	Pillar III	Widening & ERA
			% of applications of the country by pillar			
Austria	AT	Non widening	26%	64%	8%	3%
Belgium	BE	Non widening	24%	67%	7%	2%
Bulgaria	BG	Widening	9%	70%	8%	13%
Croatia	HR	Widening	18%	62%	8%	13%
Cyprus	CY	Widening	11%	75%	4%	10%
Czechia	CZ	Widening	31%	52%	7%	10%
Denmark	DK	Non widening	39%	51%	8%	2%
Estonia	EE	Widening	18%	63%	8%	12%
Finland	FI	Non widening	29%	62%	7%	2%
France	FR	Non widening	35%	54%	10%	2%
Germany	DE	Non widening	33%	56%	9%	2%
Greece	EL	Non widening	10%	79%	5%	6%
Hungary	HU	Widening	20%	62%	9%	8%
Ireland	IE	Non widening	29%	59%	9%	3%
Italy	IT	Non widening	27%	61%	9%	2%
Latvia	LV	Widening	15%	63%	8%	14%
Lithuania	LT	Widening	12%	65%	11%	12%

EU-27 Member State	Country code	Country group	Pillar I	Pillar II	Pillar III	Widening & ERA
Luxembourg	LU	Non widening	20%	72%	7%	1%
Malta	MT	Non widening	18%	55%	8%	19%
Netherlands	NL	Non widening	34%	55%	9%	2%
Poland	PL	Widening	24%	60%	9%	7%
Portugal	PT	Widening	23%	60%	9%	8%
Romania	RO	Widening	11%	72%	8%	9%
Slovakia	SK	Widening	14%	67%	8%	11%
Slovenia	SI	Widening	20%	65%	7%	7%
Spain	ES	Non widening	25%	64%	9%	2%
Sweden	SE	Non widening	35%	54%	10%	2%
		Total EU-27	27%	61%	9%	4%
		<i>Widening</i>	17%	67%	7%	9%
		<i>Non-Widening</i>	30%	59%	9%	2%
		Associated countries	35%	53%	7%	5%
		Third countries	36%	58%	5%	1%
		Total Horizon 2020	28%	60%	8%	4%

Table 63: Horizon Europe % of all applications per pillar

EU-27 Member State	Country code	Country group	Pillar I	Pillar II	Pillar III	Widening & ERA
			% of all applications per pillar			
Austria	AT	Non widening	3%	3%	3%	2%
Belgium	BE	Non widening	4%	5%	4%	3%
Bulgaria	BG	Widening	0%	1%	1%	2%
Croatia	HR	Widening	0%	1%	1%	2%
Cyprus	CY	Widening	0%	1%	1%	3%
Czechia	CZ	Widening	1%	1%	1%	4%
Denmark	DK	Non widening	3%	2%	2%	1%
Estonia	EE	Widening	0%	1%	1%	2%
Finland	FI	Non widening	2%	2%	2%	1%
France	FR	Non widening	9%	7%	9%	4%
Germany	DE	Non widening	12%	10%	12%	6%
Greece	EL	Non widening	2%	7%	3%	9%
Hungary	HU	Widening	1%	1%	1%	2%
Ireland	IE	Non widening	2%	2%	2%	1%
Italy	IT	Non widening	10%	11%	12%	6%

Latvia	LV	Widening	0%	0%	0%	2%
Lithuania	LT	Widening	0%	1%	1%	2%
Luxembourg	LU	Non widening	0%	1%	0%	0%
Malta	MT	Non widening	0%	0%	0%	1%
Netherlands	NL	Non widening	6%	5%	6%	3%
Poland	PL	Widening	2%	2%	2%	4%
Portugal	PT	Widening	3%	3%	4%	7%
Romania	RO	Widening	1%	2%	1%	3%
Slovakia	SK	Widening	0%	1%	0%	1%
Slovenia	SI	Widening	1%	1%	1%	2%
Spain	ES	Non widening	10%	12%	12%	6%
Sweden	SE	Non widening	3%	2%	3%	2%
		Total EU-27	77%	83%	86%	82%
		<i>Widening</i>	12%	22%	18%	46%
		<i>Non-Widening</i>	65%	61%	68%	35%
		Associated countries	16%	11%	11%	17%
		Third countries	7%	5%	3%	1%
		Total Horizon 2020	100%	100%	100%	100%

Table 64: Participation in Horizon Europe by country (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants over 2021-2024	% of total	Horizon Europe participations in signed grants per year**	'000 scientists and engineers*	Share of scientists and engineers in EU27	Participations per '000 scientists and engineers in the population	Number of Horizon Europe signed grants with at least 1 participant from the country	% of total Horizon Europe signed grants with at least 1 participant from the country
Austria	AT	Non-widening MS	2,956	3.5%	806	432	2.5%	6.8	1,872	13.0%
Belgium	BE	Non-widening MS	5,590	6.5%	1,525	556	3.2%	10.1	3,260	22.6%
Bulgaria	BG	Widening MS	634	0.7%	173	211	1.2%	3.0	414	2.9%
Cyprus	CY	Widening MS	888	1.0%	242	39	0.2%	22.7	628	4.4%
Czechia	CZ	Widening MS	1,366	1.6%	373	406	2.3%	3.4	958	6.7%
Germany	DE	Non-widening MS	11,468	13.4%	3,128	3,765	21.5%	3.0	5,720	39.7%
Denmark	DK	Non-widening MS	2,533	3.0%	691	329	1.9%	7.7	1,747	12.1%
Estonia	EE	Widening MS	678	0.8%	185	65	0.4%	10.5	516	3.6%
Greece	EL	Widening MS	4,553	5.3%	1,242	335	1.9%	13.6	2,085	14.5%
Spain	ES	Non-widening MS	11,473	13.4%	3,129	1,599	9.1%	7.2	4,813	33.4%
Finland	FI	Non-widening MS	2,468	2.9%	673	313	1.8%	7.9	1,450	10.1%
France	FR	Non-widening MS	9,380	11.0%	2,558	2,599	14.8%	3.6	4,355	30.3%
Croatia	HR	Widening MS	562	0.7%	153	110	0.6%	5.1	354	2.5%
Hungary	HU	Widening MS	792	0.9%	216	351	2.0%	2.3	576	4.0%
Ireland	IE	Non-widening MS	1,952	2.3%	532	306	1.7%	6.4	1,346	9.4%
Italy	IT	Non-widening MS	9,843	11.5%	2,684	1,136	6.5%	8.7	4,556	31.6%
Lithuania	LT	Widening MS	537	0.6%	146	132	0.8%	4.1	400	2.8%
Luxembourg	LU	Non-widening MS	461	0.5%	126	38	0.2%	12.1	367	2.5%
Latvia	LV	Widening MS	368	0.4%	100	65	0.4%	5.6	284	2.0%
Malta	MT	Widening MS	202	0.2%	55	24	0.1%	8.3	151	1.0%
Netherlands	NL	Non-widening MS	6,425	7.5%	1,752	1,177	6.7%	5.5	3,630	25.2%

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants over 2021-2024	% of total	Horizon Europe participations in signed grants per year**	'000 scientists and engineers*	Share of scientists and engineers in EU27	Participations per '000 scientists and engineers in the population	Number of Horizon Europe signed grants with at least 1 participant from the country	% of total Horizon Europe signed grants with at least 1 participant from the country
Poland	PL	Widening MS	1,821	2.1%	497	1,462	8.3%	1.2	1,254	8.7%
Portugal	PT	Widening MS	2,876	3.4%	784	468	2.7%	6.1	1,700	11.8%
Romania	RO	Widening MS	1,098	1.3%	299	614	3.5%	1.8	702	4.9%
Sweden	SE	Non-widening MS	2,892	3.4%	789	744	4.2%	3.9	1,890	13.1%
Slovenia	SI	Widening MS	1,110	1.3%	303	114	0.7%	9.7	727	5.1%
Slovakia	SK	Widening MS	425	0.5%	116	143	0.8%	3.0	321	2.2%

Total EU-27	85 351	100.0%	85,351	100.0%	23,278	17,533	100.0%	4.9
Widening MS	17 910	21.0%	17,910	21.0%	4,885	4,539	25.9%	3.9
Non-widening MS	67 441	79.0%	67,441	79.0%	18,393	12,994	74.1%	5.2
Associated countries	10 200	10.0%	10,200	10.0%	2,782			
Third countries	6 045	6.0%	6,045	6.0%	1,649			
Total Horizon Europe	101 596	100.0%	101,596	100.0%	27,708			

Table 65: Participation in Horizon Europe by country and organisation type (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Horizon Europe investments in signed grants (EUR million) over 2021-2024	% of total Horizon Europe investment	% of Horizon Europe investment in EU-27	Horizon Europe investments in signed grants (EUR million) per year	Yearly GERD (in EUR million)*	Horizon Europe investment in EUR per EUR million of GERD
Austria	AT	Non-widening MS	1 393	3.2%	3.5%	380	14908.47	9 347
Belgium	BE	Non-widening MS	3 354	7.8%	8.5%	915	19185.6965	17 480
Bulgaria	BG	Widening MS	165	0.4%	0.4%	45	698.7235	23 630
Cyprus	CY	Widening MS	300	0.7%	0.8%	82	210.2575	142 880
Czechia	CZ	Widening MS	481	1.1%	1.2%	131	5623.1335	8 560
Germany	DE	Non-widening MS	6 832	15.8%	17.3%	1 863	125696.629	5 435
Denmark	DK	Non-widening MS	1 239	2.9%	3.1%	338	11100.3205	11 163
Estonia	EE	Widening MS	259	0.6%	0.7%	71	671.9625	38 586
Greece	EL	Widening MS	1 689	3.9%	4.3%	461	3216.493	52 501
Spain	ES	Non-widening MS	4 563	10.6%	11.6%	1 244	20851.9545	21 882
Finland	FI	Non-widening MS	1 228	2.8%	3.1%	335	8187.77	14 994
France	FR	Non-widening MS	4 897	11.3%	12.4%	1 336	60329.777	8 117
Croatia	HR	Widening MS	136	0.3%	0.3%	37	1021.205	13 270
Hungary	HU	Widening MS	199	0.5%	0.5%	54	2538.434	7 833
Ireland	IE	Non-widening MS	902	2.1%	2.3%	246	4559.7465	19 792
Italy	IT	Non-widening MS	3 655	8.5%	9.3%	997	27612.643	13 238
Lithuania	LT	Widening MS	157	0.4%	0.4%	43	741.1585	21 150
Luxembourg	LU	Non-widening MS	197	0.5%	0.5%	54	819.0275	24 043
Latvia	LV	Widening MS	99	0.2%	0.3%	27	308.3535	32 160
Malta	MT	Widening MS	46	0.1%	0.1%	12	115.758	39 416
Netherlands	NL	Non-widening MS	3 793	8.8%	9.6%	1 034	21923.168	17 302

EU-27 Member State	Country code	Country group	Horizon Europe investments in signed grants (EUR million) over 2021-2024	% of total Horizon Europe investment	% of Horizon Europe investment in EU-27	Horizon Europe investments in signed grants (EUR million) per year	Yearly GERD (in EUR million)*	Horizon Europe investment in EUR per EUR million of GERD
Poland	PL	Widening MS	670	1.5%	1.7%	183	10616.877	6 308
Portugal	PT	Widening MS	998	2.3%	2.5%	272	4323.392	23 075
Romania	RO	Widening MS	288	0.7%	0.7%	78	1489.6915	19 313
Sweden	SE	Non-widening MS	1 445	3.3%	3.7%	394	19240.1825	7 508
Slovenia	SI	Widening MS	358	0.8%	0.9%	98	1279.8545	27 976
Slovakia	SK	Widening MS	109	0.3%	0.3%	30	1177.459	9 234

Total EU-27	39 451	91.3%	10 759		368 448	10 707
Widening MS	5 952	13.8%	10 379		34 033	17 490
Non-widening MS	33 498	77.5%	20 224		334 415	10 017
Associated countries	3 238	7.5%	30 558			
Third countries	526	1.2%	50 700			
Total Horizon Europe	43 215	100.0%	81 127			

Table 66: Participation in Horizon Europe by type of organisation (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants	HES	PRC	PUB	REC	OTH
				Participation				
Austria	AT	Non-widening MS	2 956	994	954	81	733	194
Belgium	BE	Non-widening MS	5 590	1 483	1 357	174	1,054	1,522
Bulgaria	BG	Widening MS	634	134	229	75	94	102
Cyprus	CY	Widening MS	888	234	470	54	61	69
Czechia	CZ	Widening MS	1 366	575	333	83	253	122
Germany	DE	Non-widening MS	11 468	3 829	3 694	234	3,110	601
Denmark	DK	Non-widening MS	2 533	1 359	603	234	158	179
Estonia	EE	Widening MS	678	261	204	64	33	116
Greece	EL	Widening MS	4 553	1 100	1 788	218	1,146	301
Spain	ES	Non-widening MS	11 473	2 547	3 721	620	3,784	801
Finland	FI	Non-widening MS	2 468	957	657	149	548	157
France	FR	Non-widening MS	9 380	2 181	3 297	337	2,924	641
Croatia	HR	Widening MS	562	181	162	72	84	63
Hungary	HU	Widening MS	792	209	223	71	162	127
Ireland	IE	Non-widening MS	1 952	893	735	85	87	152
Italy	IT	Non-widening MS	9 843	3 397	3 439	388	1,930	689
Lithuania	LT	Widening MS	537	166	142	93	56	80
Luxembourg	LU	Non-widening MS	461	76	238	22	104	21
Latvia	LV	Widening MS	368	107	87	48	84	42
Malta	MT	Widening MS	202	75	56	52	10	9
Netherlands	NL	Non-widening MS	6 425	2 630	1 979	183	1,096	537
Poland	PL	Widening MS	1 821	647	459	146	399	170

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants	HES	PRC	PUB	REC	OTH
				Participation				
Portugal	PT	Widening MS	2 876	758	875	239	812	192
Romania	RO	Widening MS	1 098	260	308	150	238	142
Sweden	SE	Non-widening MS	2 892	1 495	794	207	283	113
Slovenia	SI	Widening MS	1 110	254	344	85	344	83
Slovakia	SK	Widening MS	425	113	117	62	71	62

Total EU-27	85,351	26,915	27 265	4 226	19 658	7 287
Widening MS	17,910	5,074	5 797	1 512	3 847	1 680
Non-widening MS	67,441	21,841	21 468	2 714	15 811	5 607
Associated countries	10,200	4,709	2 662	595	1 600	634
Third countries	6,045	2,903	1 268	432	968	474
Total Horizon Europe	101,596	34,527	31 195	5 253	22 226	8 395

Table 67: Participation in Horizon Europe by type of organisation (continued) (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH	HES	PRC	PUB	REC	OTH
			% of all projects of specific organisation types					% of all projects of the country				
Austria	AT	Non-widening MS	2.9%	3.1%	1.5%	3.3%	2.3%	33.6%	32.3%	2.7%	24.8%	6.6%
Belgium	BE	Non-widening MS	4.3%	4.4%	3.3%	4.7%	18.1%	26.5%	24.3%	3.1%	18.9%	27.2%
Bulgaria	BG	Widening MS	0.4%	0.7%	1.4%	0.4%	1.2%	21.1%	36.1%	11.8%	14.8%	16.1%
Cyprus	CY	Widening MS	0.7%	1.5%	1.0%	0.3%	0.8%	26.4%	52.9%	6.1%	6.9%	7.8%
Czechia	CZ	Widening MS	1.7%	1.1%	1.6%	1.1%	1.5%	42.1%	24.4%	6.1%	18.5%	8.9%
Germany	DE	Non-widening MS	11.1%	11.8%	4.5%	14.0%	7.2%	33.4%	32.2%	2.0%	27.1%	5.2%
Denmark	DK	Non-widening MS	3.9%	1.9%	4.5%	0.7%	2.1%	53.7%	23.8%	9.2%	6.2%	7.1%
Estonia	EE	Widening MS	0.8%	0.7%	1.2%	0.1%	1.4%	38.5%	30.1%	9.4%	4.9%	17.1%
Greece	EL	Widening MS	3.2%	5.7%	4.2%	5.2%	3.6%	24.2%	39.3%	4.8%	25.2%	6.6%
Spain	ES	Non-widening MS	7.4%	11.9%	11.8%	17.0%	9.5%	22.2%	32.4%	5.4%	33.0%	7.0%
Finland	FI	Non-widening MS	2.8%	2.1%	2.8%	2.5%	1.9%	38.8%	26.6%	6.0%	22.2%	6.4%
France	FR	Non-widening MS	6.3%	10.6%	6.4%	13.2%	7.6%	23.3%	35.1%	3.6%	31.2%	6.8%
Croatia	HR	Widening MS	0.5%	0.5%	1.4%	0.4%	0.8%	32.2%	28.8%	12.8%	14.9%	11.2%
Hungary	HU	Widening MS	0.6%	0.7%	1.4%	0.7%	1.5%	26.4%	28.2%	9.0%	20.5%	16.0%
Ireland	IE	Non-widening MS	2.6%	2.4%	1.6%	0.4%	1.8%	45.7%	37.7%	4.4%	4.5%	7.8%
Italy	IT	Non-widening MS	9.8%	11.0%	7.4%	8.7%	8.2%	34.5%	34.9%	3.9%	19.6%	7.0%
Lithuania	LT	Widening MS	0.5%	0.5%	1.8%	0.3%	1.0%	30.9%	26.4%	17.3%	10.4%	14.9%
Luxembourg	LU	Non-widening MS	0.2%	0.8%	0.4%	0.5%	0.3%	16.5%	51.6%	4.8%	22.6%	4.6%
Latvia	LV	Widening MS	0.3%	0.3%	0.9%	0.4%	0.5%	29.1%	23.6%	13.0%	22.8%	11.4%
Malta	MT	Widening MS	0.2%	0.2%	1.0%	0.0%	0.1%	37.1%	27.7%	25.7%	5.0%	4.5%
Netherlands	NL	Non-widening MS	7.6%	6.3%	3.5%	4.9%	6.4%	40.9%	30.8%	2.8%	17.1%	8.4%
Poland	PL	Widening MS	1.9%	1.5%	2.8%	1.8%	2.0%	35.5%	25.2%	8.0%	21.9%	9.3%
Portugal	PT	Widening MS	2.2%	2.8%	4.5%	3.7%	2.3%	26.4%	30.4%	8.3%	28.2%	6.7%
Romania	RO	Widening MS	0.8%	1.0%	2.9%	1.1%	1.7%	23.7%	28.1%	13.7%	21.7%	12.9%

Sweden	SE	Non-widening MS	4.3%	2.5%	3.9%	1.3%	1.3%	51.7%	27.5%	7.2%	9.8%	3.9%
Slovenia	SI	Widening MS	0.7%	1.1%	1.6%	1.5%	1.0%	22.9%	31.0%	7.7%	31.0%	7.5%
Slovakia	SK	Widening MS	0.3%	0.4%	1.2%	0.3%	0.7%	26.6%	27.5%	14.6%	16.7%	14.6%

Total EU-27	78.0%	87.4%	80.4%	88.4%	86.8%	31.5%	31.9%	5.0%	23.0%	8.5%
Widening MS	14.7%	18.6%	28.8%	17.3%	20.0%	28.3%	32.4%	8.4%	21.5%	9.4%
Non-widening MS	63.3%	68.8%	51.7%	71.1%	66.8%	32.4%	31.8%	4.0%	23.4%	8.3%
Associated countries	13.6%	8.5%	11.3%	7.2%	7.6%	46.2%	26.1%	5.8%	15.7%	6.2%
Third countries	8.4%	4.1%	8.2%	4.4%	5.6%	48.0%	21.0%	7.1%	16.0%	7.8%
Total Horizon Europe	100.0%	100.0%	100.0%	100.0%	100.0%	34.0%	30.7%	5.2%	21.9%	8.3%

Table 68: Investment in Horizon Europe by type of organisation (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group		Horizon Europe investment s in signed grants (EUR million) over 2021-2024	HES	PRC	PUB	REC	OTH						
										Investment by type of organisation					
Austria	AT	Non-widening MS		1 393	575	356	25	359	78						
Belgium	BE	Non-widening MS		3 354	887	493	62	976	936						
Bulgaria	BG	Widening MS		165	47	70	13	22	13						
Cyprus	CY	Widening MS		300	100	146	7	29	18						
Czechia	CZ	Widening MS		481	248	109	15	77	32						
Germany	DE	Non-widening MS		6 832	2 326	1 963	142	2 159	242						
Denmark	DK	Non-widening MS		1 239	789	221	107	70	51						
Estonia	EE	Widening MS		259	128	91	8	11	22						
Greece	EL	Widening MS		1 689	465	558	43	543	79						

Spain	ES	Non-widening MS	4 563	993	1 479	163	1 740	187
Finland	FI	Non-widening MS	1 228	534	273	47	330	43
France	FR	Non-widening MS	4 897	761	1 632	155	2 049	300
Croatia	HR	Widening MS	136	42	50	11	26	7
Hungary	HU	Widening MS	199	46	63	22	44	24
Ireland	IE	Non-widening MS	902	509	278	24	35	57
Italy	IT	Non-widening MS	3 655	1 393	1 188	194	741	140
Lithuania	LT	Widening MS	157	58	45	23	13	17
Luxembourg	LU	Non-widening MS	197	29	102	9	54	3
Latvia	LV	Widening MS	99	33	28	7	25	7
Malta	MT	Widening MS	46	19	15	8	3	1
Netherlands	NL	Non-widening MS	3 793	1 729	997	86	757	225
Poland	PL	Widening MS	670	229	162	41	163	75
Portugal	PT	Widening MS	998	296	258	41	369	34
Romania	RO	Widening MS	288	77	90	24	74	23
Sweden	SE	Non-widening MS	1 445	851	331	99	138	25
Slovenia	SI	Widening MS	358	82	108	16	138	14
Slovakia	SK	Widening MS	109	31	35	7	25	11

Total EU-27	39 451	13 276	11 139	1 401	10 970	2 664
Widening MS	5 952	1 900	1 827	287	1 561	378
Non-widening MS	33 498	11 376	9 313	1 114	9 409	2 287
Associated countries	3 238	1 512	708	141	781	96
Third countries	526	211	49	38	179	49
Total Horizon Europe	43 215	14 999	11 896	1 580	11 930	2 810

Table 69: Investment in Horizon Europe by type of organisation (continued) (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	HES	PRC	PUB	REC	OTH	HES	PRC	PUB	REC	OTH
			% investments in countries by organisation type					% investment in organisation type				
Austria	AT	Non-widening MS	41.3%	25.5%	1.8%	25.8%	5.6%	3.8%	3.0%	1.6%	3.0%	2.8%
Belgium	BE	Non-widening MS	26.4%	14.7%	1.8%	29.1%	27.9%	5.9%	4.1%	3.9%	8.2%	33.3%
Bulgaria	BG	Widening MS	28.2%	42.3%	8.0%	13.6%	7.9%	0.3%	0.6%	0.8%	0.2%	0.5%
Cyprus	CY	Widening MS	33.2%	48.7%	2.4%	9.7%	6.0%	0.7%	1.2%	0.5%	0.2%	0.6%
Czechia	CZ	Widening MS	51.4%	22.7%	3.2%	16.1%	6.6%	1.7%	0.9%	1.0%	0.6%	1.1%
Germany	DE	Non-widening MS	34.0%	28.7%	2.1%	31.6%	3.5%	15.5%	16.5%	9.0%	18.1%	8.6%
Denmark	DK	Non-widening MS	63.7%	17.9%	8.7%	5.7%	4.1%	5.3%	1.9%	6.8%	0.6%	1.8%
Estonia	EE	Widening MS	49.4%	34.9%	3.0%	4.1%	8.6%	0.9%	0.8%	0.5%	0.1%	0.8%
Greece	EL	Widening MS	27.5%	33.0%	2.5%	32.2%	4.7%	3.1%	4.7%	2.7%	4.6%	2.8%
Spain	ES	Non-widening MS	21.8%	32.4%	3.6%	38.1%	4.1%	6.6%	12.4%	10.3%	14.6%	6.7%
Finland	FI	Non-widening MS	43.5%	22.2%	3.8%	26.9%	3.5%	3.6%	2.3%	3.0%	2.8%	1.5%
France	FR	Non-widening MS	15.5%	33.3%	3.2%	41.8%	6.1%	5.1%	13.7%	9.8%	17.2%	10.7%
Croatia	HR	Widening MS	30.8%	36.8%	8.0%	18.9%	5.5%	0.3%	0.4%	0.7%	0.2%	0.3%
Hungary	HU	Widening MS	23.1%	31.7%	11.2%	22.0%	12.0%	0.3%	0.5%	1.4%	0.4%	0.8%
Ireland	IE	Non-widening MS	56.4%	30.8%	2.7%	3.9%	6.3%	3.4%	2.3%	1.5%	0.3%	2.0%
Italy	IT	Non-widening MS	38.1%	32.5%	5.3%	20.3%	3.8%	9.3%	10.0%	12.3%	6.2%	5.0%
Lithuania	LT	Widening MS	37.0%	28.8%	14.6%	8.5%	11.1%	0.4%	0.4%	1.4%	0.1%	0.6%
Luxembourg	LU	Non-widening MS	14.6%	51.8%	4.4%	27.6%	1.6%	0.2%	0.9%	0.6%	0.5%	0.1%
Latvia	LV	Widening MS	33.4%	27.8%	7.4%	24.8%	6.7%	0.2%	0.2%	0.5%	0.2%	0.2%
Malta	MT	Widening MS	41.3%	32.2%	18.2%	7.0%	1.3%	0.1%	0.1%	0.5%	0.0%	0.0%
Netherlands	NL	Non-widening MS	45.6%	26.3%	2.3%	19.9%	5.9%	11.5%	8.4%	5.5%	6.3%	8.0%
Poland	PL	Widening MS	34.1%	24.2%	6.1%	24.3%	11.3%	1.5%	1.4%	2.6%	1.4%	2.7%
Portugal	PT	Widening MS	29.7%	25.8%	4.1%	36.9%	3.4%	2.0%	2.2%	2.6%	3.1%	1.2%

Romania	RO	Widening MS	26.8%	31.1%	8.4%	25.6%	8.1%	0.5%	0.8%	1.5%	0.6%	0.8%
Sweden	SE	Non-widening MS	58.9%	22.9%	6.9%	9.5%	1.8%	5.7%	2.8%	6.3%	1.2%	0.9%
Slovenia	SI	Widening MS	22.8%	30.2%	4.5%	38.6%	3.9%	0.5%	0.9%	1.0%	1.2%	0.5%
Slovakia	SK	Widening MS	28.9%	32.1%	6.2%	23.0%	9.8%	0.2%	0.3%	0.4%	0.2%	0.4%

Total EU-27	33.7%	28.2%	3.6%	27.8%	6.8%	88.5%	93.6%	88.7%	92.0%	94.8%
Widening MS	31.9%	30.7%	4.8%	26.2%	6.3%	12.7%	15.4%	18.2%	13.1%	13.4%
Non-widening MS	34.0%	27.8%	3.3%	28.1%	6.8%	75.8%	78.3%	70.5%	78.9%	81.4%
Associated countries	46.7%	21.9%	4.4%	24.1%	3.0%	10.1%	6.0%	8.9%	6.5%	3.4%
Third countries	40.1%	9.4%	7.2%	34.0%	9.3%	1.4%	0.4%	2.4%	1.5%	1.8%
Total Horizon Europe	34.7%	27.5%	3.7%	27.6%	6.5%	100%	100%	100%	100%	100%

Table 70: Participation in Horizon Europe by Pillar (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
				Participation			
Austria	AT	Non-widening MS	2 956	756	1 957	164	79
Belgium	BE	Non-widening MS	5 590	1 205	3 917	317	151
Bulgaria	BG	Widening MS	634	95	417	72	50
Cyprus	CY	Widening MS	888	135	631	27	95
Czechia	CZ	Widening MS	1 366	424	718	76	148
Germany	DE	Non-widening MS	11 468	3 581	6 797	839	251
Denmark	DK	Non-widening MS	2 533	911	1 411	154	57
Estonia	EE	Widening MS	678	89	442	74	73
Greece	EL	Widening MS	4 553	516	3 649	151	237
Spain	ES	Non-widening MS	11 473	2 960	7 445	858	210

EU-27 Member State	Country code	Country group	Horizon Europe participations in signed grants	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
				Participation			
Finland	FI	Non-widening MS	2 468	599	1 626	191	52
France	FR	Non-widening MS	9 380	3 090	5 345	767	178
Croatia	HR	Widening MS	562	84	345	39	94
Hungary	HU	Widening MS	792	164	517	66	45
Ireland	IE	Non-widening MS	1 952	553	1 176	163	60
Italy	IT	Non-widening MS	9 843	2 730	6 244	677	192
Lithuania	LT	Widening MS	537	55	368	57	57
Luxembourg	LU	Non-widening MS	461	84	348	19	10
Latvia	LV	Widening MS	368	42	241	40	45
Malta	MT	Widening MS	202	42	92	25	43
Netherlands	NL	Non-widening MS	6 425	2 006	3 743	534	142
Poland	PL	Widening MS	1 821	437	1 126	168	90
Portugal	PT	Widening MS	2 876	659	1 800	217	200
Romania	RO	Widening MS	1 098	138	816	66	78
Sweden	SE	Non-widening MS	2 892	920	1 623	295	54
Slovenia	SI	Widening MS	1 110	200	753	73	84
Slovakia	SK	Widening MS	425	70	258	49	48
Total EU-27			85 351	22 545	53 805	6 178	2 823
Widening MS			17 910	3 150	12 173	1 200	1 387
Non-widening MS			67 441	19 395	41 632	4 978	1 436
Associated countries			10 200	3 030	6 060	584	526
Third countries			6 045	2 389	3 387	178	91
Total Horizon Europe			101 596	27 964	63 252	6 940	3 440

Table 71: Participation in Horizon Europe by Pillar (continued) (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
			% participation in each Pillar, by country				% participation in each Pillar, by country			
Austria	AT	Non-widening MS	2.7%	3.1%	2.4%	2.3%	25.6%	66.2%	5.5%	2.7%
Belgium	BE	Non-widening MS	4.3%	6.2%	4.6%	4.4%	21.6%	70.1%	5.7%	2.7%
Bulgaria	BG	Widening MS	0.3%	0.7%	1.0%	1.5%	15.0%	65.8%	11.4%	7.9%
Cyprus	CY	Widening MS	0.5%	1.0%	0.4%	2.8%	15.2%	71.1%	3.0%	10.7%
Czechia	CZ	Widening MS	1.5%	1.1%	1.1%	4.3%	31.0%	52.6%	5.6%	10.8%
Germany	DE	Non-widening MS	12.8%	10.7%	12.1%	7.3%	31.2%	59.3%	7.3%	2.2%
Denmark	DK	Non-widening MS	3.3%	2.2%	2.2%	1.7%	36.0%	55.7%	6.1%	2.3%
Estonia	EE	Widening MS	0.3%	0.7%	1.1%	2.1%	13.1%	65.2%	10.9%	10.8%
Greece	EL	Widening MS	1.8%	5.8%	2.2%	6.9%	11.3%	80.1%	3.3%	5.2%
Spain	ES	Non-widening MS	10.6%	11.8%	12.4%	6.1%	25.8%	64.9%	7.5%	1.8%
Finland	FI	Non-widening MS	2.1%	2.6%	2.8%	1.5%	24.3%	65.9%	7.7%	2.1%
France	FR	Non-widening MS	11.0%	8.5%	11.1%	5.2%	32.9%	57.0%	8.2%	1.9%
Croatia	HR	Widening MS	0.3%	0.5%	0.6%	2.7%	14.9%	61.4%	6.9%	16.7%
Hungary	HU	Widening MS	0.6%	0.8%	1.0%	1.3%	20.7%	65.3%	8.3%	5.7%
Ireland	IE	Non-widening MS	2.0%	1.9%	2.3%	1.7%	28.3%	60.2%	8.4%	3.1%
Italy	IT	Non-widening MS	9.8%	9.9%	9.8%	5.6%	27.7%	63.4%	6.9%	2.0%

EU-27 Member State	Country code	Country group	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
			% participation in each Pillar, by country				% participation in each Pillar, by country			
Lithuania	LT	Widening MS	0.2%	0.6%	0.8%	1.7%	10.2%	68.5%	10.6%	10.6%
Luxembourg	LU	Non-widening MS	0.3%	0.6%	0.3%	0.3%	18.2%	75.5%	4.1%	2.2%
Latvia	LV	Widening MS	0.2%	0.4%	0.6%	1.3%	11.4%	65.5%	10.9%	12.2%
Malta	MT	Widening MS	0.2%	0.1%	0.4%	1.3%	20.8%	45.5%	12.4%	21.3%
Netherlands	NL	Non-widening MS	7.2%	5.9%	7.7%	4.1%	31.2%	58.3%	8.3%	2.2%
Poland	PL	Widening MS	1.6%	1.8%	2.4%	2.6%	24.0%	61.8%	9.2%	4.9%
Portugal	PT	Widening MS	2.4%	2.8%	3.1%	5.8%	22.9%	62.6%	7.5%	7.0%
Romania	RO	Widening MS	0.5%	1.3%	1.0%	2.3%	12.6%	74.3%	6.0%	7.1%
Sweden	SE	Non-widening MS	3.3%	2.6%	4.3%	1.6%	31.8%	56.1%	10.2%	1.9%
Slovenia	SI	Widening MS	0.7%	1.2%	1.1%	2.4%	18.0%	67.8%	6.6%	7.6%
Slovakia	SK	Widening MS	0.3%	0.4%	0.7%	1.4%	16.5%	60.7%	11.5%	11.3%

Total EU-27	80.6%	85.1%	89.0%	82.1%	26.4%	63.0%	7.2%	3.3%
Widening MS	11.3%	19.2%	17.3%	40.3%	17.6%	68.0%	6.7%	7.7%
Non-widening MS	69.4%	65.8%	71.7%	41.7%	28.8%	61.7%	7.4%	2.1%
Associated countries	10.8%	9.6%	8.4%	15.3%	29.7%	59.4%	5.7%	5.2%
Third countries	8.5%	5.4%	2.6%	2.6%	39.5%	56.0%	2.9%	1.5%
Total Horizon Europe	100%	100%	100%	100%	27.5%	62.3%	6.8%	3.4%

Table 72: Investment in Horizon Europe by Pillar (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Horizon Europe investments in signed grants (EUR million)	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
				Investment by Pillar			
Austria	AT	Non-widening MS	1 393	413	857	102	21
Belgium	BE	Non-widening MS	3 354	551	2 055	436	312
Bulgaria	BG	Widening MS	165	6	101	25	33
Cyprus	CY	Widening MS	300	39	208	7	47
Czechia	CZ	Widening MS	481	118	239	35	90
Germany	DE	Non-widening MS	6 832	2 209	3 575	971	77
Denmark	DK	Non-widening MS	1 239	422	678	121	18
Estonia	EE	Widening MS	259	31	141	33	55
Greece	EL	Widening MS	1 689	140	1 375	53	121
Spain	ES	Non-widening MS	4 563	943	2 908	637	75
Finland	FI	Non-widening MS	1 228	272	802	137	17
France	FR	Non-widening MS	4 897	1 417	2 798	635	47
Croatia	HR	Widening MS	136	11	80	9	34
Hungary	HU	Widening MS	199	42	125	22	10
Ireland	IE	Non-widening MS	902	253	517	120	13
Italy	IT	Non-widening MS	3 655	912	2 387	307	49
Lithuania	LT	Widening MS	157	13	91	25	27
Luxembourg	LU	Non-widening MS	197	22	161	13	1
Latvia	LV	Widening MS	99	5	58	8	28
Malta	MT	Widening MS	46	4	23	8	11
Netherlands	NL	Non-widening MS	3 793	1 258	1 976	511	48
Poland	PL	Widening MS	670	132	353	104	81

Portugal	PT	Widening MS	998	186	587	93	131
Romania	RO	Widening MS	288	23	217	19	29
Sweden	SE	Non-widening MS	1 445	465	756	209	15
Slovenia	SI	Widening MS	358	65	227	26	41
Slovakia	SK	Widening MS	109	10	57	15	27

Total EU-27	39 451	9 963	23 352	4 679	1 457
Widening MS	5 952	824	3 883	480	765
Non-widening MS	33 498	9 139	19 469	4 199	692
Associated countries	3 238	1 096	1 739	274	130
Third countries	526	115	398	10	4
Total Horizon Europe	43 215	11 173	25 488	4 963	1 591

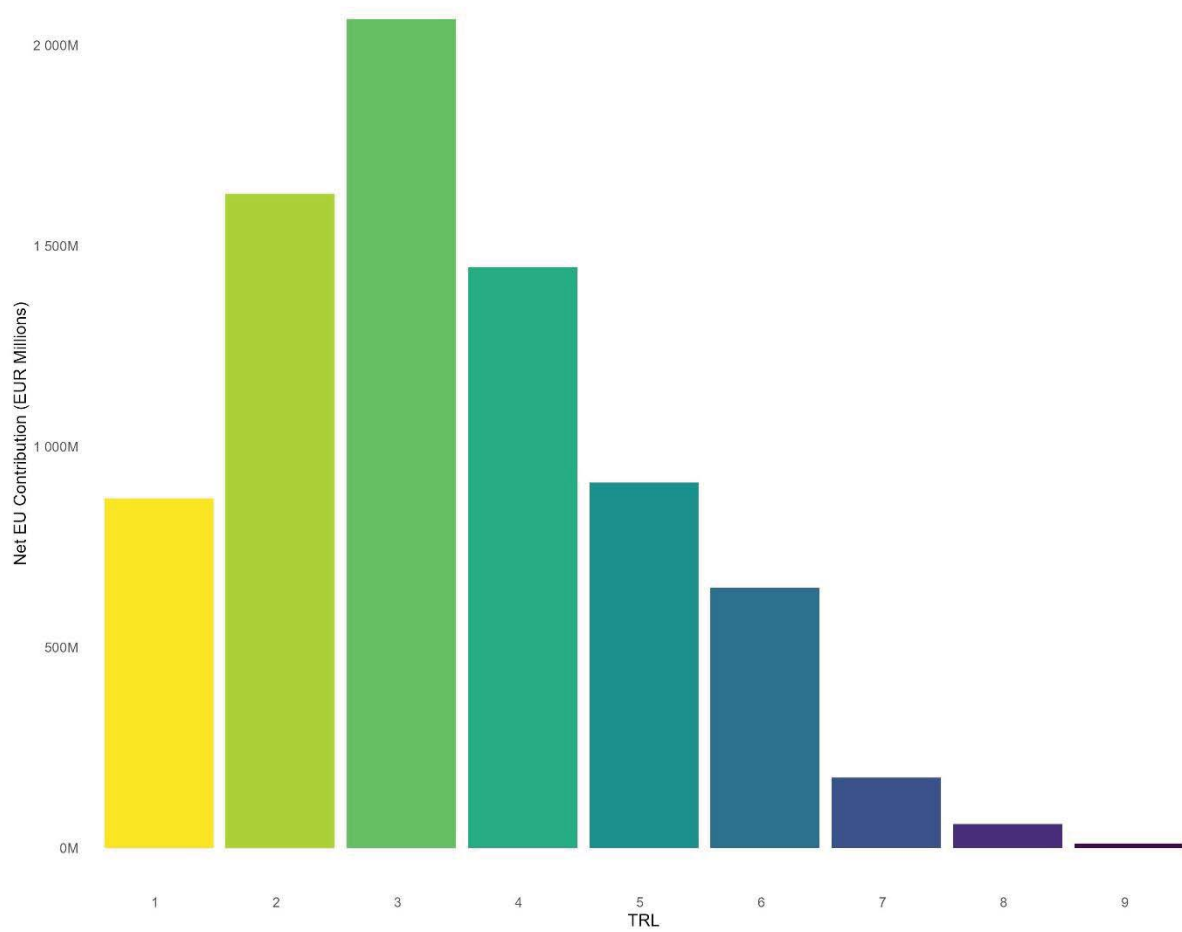
Table 73: Investment in Horizon Europe by Pillar (continued) (Source: CORDA data – cut-off date 6 January 2025).

EU-27 Member State	Country code	Country group	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area	Excellent Science	Global Challenges and European Industrial Competitiveness	Innovative Europe	Widening Participation and Strengthening the European Research Area
			% investment in each Pillar, by country				% investment in each Pillar, by country			
Austria	AT	Non-widening MS	29.7%	61.5%	7.3%	1.5%	3.7%	3.4%	2.1%	1.3%
Belgium	BE	Non-widening MS	16.4%	61.3%	13.0%	9.3%	4.9%	8.1%	8.8%	19.6%
Bulgaria	BG	Widening MS	3.7%	61.1%	15.0%	20.1%	0.1%	0.4%	0.5%	2.1%
Cyprus	CY	Widening MS	12.8%	69.3%	2.2%	15.7%	0.3%	0.8%	0.1%	3.0%
Czechia	CZ	Widening MS	24.5%	49.6%	7.2%	18.6%	1.1%	0.9%	0.7%	5.6%
Germany	DE	Non-widening MS	32.3%	52.3%	14.2%	1.1%	19.8%	14.0%	19.6%	4.8%
Denmark	DK	Non-widening MS	34.1%	54.7%	9.7%	1.4%	3.8%	2.7%	2.4%	1.1%
Estonia	EE	Widening MS	11.9%	54.3%	12.8%	21.0%	0.3%	0.6%	0.7%	3.4%

Greece	EL	Widening MS	8.3%	81.4%	3.1%	7.2%	1.3%	5.4%	1.1%	7.6%
Spain	ES	Non-widening MS	20.7%	63.7%	14.0%	1.6%	8.4%	11.4%	12.8%	4.7%
Finland	FI	Non-widening MS	22.2%	65.3%	11.1%	1.4%	2.4%	3.1%	2.8%	1.0%
France	FR	Non-widening MS	28.9%	57.1%	13.0%	1.0%	12.7%	11.0%	12.8%	2.9%
Croatia	HR	Widening MS	8.5%	59.2%	7.0%	25.3%	0.1%	0.3%	0.2%	2.2%
Hungary	HU	Widening MS	21.1%	62.9%	11.0%	5.0%	0.4%	0.5%	0.4%	0.6%
Ireland	IE	Non-widening MS	28.0%	57.2%	13.3%	1.4%	2.3%	2.0%	2.4%	0.8%
Italy	IT	Non-widening MS	24.9%	65.3%	8.4%	1.3%	8.2%	9.4%	6.2%	3.1%
Lithuania	LT	Widening MS	8.6%	58.3%	15.8%	17.4%	0.1%	0.4%	0.5%	1.7%
Luxembourg	LU	Non-widening MS	11.1%	81.6%	6.6%	0.6%	0.2%	0.6%	0.3%	0.1%
Latvia	LV	Widening MS	5.1%	58.3%	7.9%	28.7%	0.0%	0.2%	0.2%	1.8%
Malta	MT	Widening MS	7.7%	50.1%	18.6%	23.6%	0.0%	0.1%	0.2%	0.7%
Netherlands	NL	Non-widening MS	33.2%	52.1%	13.5%	1.3%	11.3%	7.8%	10.3%	3.0%
Poland	PL	Widening MS	19.7%	52.8%	15.5%	12.1%	1.2%	1.4%	2.1%	5.1%
Portugal	PT	Widening MS	18.7%	58.9%	9.3%	13.1%	1.7%	2.3%	1.9%	8.2%
Romania	RO	Widening MS	7.9%	75.6%	6.5%	10.1%	0.2%	0.9%	0.4%	1.8%
Sweden	SE	Non-widening MS	32.2%	52.3%	14.5%	1.0%	4.2%	3.0%	4.2%	0.9%
Slovenia	SI	Widening MS	18.1%	63.4%	7.1%	11.4%	0.6%	0.9%	0.5%	2.6%
Slovakia	SK	Widening MS	8.8%	52.4%	13.7%	25.2%	0.1%	0.2%	0.3%	1.7%

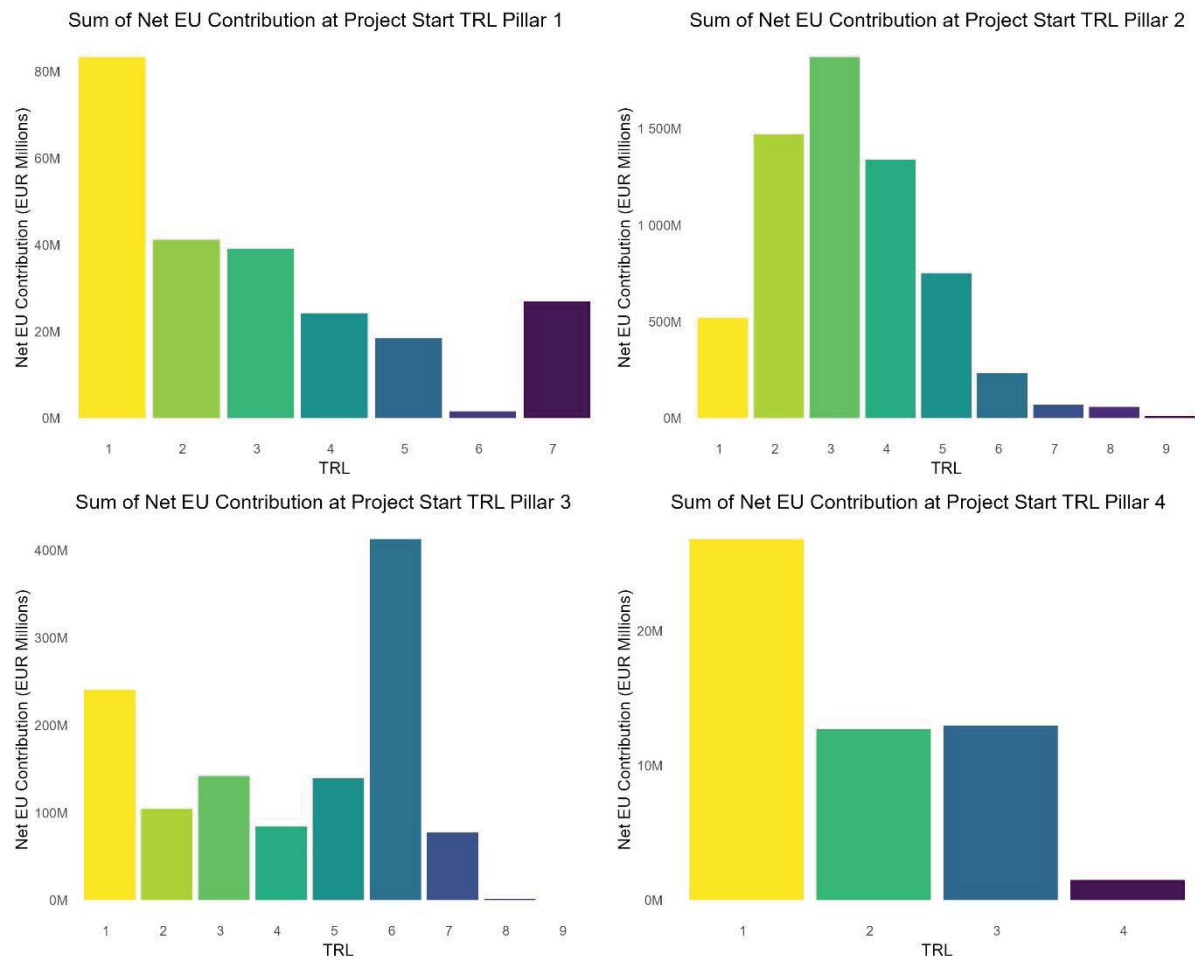
Total EU-27	25.3%	59.2%	11.9%	3.7%	89.2%	91.6%	94.3%	91.6%
Widening MS	13.8%	65.2%	8.1%	12.9%	7.4%	15.2%	9.7%	48.1%
Non-widening MS	27.3%	58.1%	12.5%	2.1%	81.8%	76.4%	84.6%	43.5%
Associated countries	33.8%	53.7%	8.5%	4.0%	9.8%	6.8%	5.5%	8.2%
Third countries	21.8%	75.6%	1.8%	0.7%	1.0%	1.6%	0.2%	0.2%
Total Horizon Europe	25.9%	59.0%	11.5%	3.7%	100%	100%	100%	100%

Figure 127: Technology Readiness Level (TRL): status at project start, as indicated in the latest Periodic Reporting



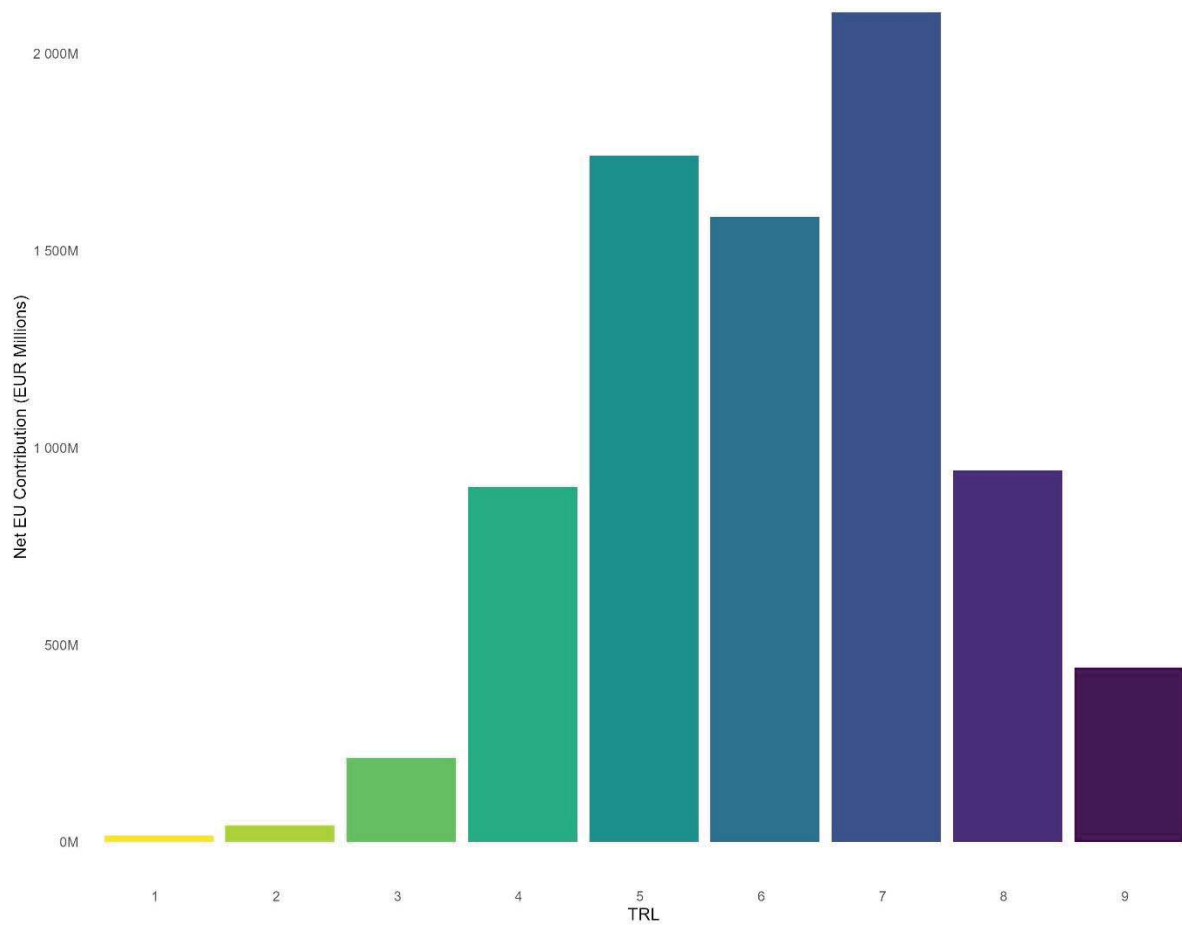
Source: Elaboration based on Dashboard and CORDA extractions, January 2025.

Figure 128: Technology Readiness Level (TRL): status at project start, by Pillar, as indicated in the latest Periodic Reporting



Source: Elaboration based on Dashboard and CORDA extractions, January 2025.

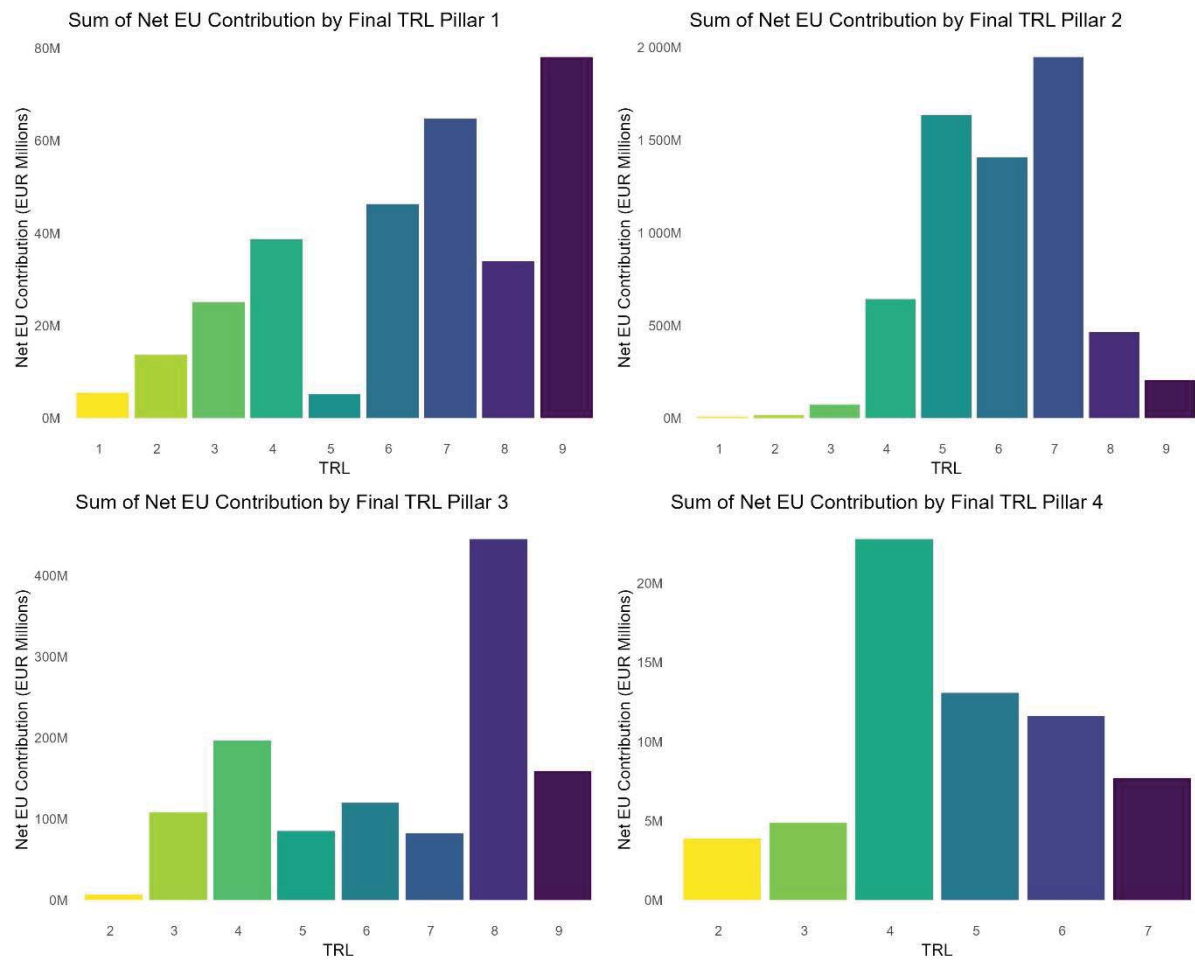
Figure 129: Technology Readiness Level (TRL): status at project end, as indicated in the latest Periodic Reporting³²⁶



Source: Elaboration based on Dashboard and CORDA extractions, January 2025.

³²⁶ This can either be the achieved or expected TRL at project end. Ongoing projects might report the TRL that they aim to achieve by the end of the project.

Figure 130: Technology Readiness Level (TRL): status at project end, by Pillar, as indicated in the latest Periodic Reporting



Source: Elaboration based on Dashboard and CORDA extractions, January 2025.

Annex 9 Activities conducted to increase citizen and user engagement

The evaluation found different activities conducted to increase citizen and user engagement:

- Cluster 1 engages end-users and SMEs in the health industry – but it has suboptimal synergies with Cluster 2 on social dimension (i.e. insufficient community engagement in health-related activities).
- Cluster 2 expanded its participant base by including more CSOs, practitioner groups (non-academic participants) and end users. A third of stakeholder consultation respondents also expressed that Cluster 2 has unexploited potential for complementarities with the other Clusters.
- Cluster 3 mandates the involvement of public bodies and security practitioners as a key eligibility criterion. The compulsory association of end-users to the project is considered to have had beneficial effect on the added-value of the programme and is a measure that contributes to dissemination of research results.
- Cluster 4 emphasizes the importance of involving local stakeholders with the aim to foster scalability and replicability.
- Cluster 5 projects in areas of energy supply, transport and mobility tend to prioritise collaborations across industries and value chains. As for citizen engagement, Destination 4 ('Efficient, sustainable and inclusive energy use') aims to make participatory urban planning a norm with a focus on awareness raising and uptake of technological solutions rather than their co-design or co-creation. Project results are not yet available.
- Cluster 6 is applying the Multi Actor Approach (MAA) to foster stakeholder participation: its WP 2021-2022 had 74 MAA topics (37%) and the WP 2023-2024 had 85 MAA topics (39%). Moreover, living labs and lighthouses are deployed through some Cluster 6 actions to ensure that end-users are involved in developing, experimenting and demonstrating innovations to address users' needs on the ground.
- According to the results of the Horizon Europe beneficiaries' survey, nearly half of the responding projects (47.7%; 2 537) plan to engage citizens in their R&I activities. For Cluster 5 and 6 Partnership projects, this proportion falls to one-third (N=190)³²⁷.
- As a contribution to Horizon Europe Strategic Plan 2025–2027, a citizen engagement event took place on 1 December 2022, in the context of the Conference on the Future of Europe. Citizens provided feedback under three topical areas: 'Digital and technological transition', 'Green transition' and 'Resilience'³²⁸.
- The feedback opportunity for 'main' Horizon Europe work programme 2025 took place between 15 April and 6 May 2024. It was based on strategic orientations for the work programme of all Horizon Europe clusters, Research Infrastructures, European Innovation Ecosystems, EU Missions and the NEB Facility. 2222 contributions from 1052 individual respondents were received³²⁹.
- EIC and EIT KICs promote citizen engagement through competitions and awards.

³²⁷ Engaging stakeholders in R&I for the Green Transition - Comparative analysis of Horizon Europe Cluster 5&6, Partnerships and Missions, section 3.4, <https://data.europa.eu/doi/10.2777/6499313>

³²⁸ Results from the citizens' engagement event on Horizon Europe Strategic Plan 2025-2027, 2023, https://research-and-innovation.ec.europa.eu/document/download/3455df69-b2f4-4f2f-9699-7afc6ed7d68b_en?filename=ec_rtd_citizen-engagement-event-summary.pdf

³²⁹ https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/horizon-europe-work-programmes_en#feedback-opportunity-for-the-2025-work-programme

- The EIC's Business Acceleration Services connect portfolio companies and researchers with corporates, investors, buyers, accelerators and venture builders amongst many others with a view to increasing the likelihood of market entry and scaling of EIC funded innovations.
- The EIT KICs disseminate R&I results in their community networks effectively, including among venture capital investors. In Horizon Europe, the EIT KICs report annually on dissemination activities and uptake of services.

Annex 10 Horizon Europe response to emergencies

As stated in section 4.5.3 of the SWD, Programme parts across all Horizon Europe pillars responded to Covid, mpox and Ukraine emergencies:

- **Cluster 1 is the only cluster with an ‘emergency action fund’**, whose release can be triggered by a policy announcement (WHO’s global pandemic).³³⁰ It mobilised resources and enhanced preparedness for health emergencies (e.g. COVID-19, Mpox, and previously Zika).
- **The first emergency call under Horizon Europe³³¹ provided EUR 123 million to tackle the virus and its variants.**³³² This support advanced our understanding of the virus by developing diagnostics, treatments, and vaccines, and informed public health policies. For instance, the project VERDI provided scientific evidence of vaccine effectiveness in children³³³, and CoVICIS helped to better understand the protective effect of vaccination in immunocompromised patients³³⁴. In addition, the project EuCARE provided insights into the severity of the different variants of SARS-CoV-2³³⁵. EuCARE also assessed the impact of prevention measures in schools showing that school opening did not increase transmission in Italy, Germany, and Portugal.³³⁶
- Horizon Europe contributes EUR 35 million on an annual basis to the cooperation between HERA and **Coalition for Epidemic Preparedness Innovations (CEPI)** to support the development of next generation vaccines for several diseases, including for COVID-19.³³⁷
- **The European COVID-19 Data Platform**, hosted by the European Open Science Cloud (EOSC), is a free-to-use, open digital space for researchers to share and upload data sets (for more details on EOSC, see also KIP3 in section 4.1.1 of this document). Since its launch on 20 April 2021, it has seen more than 114 000 users and 3.6 million web requests from over 170 countries. The platform offers access to 9 million records of sequences provided by 129 countries, as well as of biomolecular data and publications (contributing to over 1 million publications), viral sequences, sequences from patients, and other microbiological data.³³⁸
- In response to the **mpox outbreak in 2022, the EU mobilised EUR 17 million of emergency funding under Horizon Europe to support European clinical research.** These projects address research gaps in the current 2024 mpox outbreak and capitalise on the networks established during the COVID-19 pandemic to enhance Europe’s

³³⁰ The possibility for the mobilisation of emergency research funds is expressed as an “other action” integrated in the Horizon WP for Health since 2018: Horizon Europe 2021-2022 WP (p. 173): https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-4-health_horizon-2021-2022_en.pdf; and Horizon Europe 2023-2024 (p. 222): https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-4-health_horizon-2023-2024_en.pdf

³³¹ Cluster 1 – funded under the ‘label’ of ‘HERA incubator’.

³³² https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1548

³³³ https://www.nejm.org/doi/10.1056/NEJMoa2205011?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr_pub%20%20pubmed

³³⁴ <https://jamanetwork.com/journals/jamaoncology/fullarticle/2790203>

³³⁵ [https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762\(24\)00021-8/fulltext](https://www.thelancet.com/journals/lanepi/article/PIIS2666-7762(24)00021-8/fulltext)

³³⁶ <https://www.sciencedirect.com/science/article/pii/S1201971223007634?via%3Dihub>

³³⁷ [Speech by the President: Grand Challenges Annual Meeting](#)

³³⁸ <https://www.covid19dataportal.org/>

preparedness and response.³³⁹ For instance, the project MPX-RESPONSE is evaluating the safety and efficacy of therapies against mpox.³⁴⁰

- A benchmark study of the United States medical research agency (National Institutes of Health) response to COVID-19 reported that **Horizon Europe demonstrated flexibility in coping with changing circumstances in the world, such as COVID-19**, as the FP continues its funding efforts and directs initiatives towards COVID-19 and coronavirus research, including the preparations for the emerging variant.³⁴¹
- **ERC identified 183 projects in COVID-19 related fields** such as diagnostics and treatments (including vaccines), medical devices, digital tools, AI, immunity, infection and pathology, and social and economic behaviour, wellbeing and crisis management.³⁴² Furthermore, 48% (109) of ERC beneficiaries, who responded to the evaluation survey in May-July 2023, ‘strongly agreed’ or ‘rather agreed’ that, compared with the research funding available at national and/or regional level, Horizon Europe provided greater flexibility to respond to pressing socio-economic needs.³⁴³
- With ‘**ERC for Ukraine**’, the ERC appealed to its grantees to provide temporary employment to researchers and support staff from Ukraine and seeking refuge in the EU, under the initiative ‘ERC for Ukraine’.
- The **MSCA** supported affected doctoral candidates and post-doctoral researchers from Ukraine by establishing in 2022 the EUR 25 million MSCA4Ukraine scheme.³⁴⁴ The scheme enables displaced researchers from Ukraine to continue their work at academic and non-academic organisations in EU Member States and Horizon Europe associated countries, while maintaining their connections to research and innovation communities in Ukraine.³⁴⁵ A EUR 10 million top-up was subsequently awarded in April 2024 to allow 50 additional researchers to continue their work safely in academia, businesses, research centres and public institutions based in the EU and countries associated to Horizon Europe. In total, 175 researchers from Ukraine had received a fellowship.
- In addition, **the EIC and EIT published dedicated calls to address COVID-19**.³⁴⁶ The EIC also organised events to enable EIC companies to pitch to investors, corporates and public healthcare authorities looking for innovative solutions to COVID challenges.³⁴⁷
- At the end of 2023, the **EIT established an EIT Community Hub³⁴⁸ in Kyiv**, working to bridge the Ukrainian and EU’s innovation ecosystem and boost ideas and businesses emerging from Ukraine.³⁴⁹ Under Horizon Europe, the **EIT Jumpstarter** added a new activity³⁵⁰ in 2023, entitled “rebuild Ukraine” – only for Ukrainian citizens and teams, allowing Ukrainian innovators to bring their ideas to the market. In 2024, 20% of total

³³⁹ https://research-and-innovation.ec.europa.eu/research-area/health/mpox-research-and-innovation_en

³⁴⁰ <https://www.nature.com/articles/s41591-023-02393-6>

³⁴¹ Resilient Europe evaluation study, Annex 5, benchmark study 1, p. 21, <https://data.europa.eu/doi/10.2777/22355>

³⁴² European Research Council, COVID-19 Frontier research in the spotlight, 2022, https://erc.europa.eu/sites/default/files/2022-08/COVID19-Frontier_research_in_the-spotlight.pdf

³⁴³ Excellent Science evaluation study, 2024, Annex 4, p. 843, <https://data.europa.eu/doi/10.2777/9552959>

³⁴⁴ Ibid, pp. 843-844, <https://data.europa.eu/doi/10.2777/9552959>

³⁴⁵ Excellent Science evaluation study, 2024, p. 72, <https://data.europa.eu/doi/10.2777/2295765>

³⁴⁶ Innovative Europe evaluation study, 2024, chapter 9.1, p. 98, <https://data.europa.eu/doi/10.2777/499132>

³⁴⁷ Deep Tech Europe. EIC Impact Report, 2021, p. 50, <https://data.europa.eu/doi/10.2826/005280>

³⁴⁸ Innovative Europe evaluation study, 2024, chapter 4.1, pp. 40-41, <https://data.europa.eu/doi/10.2777/499132>

³⁴⁹ <https://eit-ris.eu/ukraine/>

³⁵⁰ Innovative Europe evaluation study, 2024, Annex 10, p. 544, <https://data.europa.eu/doi/10.2777/726675>

applications within the EIT Jumpstarter came from Ukraine. The overall EIT support has so far channelled to Ukraine more than EUR 2 million between 2022 and 2023.

- In 2023, 41 Ukrainian partners (of which 29 higher education institutions) are participating in the EIT HEI initiative for strengthening their innovation capacity and establishing connections with European counterparts.
- Close to 900 Ukrainian girls in secondary school were trained on digital and entrepreneurial skills related to circular economy through the Girls Go Circular initiative.³⁵¹
- **Human capital strengthening:** the '*Scientists Help Scientists*' initiative allocated additional funds to aid displaced Ukrainian researchers under the Human Frontier Science Program (HFPSO).³⁵²

³⁵¹ DG EAC monitoring data, <https://eit-ris.eu/ukraine/>

³⁵² [HFSP Scientists for Scientists \(S4S\) Initiative | Human Frontier Science Program](#)



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PART 3/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 11: Evaluation of Chips JU

Annex to the Commission's interim evaluation of Horizon Europe

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This Annex on the evaluation of European partnerships ECSEL, KDT, and Chips Joint Undertakings integrates findings from an independent expert report by Technopolis¹. This report was commissioned by the European Commission, Directorate-General for Research and Innovation, and is part of the evaluation study on the European framework programmes for research and innovation for addressing global challenges and industrial competitiveness.

In the European Union's quest for technological sovereignty and global competitiveness, Joint Undertakings (JUs) such as the **Electronic Components and Systems for European Leadership (ECSEL)**, the **Key Digital Technologies (KDT)**, and the **Chips JUs** play crucial roles.

The **ECSEL JU**, established in 2014 under the Horizon 2020 (H2020) programme with a maximum EU contribution of almost EUR 1.2 billion, followed the ENIAC and ARTEMIS JUs to keep Europe at the forefront of essential technology developments². In 2021, the Council's adoption of the Single Basic Act (SBA) led to the creation of the **Key Digital Technologies (KDT) JU** under Horizon Europe, with a maximum EU contribution of EUR 1.8 billion³. The KDT JU focused on advancing electronic components, systems, and software to drive Europe's digital transformation in line with the European Green Deal. In 2023, the **Chips JU** was set up under the Chips Act⁴ and the corresponding SBA amendment⁵, with a maximum EU contribution of EUR 4.175 billion from Horizon Europe and Digital Europe, to reinforce Europe's technological sovereignty and increase the resilience of its semiconductor industry.

These partnerships, based on tripartite governance models involving the EU, participating states and industry associations (currently AENEAS, EPoSS, and INSIDE)⁶, aim to stimulate innovation and drive technological progress.

1. Effectiveness

The ECSEL JU, established under Horizon 2020, **aimed to strengthen the European electronic components and systems (ECS) industry**. Its specific objectives included developing a competitive ECS industry, ensuring the availability of ECS for key markets, and fostering economic and employment growth in the EU². The partnership effectively coordinated European R&D, mobilised public and private funding, and promoted the participation of small and medium-sized enterprises (SMEs).

The ECSEL JU **made substantial contributions to the European ECS sector** across various domains, and played a significant role in building a robust and competitive ECS industry in Europe. Via 96 projects, it facilitated collaboration between over 3 000 non-unique beneficiaries from various sectors. These collaborations resulted in over 400 patents filed, positioning the EU as a leader in the

¹ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings. <https://op.europa.eu/en/publication-detail/-/publication/fab5b68d-8499-11ef-a67d-01aa75ed71a1/language-en>

² Council Regulation (EU) 561/2014 of 6 May 2014, establishing the ECSEL Joint Undertaking.

³ Council Regulation (EU) 2021/2085 of 19 November 2021, establishing the Joint Undertakings under Horizon Europe [...].

⁴ Regulation (EU) 2023/1781 of the European Parliament and of the Council of 13 September 2023, establishing a framework of measures for strengthening Europe's semiconductor ecosystem and amending Regulation (EU) 2021/694 (Chips Act).

⁵ Council Regulation (EU) 2023/1782 of 25 July 2023, amending Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe, as regards the Chips Joint Undertaking.

⁶ See respectively <https://aeneas-office.org/>, <https://www.smart-systems-integration.org/>, and <https://www.inside-association.eu/>.

ECS sector⁷. The ECSEL JU also ensured the availability of electronic components for key markets by supporting projects that addressed challenges in transport, health, and the environment, thus maintaining Europe's competitive edge in application-led technology development. The combination of Member States co-financing and EU funding enhanced the efficiency of public support with a public/private funding ratio of approximately 1:1. This strategic coordination streamlined research and innovation activities across Europe, reducing duplication and fragmentation.

Another primary goal of the ECSEL JU was to **sustain and enhance semiconductor manufacturing capabilities** in Europe. By supporting projects that advanced manufacturing technologies and processes, it kept Europe at the forefront of manufacturing equipment and materials processing, maintaining its competitive position in the global ECS market.

The ECSEL JU also **excelled in fostering scientific research**, with its projects producing a high volume of scientific publications. The ECSEL JU helped strengthen the overall R&I performance of the European ECS ecosystem. Between 2014 and 2021, ECSEL JU projects generated an average of 2.5 publications per project, surpassing other programmes like 5G, Cybersecurity, Photonics, and Internet of Things (IoT) in scientific impact⁸. Joint publications by academia and industry, a key indicator of technology transfer, were prominent in the ECSEL JU projects, with 29% of its publications being academic-private co-publications. This reflects effective collaboration and knowledge exchange between sectors.

The ECSEL JU's contributions extended to **addressing key societal challenges**. By focusing on mobility, health, and the environment, the partnership supported technologies with direct benefits to society. Innovations in smart mobility, healthcare technologies, and environmental monitoring systems (for example) have improved the quality of life for Europeans⁹. The ECSEL JU's efforts in these areas underscored its commitment to using ECS technologies to solve real-world problems and enhance the well-being of the whole society. By contributing to the development of different solutions and technologies, ECSEL helped the EU address key societal challenges¹⁰.

Economically, the ECSEL JU has driven **growth and competitiveness** in the European ECS sector. Its projects attracted significant private investment, which, along with public funding, provided a strong financial foundation for research and innovation. The growth in SME participation and funding highlighted the partnership's role in fostering entrepreneurship and innovation within the ECS ecosystem¹¹. Technologically, the ECSEL JU has kept Europe at the forefront of semiconductor manufacturing and smart systems by supporting cutting-edge R&D.

⁷ KDT JU (2022), Annual Activity Report 2022. https://www.chips-ju.europa.eu/File/download.aspx?entity=shv_library&attribute=shv_file&ID=80086c90-76ca-ee11-9079-0022489e2eca

⁸ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 27-28.

⁹ For instance, InForMed (grant number 662155), Position-II (783132) and Moore4Medical (876190) are ECSEL projects, which brought innovations and new insights in micro-fabricated electronic medical devices and embedded intelligence applications that provide answers to the need for a more decentralised and personalised form of healthcare. These technologies improve the quality of life of people with diseases that include chronic diseases such as cancer, diabetes, heart and respiratory diseases, stroke, dementia and depression.

¹⁰ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 27. Deloitte, VVA (2020), *Study on the impact of ECSEL funded actions*, <https://www.chips-ju.europa.eu/DeloitteECSEL.pdf>.

¹¹ Deloitte, VVA (2020), *Study on the impact of ECSEL funded actions*.

The **KDT JU** followed on from the ECSEL JU under Horizon Europe in 2021, with the mission to enhance Europe's electronic components and systems capabilities. Its key objectives included boosting strategic autonomy, promoting scientific excellence, fostering innovation, and addressing societal and environmental challenges.

A change in the KDT JU was the inclusion of **top-down priorities** by introducing 'focus topics'. The KDT JU, like the ECSEL JU before it and to a certain extent the Chips JU after it, was an anomaly in Horizon Europe Pillar 2, as the vast majority of funding was assigned to work programme topics that covered the whole strategic research and innovation agenda (SRIA) rather than to specific challenges in the SRIA. The ECS strategic research and innovation agenda (ECS-SRIA) describes many diverse research challenges, which were collected from the JU's private members and their affiliates through a bottom-up process. The scope of the resulting SRIA is extremely wide and diverse, and is documented in over 500 pages. Every annual work programme established topics for both research and innovation actions (RIA) and innovation actions (IA) by simply referring to the whole SRIA for the scope of these topics. The focus topics¹² strategically complemented the bottom-up research to address specific well-identified challenges in parts of the ECS value chain. The top-down elements in the KDT JU's strategic programming were in line with European and national policy priorities, aiming for mastery of key digital technologies and digital autonomy. Focus topics addressed the EU's and Member States' priorities and were set by dedicated working groups. Roughly 25% of funding supported focus topics in the KDT JU, while the vast majority of funding was dedicated to bottom-up topics addressing the whole SRIA.

The KDT JU partnership achieved **notable progress** under Horizon Europe, contributing significantly to scientific excellence, societal well-being, economic growth, and technological innovation. By strengthening strategic autonomy, nurturing a dynamic ecosystem, and tackling critical societal and environmental issues, the KDT JU established Europe as a global leader in ECS.

One of the KDT partnership's primary goals was to contribute to doubling the value of ECS design and production in Europe by 2030¹³. Through research and innovation in strategic areas such as aerospace, automotive, and healthcare, the KDT JU **enhanced Europe's global ECS market position**¹⁴. SMEs played a crucial role, receiving 24% of public funding and contributing significantly to market-driven, commercially viable technological advancements. The collaboration among SMEs, large companies, and research institutions spurred the development of cutting-edge technologies and reinforced Europe's reputation as a leader in ECS research and innovation.

The KDT JU also prioritised **societal and environmental challenges**, aligning with the EU's energy efficiency goals. The partnership aimed to contribute to the EU's target of a 32.5% reduction in energy consumption by 2030, promoting energy-efficient and sustainable technologies to reduce carbon

¹² Please note that 'focus topics' are called 'topics' in the rest of Horizon Europe.

¹³ This objective has been redirected towards a target in the Digital Decade Policy Programme that states that by 2030 'the production, in accordance with Union law on environmental sustainability, of cutting-edge semiconductors in the Union is at least 20% of world production in value'. Progress in achieving this task is monitored under the Digital Decade Policy Programme. See Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022, establishing the Digital Decade Policy Programme 2030.

¹⁴ An example of a KDT project targeting the automotive sector is HICONNECTS (grant number 101097296), which develops a new automotive radar based on a single system on chip (SoC) with combined transceiver and processing in a new leading-edge node while increasing antenna integration with the Launcher in Package (LiP) to increase performance and reduce costs. An example of a KDT project targeting healthcare is Newlife (grant number 101095792). Newlife is developing digital healthcare solutions for remote screening and early detection of pregnancy risk factors. It uses non-invasive technologies to gather vital data on mothers and babies, which is analysed by artificial intelligence techniques.

emissions and support green technology. For example, the KDT JU introduced the topic ‘Eco-designed smart electronic systems supporting the Green Deal objectives’ in its 2022 work programme. The KDT JU produced technologies that can cut down power consumption (e.g. energy-efficient chips that consume less power), as well as processes that reduce energy and water usage in semiconductor manufacturing and in sectoral applications. Approximately two thirds of KDT JU projects have an impact or deliver a contribution to the Green Deal objectives¹⁵.

Furthermore, the KDT JU and related initiatives showed a strong commitment to **social inclusivity and diversity**^{16,17}, focusing on reducing the digital gender gap. Within the KDT JU, concerted efforts were made to encourage the active participation of women in the digital sector and to advance gender equality¹⁸. For instance, an event organised by the KDT JU and Euractiv focused on the digital gender gap¹⁹. Related initiatives, such as the ALLPROS.eu support action, made videos on inclusion in the semiconductor industry²⁰.

Economically, the KDT JU strengthened Europe’s microelectronics sector by fostering innovation and enhancing competitiveness. The involvement of SMEs and focus on strategic application areas stimulated economic growth and resilience. The partnership’s dynamic ecosystem attracted collaborations, further bolstering the economic landscape.

The KDT JU appears to have maintained a **balanced portfolio and ecosystem development**, fostering a dynamic environment with a mix of large and small projects. The largely bottom-up nature of priority-setting leaves the portfolio essentially to chance rather than setting it out by design. Exactly 30 projects were initiated in 2021-2022. Technologically, the KDT JU promoted semiconductor manufacturing, RISC-V building blocks, and edge AI, amongst others. Emphasising secure, reliable, and energy-efficient microelectronic technologies, the partnership ensured Europe’s leadership in technological innovation. The promotion of sustainable and green technologies positioned Europe as a leader in eco-friendly microelectronic solutions.

In an era where semiconductor technology underpins virtually every aspect of modern life, from consumer electronics to critical infrastructure, the strategic importance of having a robust and autonomous semiconductor industry cannot be overstated. Consequently, the **Chips JU** emerges as a pivotal public-private partnership aimed at not only reinforcing the European Union’s strategic autonomy in the semiconductor industry, but also propelling it to the forefront of global semiconductor innovation. The Chips JU aims to fortify the EU’s capabilities in semiconductor technology, thereby ensuring technological sovereignty and reducing dependence on external sources.

¹⁵ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 39. Another example is the Powerized project (grant number 101096387), which develops technologies for intelligent power electronics to enable sustainable and resilient energy generation, transmission and applications.

¹⁶ <https://events.euractiv.com/event/info/media-partnership-closing-the-digital-gender-gap-womens-participation-in-the-digital-economy>

¹⁷ For more information, see: <https://allpros.eu/events/bridging-skills-shortage-european-semiconductor-industry> and <https://allpros.eu/news/semiconductors-industry-deserves-more-women-board>.

¹⁸ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, p. 29.

¹⁹ <https://events.euractiv.com/event/info/media-partnership-closing-the-digital-gender-gap-womens-participation-in-the-digital-economy>

²⁰ For more information, see: <https://allpros.eu/events/bridging-skills-shortage-european-semiconductor-industry> and <https://allpros.eu/news/semiconductors-industry-deserves-more-women-board>.

Although it is too early to assess the full effectiveness of the new partnership, the Chips JU is making **significant progress** in achieving its objectives. Increased funding and strategic projects significantly bolster the EU's research and development capabilities in semiconductor technologies.

The Chips JU spearheads various projects and initiatives designed to achieve its ambitious objectives. These activities are broadly categorised into 'Initiative' and 'non-Initiative' activities, each playing a crucial role in advancing the semiconductor ecosystem within the EU. **Initiative activities** are primarily geared towards establishing foundational infrastructures and capacities necessary for semiconductor innovation and prototype production, in accordance with the European Chips Act's Chips for Europe Initiative (hence the name of the activities). By setting up a design platform and competence centres, the Chips JU provides critical support for SMEs and startups. These infrastructures offer access to state-of-the-art tools, technologies, and expertise, enabling smaller entities to innovate and compete on a global scale. Recognising the transformative potential of quantum computing, the Chips JU invests in advancing quantum chip technologies through collaborative R&D efforts to explore applications in various domains such as cryptography, optimisation, and simulation.

The Chips JU started with the establishment of **pilot lines**, a cornerstone action aimed at bridging the gap between research and commercial production. These pilot lines facilitate the scaling-up of laboratory innovations to industrial manufacturing, accelerating the time-to-market for new semiconductor technologies. Approximately EUR 1.85 billion is allocated to pilot line projects, ensuring the practical application of research through the establishment of new technologies before mass production²¹. In particular, EU funding of EUR 700 million targets the development of a pilot line for sub-2nm SoC technology, pushing the boundaries of semiconductor miniaturisation for next-generation devices. Additionally, EUR 420 million are allocated to a pilot line for FD-SOI technology for the 7nm node, offering a cost-effective and energy-efficient alternative to traditional silicon. A pilot line for advanced packaging and heterogeneous integration may receive up to EUR 370 million, enhancing device performance and reducing costs, while EUR 180 million are directed towards a pilot line on advanced semiconductor devices based on wide bandgap (WBG) materials, set to revolutionise power electronics. During summer 2024, a call was opened for a pilot line on advanced photonics integrated circuits (PIC), which may receive up to EUR 190 million, facilitating the development of reliable, scalable, and cost-effective PIC solutions, which will be particularly important for the next generation of high-performance computers, high-speed communications, and data centres²².

Together, these investments not only maximise the efficiency of the allocated budget but also position Europe's semiconductor industry at the **forefront of global technological innovation**. Through these efforts, the Chips JU ensures that Europe maintains a stable supply chain for new critical technologies, pushing the boundaries of what is possible in the semiconductor sector.

Non-Initiative activities continue the former KDT programme and encompass collaborative projects aimed at fostering innovation and addressing specific technological challenges. Funded under the Horizon Europe programme, these projects focus on critical areas such as RISC-V automotive processors, advanced packaging technologies, and sustainable semiconductor manufacturing processes. At the international level, collaborative efforts, such as the joint call with South Korea in

²¹ <https://digital-strategy.ec.europa.eu/en/news/europe-commits-semiconductor-innovation-new-testing-facilities>

²² <https://digital-strategy.ec.europa.eu/en/news/eu-invests-eu325-million-support-europes-semiconductor-innovation-ecosystem>

2024, aim to leverage global expertise and resources. This joint call with South Korea focused on areas such as heterogeneous integration and neuromorphic computing technologies, promoting cross-border innovation and knowledge exchange²³.

The research challenges behind the Chips JU are captured in the **ECS-SRIA**, which aligns with broader EU policy objectives such as the Paris Agreement and the European Green Deal. This agenda serves as a collection of challenges to achieve innovation in technologies relevant for ECS. By integrating technological sovereignty, sustainable growth, and global collaboration into its strategic plans, the Chips JU aims to ensure the EU remains at the forefront of technological innovation while addressing critical geopolitical, environmental, and other considerations. To achieve this, the Chips JU employs a top-down approach to provide longer-term strategic direction and ensure alignment with EU-wide objectives through the ‘focus topics’ set out above. This approach has several advantages, including coordinated efforts, consistent funding, and strategic alignment with broader EU and national goals. The increased use of focus topics allows the Chips JU to steer applicants towards specific areas identified in the SRIA which align with policy objectives and offer strategic value, such as neuromorphic computing, processors for the automotive domain, and environmental considerations. All Initiative activities are implemented via focus topics. These are complemented by a bottom-up approach that encourages grassroots innovation, addressing shorter-term industrial interests. The bottom-up approach involves engaging researchers, large companies, SMEs, and startups in the innovation process, ensuring diverse inputs and fostering creativity. By combining top-down and bottom-up approaches, the Chips JU mitigates risks such as fragmentation of efforts, inconsistent funding, and strategic misalignment, thus maximising the impact of its initiatives and reinforcing the EU’s leadership in semiconductor technology. Finding the **right balance between top-down and bottom-up approaches** requires continuous adjustments though.

2. Additionality

Launched in 2014, the **ECSEL JU** was pivotal in advancing Europe’s position in the global electronics sector. With a total budget of EUR 4.0 billion²⁴ allocated for the period from 2014 to 2020, the ECSEL JU aimed to consolidate Europe’s research and innovation capabilities in electronics. The partnership achieved exceptional direct leverage²⁵, slightly exceeding its target of 3 with an **actual leverage factor of 3.02** by mid-2024²⁶. This means for every euro invested by the EU, about EUR 3.02 were raised in private funding and co-financing by participating states. The partnership’s structure attracted significant private investment as well as public funding from the EU and participating states, with some Member States such as Italy and Romania using European Structural and Investment Funds (ESIF) to bolster their national contributions. However, 5 of the 25 participating states (Bulgaria, Cyprus, Greece, Latvia, and Slovenia) did not contribute financially, which limited their organisations’ access to funding.

²³ <https://digital-strategy.ec.europa.eu/en/news/eu-republic-korea-digital-partnership-joint-eurepublic-korea-chips-projects-announced>

²⁴ This total budget for the ECSEL JU only takes into account the private contributions committed by affiliates of the private members of the JU, excluding the contributions from the non-affiliates that may have arisen during the execution of the JU projects. Including the latter contributions would lead to a higher total budget for the ECSEL JU.

²⁵ Direct leverage refers to the difference between a project’s (or participant’s) total costs and the EU contribution given to a project (or participant).

²⁶ The figure is based on budgeted rather than actual cost data, including all project participants, so including non-affiliated members of the JU’s private members. Possible additional activities are not taken into account.

The **KDT JU**, which replaced the ECSEL JU in November 2021, operated with a significantly larger overall budget of around EUR 6.1 billion for 2021-2027, reflecting the growing importance of digital technologies and the need for increased investments. The transition from the ECSEL JU to the KDT JU revealed some challenges, particularly regarding the uniform approach to European Partnerships under the Single Basic Act. Despite these hurdles, the ECSEL JU's funding model proved to be robust. Stakeholders expressed satisfaction with the funding approach, appreciating the stability and predictability it provided. Under the ECSEL JU, beneficiaries received an average funding rate of 48% (EU plus national contributions), which led to substantial in-kind contributions from industry partners. Although possibly disadvantageous for SMEs and non-profit organisations compared to other partnerships or standard Horizon Europe funding rates, this model encouraged collaboration among large companies, SMEs, universities, and Research and Technology Organisations (RTOs), collectively advancing the EU's technological objectives. The KDT JU maintained the tripartite governance model and aimed to expand Europe's technological base in key digital sectors, with a notable shift towards a broader funding base and greater private sector involvement. Analysis of the KDT JU revealed varied funding levels among participating states. While Germany, France, and the Netherlands were top contributors, Eastern and Southern European countries contributed less funding⁷. Increased participation from countries like Greece, Lithuania, and Türkiye suggested broader engagement.

At 2.53 for 2021-2023, the direct leverage factor for the KDT JU is a little lower than for the ECSEL JU, and **slightly below the expected factor** of 3²⁷. The approach adopted in the KDT JU was that 70% of public funding should be matched by in-kind contributions from private partners, i.e. from affiliates of the three industry associations that are members of the KDT JU, which would lead to an expected leverage factor of 2.4. Beneficiaries are expected to receive a contribution by participating states that is commensurate with the EU contribution. The EU set funding rates for SMEs at 5 percentage points higher than for the ECSEL JU, to attract more small stakeholders, though this also reduced their in-kind contributions.

In response to the increasing strategic importance of semiconductor technologies, the **Chips JU** was established in 2023 as a continuation and expansion of the KDT JU's efforts. With a projected total budget of almost EUR 11 billion²⁸, including significant contributions from both the public and private sectors, the Chips JU aims to fortify Europe's semiconductor ecosystem and enhance its global competitive position. The partnership's budget reflects a substantial increase in funding, aligning with the EU's strategic priorities in semiconductor technology as expressed in the Chips Act²⁹. Expected contributions from the EU, participating states and private partners are ambitious, with an anticipated leverage factor of 1.6³⁰. These numbers, which do not include in-kind contributions to additional activities, are indicative of the partnership's ability to mobilise significant additional investments. As

²⁷ Figures are based on budgeted rather than actual cost data, including all project participants, so including non-affiliated members of the JU's private members. Possible additional activities are not taken into account. Status as of October 2024.

²⁸ Including budgets from the KDT period from 2021 to September 2023, and including both Horizon Europe and Digital Europe budgets. Excluding Digital Europe budgets, the Chips JU's total budget for R&I would be almost EUR 8 billion.

²⁹ See footnote 4 and Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *A Chips Act for Europe* (COM(2022) 45 of 8 February 2022).

³⁰ See footnote 5. Excluding Digital Europe budgets, the expected leverage factor would be 1.92.

the Chips JU progresses, attracting and making use of private sector contributions will be crucial for success and European competitiveness.

The landscape of semiconductor research and innovation in Europe has been significantly shaped by the activities and contributions of the ECSEL JU, the KDT JU, and the more recently established Chips JU, in which private contributions play a crucial role. The ECSEL JU set a high benchmark for leveraging European funding, while the KDT JU and the Chips JU reflect a continued commitment to enhancing Europe's position in key digital and semiconductor technologies. However, the Chips JU prioritises contributing to policy objectives rather than achieving high leverage factor numbers with rather untargeted R&I. Unfortunately, the exclusive focus on in-kind contributions to operational activities (IKOP) with marginal attention paid to in-kind contributions to additional activities (IKAA) in the three JUs was a missed opportunity to clarify how the resources and expertise of the private members and their affiliates are leveraged. The private members could do more to coordinate the European R&I landscape across a wide range of activities, from early-stage research to market deployment, thereby strengthening Europe's leadership in digital and electronic technologies. Including IKAA and **coordinating the wider European R&I landscape** could be a contribution to maximising the impact of future partnerships beyond Horizon Europe.

3. Transparency and openness

The ECSEL, KDT, and Chips JUs have demonstrated a **high degree of openness to new participants**, with calls for proposals being fully open to all prospective project participants, and not just affiliated members of the industry associations AENEAS, INSIDE, and EPoSS. This openness is crucial for fostering innovation and broadening the participant base, particularly for entities such as SMEs, universities, and RTOs that might not be able to commit to long-term association memberships due to financial or administrative constraints.

To expand the partnership and involve new members, the ECSEL, KDT and Chips JUs have established several **mechanisms to ensure continuous openness and transparency** in their operations. These mechanisms are essential for attracting and retaining new participants, and include public consultations, open dialogues, webinars, and brokerage events designed to facilitate networking and project formulation among stakeholders and potential new entrants.

Participation data from the **ECSEL JU** indicates that a significant proportion of participants were newcomers, with 54% of applicants in 2014 being new to the initiative. Around 40% of entities participating in the submission of a proposal in a certain year did not participate in previous ECSEL calls³¹. This figure has remained stable, demonstrating sustained interest from new organisations. Of the 2 529 new applicants over the lifetime of the ECSEL JU, 44% were SMEs, 36% were large companies and 19% non-profits (academia, RTOs, etc.)³². Among the applicants, 172 long-standing organisations participated 8 or more times in ECSEL JU proposals. During the life of the ECSEL JU, 44 new entries joined this group of 8 or more participations. Among them, 15 were large companies, 17 were SMEs, and 12 non-profits.

³¹ ECSEL (2020), Annual Activity Report 2020, Table 7. The percentage of new entities was quite constant over the ECSEL life time, ranging from a maximum of 54% in 2014 to a minimum of 39% in 2016 and 2019. See <https://www.chips-ju.europa.eu/AAR2020.pdf>.

³² ECSEL (2020), Annual Activity Report 2020, Table 8. See <https://www.chips-ju.europa.eu/AAR2020.pdf>.

The **participation of SMEs** and a diverse range of stakeholders in ECSEL projects enriched the ECS ecosystem. The ECSEL JU increased funding to SMEs over time, demonstrating a commitment to nurturing small businesses. The share of funding to SMEs increased from 12% in 2014-2015 projects, via 13% in 2016-2017 projects, to 15% in 2018-2020 projects³³.

Similarly, the **KDT JU** attracted a substantial number of new participants. The share of newcomers in KDT JU projects accounted for 28.6% of participants, and a share of 12.0% of EU funding was allocated to these newcomers. Among the 258 unique newcomers, the majority were SMEs (around 58%), followed by large companies (around 37%)³⁴. It is still very early to assess data from the **Chips JU**, since the first calls were recently launched and grant agreement preparations are ongoing.

Despite the theoretical accessibility of these JUs to new stakeholders, **practical obstacles often arise**. The intricate nature of the partnerships, unfamiliar funding processes, obscure differences with standard Horizon Europe practices, and challenges in obtaining relevant information can significantly hinder new participants, especially SMEs. While industry associations can alleviate some of these difficulties, their support might come with associated costs. Membership of an industry association does come with advantages³⁵, such as the ability to influence the ECS-SRIA and to be represented in the governance of the JUs, as well as the opportunity to access international networks and potentially engage in the supply chains of major companies. While participation in the Chips JU may encourage membership in industry associations, it is not mandatory to join. This setup can lead to ‘free riding’, where project participants who are not association members benefit from the efforts and expenses of the three associations contributing to the activities of the JU. Insufficient membership can hinder the associations’ ability to meet financial and in-kind contribution obligations as private JU members.

To mitigate the challenges for SMEs in particular to access these partnerships, the JUs have implemented **various support measures**. For instance, the KDT JU has increased funding rates for SMEs, aiming to alleviate financial burdens and simplify participation processes. In the KDT JU, SMEs accounted for 43% of participants and received 24.5% of the total EU funding, indicating an improvement in engagement by SMEs compared to the ECSEL JU³⁶. Moreover, the introduction of variable membership levels by the industrial associations aims to make membership more attractive to SMEs and other small stakeholders.

The Regulations’ **targets for SME participation are currently met** by the KDT/Chips JUs: the percentage of SMEs in the total number of participants in indirect actions is 43%, well above the target of one third, and the SMEs’ share of public (EU) funding is 24.5% (target: at least 20%). This success illustrates the partnerships’ commitment to fostering a diverse, competitive, and innovative ecosystem that includes a strong presence of SMEs.

While significant strides have been made in increasing SME participation and funding, **ongoing challenges need to be addressed**. Future partnerships must continue to refine their frameworks to support SMEs, fostering an inclusive and dynamic innovation ecosystem while adhering to legal

³³ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 28.

³⁴ Share of participation from newcomers in Horizon Europe based on CORDA data (reference date HE 19/06/2023).

³⁵ For information on memberships benefits, please refer to: <https://aeneas-office.org/membership/membership-benefits/>, <https://www.smart-systems-integration.org/benefits-membership-eposs>, <https://www.inside-association.eu/membership>.

³⁶ Source: RTD data.

obligations. Therefore, in planning a possible next generation of institutionalised partnerships in the next framework programme for research and innovation (also known as ‘FP10’), it is crucial to reassess the balance between the rights and obligations of the industry associations, in particular their voting rights versus their contributions to the administrative costs of the JU Office.

With respect to **inclusiveness**, the private members of the JUs established comprehensive and inclusive consultation processes for formulating their ECS-SRIA. This involved significant engagement with a broader spectrum of stakeholders, including industry professionals, research institutions, SMEs, and public authorities. The ECS-SRIA, developed with contributions from over 300 experts, is refined continually through feedback from events such as the European Forum for Electronic Components and Systems, ensuring diverse stakeholder perspectives are incorporated. It has guided research and innovation priorities across initiatives such as PENTA, EURIPIDES, and their successor Xecs. The other side of the coin is that the ECS-SRIA is extremely wide and diverse in scope, and not specifically written for the ECSEL, KDT, or Chips JUs or their objectives.

Transparency is further enhanced through the public dissemination of funding decisions, project outcomes, and strategic documents, fostering trust and collaboration among participants and the broader community. The ECSEL and KDT JUs followed transparent decision-making protocols by documenting and publicly disclosing their processes. This openness enabled scrutiny and accountability, ensuring balanced decisions reflecting a broad spectrum of interests and expertise. Regular public consultations solicited feedback from various stakeholders, promoting an inclusive approach to setting priorities and strategies. The partnerships’ commitment to transparency included a comprehensive website with key documents and decisions, supporting informed engagement and easy access to information.

Similarly, the **Chips JU** demonstrates a **commitment to transparency and openness**. By documenting decision-making processes, transparently reporting on funding allocation, and maintaining an accessible information platform, the Chips JU fosters accountability and inclusiveness. However, despite its strong transparency and openness practices, the Chips JU faces some challenges that could be addressed to further enhance its effectiveness. There is an opportunity for improved dissemination and reporting on the outcomes and impacts of funded projects. Providing detailed evaluations and analyses of project results would offer deeper insights into the Chips JU’s contributions to advancements in semiconductor technologies, thereby enhancing understanding and accountability. Therefore, to further strengthen public trust and operational effectiveness, the Chips JU should focus on improving the timeliness of information dissemination and providing more detailed reporting on project outcomes.

4. Efficiency

The following table reports, for the period 2014-2023 for ECSEL, KDT, Chips JU, the **total operational costs (OC)**, EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), and **total running costs (RC)**, commitment appropriations EU voted budget and contributions from sources other than the EU). No certified **IKAA** (In-Kind contributions to Additional Activities) were registered. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Operational and administrative expenditures of ECSEL, KDT, and Chips JU (2014-2023)

(source: CORDA)

The table includes data for ECSEL, KDT, and Chips Joint Undertakings. **OC**: Operational Costs; **IKAA**: Certified IKAA; **RC**: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC		601,773,455	571,870,726	728,283,102	663,007,578	784,961,565	629,538,212	654,617,257	632,212,353	595,535,601	5,861,799,848
IKAA	-	-	-	-	-	-	-	-	-	-	-
RC		5,277,706	5,360,000	5,470,000	5,198,000	5,200,000	5,150,000	4,390,000	4,976,000	6,301,000	47,322,706

The **ECSEL JU** operated under Horizon 2020 with a budget allocation that balanced research and innovation actions (RIAs) and innovation actions (IAs). The latest were assigned most of the EU funding (65%) thanks to the ECSEL JU's focus on higher technology readiness levels (TRLs), while RIAs received 35% and four coordination and support actions (CSAs) received 0.3% of the total EU funding. Some of the collaborative R&I projects included pilots and demonstrators aimed at transferring capabilities and results from lower TRL research activities into application domains. The average EU funding per project was approximately EUR 12 million.

Regarding operational efficiency, the ECSEL JU funded **96 successful proposals out of 321 eligible submissions**, resulting in a success rate of 30%³⁷. This relatively high success rate was caused by mild oversubscription rates, leading to moderate competition among applicants. Administrative processes were streamlined, and improvements were made in accessibility and reduced administrative burden for participants. Regarding applicant costs and administrative burden, the ECSEL JU's administration faced challenges due to its complex governance structure, which occasionally slowed decision-making processes. However, the JU's efforts to streamline application and evaluation processes helped mitigate some of the administrative burden for participants.

The KDT JU is a very efficient partnership according to its budget data. The table above shows for 2022 and 2023 operational expenditure and running costs that can be partly attributed to the ECSEL and KDT JUs. A better reflection of efficiency for KDT is the ratio between administrative and total budget, as documented in the SBA regulation. According to that metric, the KDT JU shows the highest efficiency of all JUs, not even taking into account that its total budget ignores the contributions by participating states³⁸.

In the **KDT JU**, the relative share of EU funding allocated to RIAs and IAs did not change, and the average EU funding per project remained stable at approximately EUR 12 million. Stakeholders perceived a suitable balance between high and low TRL projects, with roughly two thirds of the funding allocated to high TRL projects (TRL 5-8) and one-third to lower TRL projects (TRL 3-4)³⁹. The KDT JU primarily funded standard IAs and RIAs, achieving a higher success rate of 55% for its 30 successful proposals out of 55 eligible submissions. This change can be attributed to a more focused approach and the introduction of specific topics under Horizon Europe that led to higher-quality consortia. The simplified administrative procedures and more agile governance model

³⁷ Based on CORDA data (reference date Horizon 2020 15/11/2021).

³⁸ Internal analysis by DG BUDG (2021).

³⁹ ECSEL, KDT, and Chips JU work programmes typically contain statements indicating that 'research and innovation actions (RIA) and innovation actions (IA) essentially differ by the Technology Readiness Level (TRL) and therefore by the reimbursement rates' and that the activities of RIAs resp. IAs have their centre of gravity at TRL 3-4 resp. TRL 5-8.

contributed to faster project turnaround times and better resource allocation. The average time to grant for the KDT and Chips JUs is 214 days, with 93% of grant agreements signed within 8 months.

Compared to the ECSEL JU, the KDT JU maintained a **similar staffing structure** with 30 staff members. ECSEL/KDT staff costs rose steadily, from EUR 2.9 million in 2018 to EUR 3.9 million in 2022, reflecting increased investment in human resources to manage increasing workloads. The total administrative budget for the KDT JU increased with roughly 50% compared to ECSEL, necessitating more extensive management and coordination efforts.

The **Chips JU** represents a monumental leap in Europe's semiconductor R&D landscape, underpinned by a robust financial structure from two programmes. With a cumulative budget of EUR 4.175 billion sourced from Horizon Europe (EUR 2.725 billion) and the Digital Europe Programme (EUR 1.450 billion), the initiative underscores Europe's commitment to enhancing its semiconductor capabilities.

However, the transition from the KDT JU to the Chips JU, while marked by notable advancements, is creating **new challenges and opportunities**, including significant human resources issues because of the need for new recruitment and the establishment of new administrative and operational processes⁴⁰. The introduction of new capacity-building initiatives, such as pilot lines, adds to the complexity by mobilising funds from the Digital Europe Programme and Horizon Europe, and by involving joint procurement activities. To address these challenges, clear procedures for proposal submission and evaluation are in place to promote timely and effective project implementation. The Chips JU Office requires new competencies for joint procurement activities. Continuous assessment is crucial to further streamline processes and reduce bureaucratic delays.

5. Coherence and synergies

The European partnerships ECSEL, KDT and Chips JUs have demonstrated **significant alignment** with relevant regional, national, and EU policies and programmes. For instance, the German framework programme for research and innovation 2021-2024 on microelectronics is guided by objectives such as obtaining technology sovereignty, developing electronics that are trustworthy, contributing to climate protection, etc.⁴¹ Similar objectives can be found in the Chips Act and are brought into the Chips JU by the Commission, Germany, and other participating states. Such alignments are essential to fostering a comprehensive and integrated approach to technological advancement and economic growth across Europe.

The **ECSEL JU** established **connections with various areas** such as IoT⁴², AI, and cyber-physical systems. This alignment was coherent with the Horizon 2020 framework programme, particularly in addressing fragmentation in research efforts and fostering innovation across sectors such as automotive, health, and manufacturing. A main element in this strategy were the ECSEL Lighthouse Initiatives – Industry4.E, Mobility.E, and Health.E – which played roles in bridging the gap between

⁴⁰ European Court of Auditors (2021), Annual Report on EU JUs for the financial year of 2021. See https://www.eca.europa.eu/lists/ecadocuments/jus_2021/jus_2021_en.pdf.

⁴¹ BMBF (2020). *Mikroelektronik. Vertrauenswürdig und nachhaltig. Für Deutschland und Europa*. https://www.bmbf.de/SharedDocs/Publikationen/de/bmbf/5/31639_Mikroelektronik_Vertrauenswuerdig_und_nachhaltig.pdf?__blob=publicationFile&v=7

⁴² In particular the IoT Large Scale Pilots under the work programme Cross-cutting Activities 2016-2017, https://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-focus_en.pdf, and the Platforms and Pilot projects under the 2018-2020 ICT work programme, https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-ict_en.pdf.

research and market application. These initiatives enhanced Europe's competitiveness by focusing on socio-economic objectives and creating ecosystems along relevant value and supply chains, aligning closely with the Commission's approach in H2020 to cluster projects for greater impact.

The ECSEL JU's activities exhibited **strong synergies with other parts of Horizon 2020**, including missions, clusters, and specific programmes, ensuring that technological advancement benefited a broad range of sectors. There were strong interactions with other initiatives via linkages directly with the ECSEL JU and via the three industry associations⁴³. For instance, the Industry4.E Lighthouse Initiative's collaboration with ICT Innovation for Manufacturing SMEs (I4MS) and the Factories of the Future partnership aligned with the broader Industry 4.0 paradigm. Collaboration extended to partnerships with entities such as the European Road Transport Research Advisory Council (ERTRAC) for smart mobility, creating a coherent ecosystem that supported innovation in smart production and mobility.

However, despite some successes, the **ECSEL JU Lighthouse Initiatives** were discontinued in the transition to the KDT JU. Not everybody was entirely satisfied with the execution of these initiatives. In terms of implementation, two out of the three lighthouse initiatives were led by industry players. However, the needs of the key stakeholders from the respective industrial sectors were seen as not having been adequately analysed and considered in these lighthouse initiatives.

The **KDT JU** expanded its scope by addressing a broader range of technology domains⁴⁴ such as specific aspects of AI, communication technologies, and photonics. This expansion was in line with the EU's strategic priorities, such as the Digital Decade strategy¹³, and it enhanced synergies with other parts of Horizon Europe and other programmes such as the European Digital Innovation Hubs⁴⁵. Synergies are crucial for maximising impact and ensuring that technological advancements benefit multiple sectors.

Approximately 25% of the EU budget allocated to the KDT JU's activities was **aligned with other European partnerships**⁴⁶, illustrating a strong commitment to integrated and cohesive innovation efforts. The KDT JU actively fostered synergies by engaging with numerous partnerships and initiatives under Horizon Europe, such as the AI, Data and Robotics Partnership⁴⁷, the Smart Networks and Services (SNS) JU⁴⁸, and the Photonics Partnership⁴⁹, among others. Such alignments were built-in by design⁵⁰ and reflect the KDT JU's approach to fostering innovation across a spectrum of technological and application domains. Focus topics in the KDT calls promoted collaborations, addressing strategic challenges and contributing, for instance, to the European AI strategy. Notably, the coordination with the SNS JU led to the integration of microelectronics-based solutions for 6G networks within the 2023 SNS work programme, which is an example of practical and impactful collaboration. The synergies also extended to application domains such as health, automotive, and

⁴³ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 20.

⁴⁴ DG RTD (2022), Performance of European Partnerships: Biennial Monitoring Report 2022 on Partnerships in Horizon Europe.

⁴⁵ <https://digital-strategy.ec.europa.eu/en/activities/edihs>

⁴⁶ Biennial Monitoring Report (BMR) Survey Results (2022), responses provided by the KDT JU.

⁴⁷ Official website of the AI, Data and Robotics Association (Adra): <https://adr-association.eu/>.

⁴⁸ <https://smart-networks.europa.eu/>

⁴⁹ Official website of the Photonics21 European Technology Platform: <https://www.photonics21.org/>.

⁵⁰ See report *Coherence and Synergies of candidate European Partnerships under Horizon Europe*, https://research-and-innovation.ec.europa.eu/system/files/2020-10/ec_rtd_coherence-synergies-of-ep-under-he.pdf.

aerospace, ensuring that advancements in microelectronics supported broader technological and societal goals. Additionally, specific calls under the KDT JU have been designed to align with long-term strategies involving other EU initiatives, such as the EuroHPC JU⁵¹. The development of open-source RISC-V building blocks is a notable example, where selected actions are linked with other projects under RISC-V topics, fostering a collaborative ecosystem with shared governance and intellectual property frameworks.

Moreover, the KDT JU has effectively mobilised national resources and coordinated them with EU research and innovation programmes. For instance, the 2021, 2022, and 2023 calls were co-funded by national authorities, amounting to EUR 555 million⁵². This substantial national co-funding highlights the **strong alignment and mutual reinforcement between national and EU-level investments in digital technologies**.

The **Chips JU** builds on the foundation laid by the ECSEL and KDT JUs, expanding focus areas to include advanced semiconductor technologies, quantum chips, pilot lines, and more. The Chips Act aims for coherence and synergies through the Chips for Europe Initiative, strategic investments in production capacities, and crisis response mechanisms. In combination with other EU initiatives, such as the Recovery and Resilience Facility, and cross-national initiatives, such as the Important Project of Common European Interest in microelectronics and communication technologies⁵³, a coordinated and comprehensive approach to semiconductor technology development can be constructed.

In terms of EU programmes, the Chips JU **continues aligning with other partnerships**, such as Made in Europe, the EuroHPC JU, the Quantum Computing Flagship, the Photonics Partnership, and the AI, Data, and Robotics Partnership. Examples include the calls on the photonics pilot line²² and quantum chips⁵⁴ in 2024, and the prospective topics on AI chips and RISC-V as defined in the outline for the 2025 work programme⁵⁵. This alignment enhances the Chips JU's ability to leverage synergies and achieve greater impact, for instance in photonics, RISC-V, and edge AI. As the projects mature, these synergies are expected to yield significant advancements in Europe's digital landscape, contributing to the EU's competitiveness and innovation capacity in the global arena.

6. EU added value

The collaborative efforts of the ECSEL and KDT JUs have had significant success in **harmonising strategic research and innovation agendas across Europe**. This alignment has reduced the fragmentation of activities by coordinating national R&I efforts, thereby establishing a true European Research Agenda in the ECS domain, and by bridging gaps between application domains with a focus on foundational technology layers and cross-sectional technologies that serve as common enabling technologies.

One of the key accomplishments of the ECSEL and KDT JUs has been their ability to **attract substantial funding from industry**, which has led to increased investment from both the private and public sectors within the microelectronics domain. This heightened interest and support can be

⁵¹ https://eurohpc-ju.europa.eu/index_en

⁵² This number only includes calls launched by the KDT JU and therefore excludes the calls on pilot lines under the Chips for Europe Initiative that were launched by the Chips JU at the end of 2023.

⁵³ https://ec.europa.eu/commission/presscorner/detail/en/IP_23_3087

⁵⁴ <https://digital-strategy.ec.europa.eu/en/news/eu-invests-eu65-million-quantum-chips>

⁵⁵ https://www.chips-ju.europa.eu/File/download.aspx?entity=shv_library&attribute=shv_file&ID=89ddd30-193a-ef11-8409-000d3a65bb7d

attributed to the alignment of projects with often shorter-term industry activities. Under Horizon Europe, the refocusing of the JU projects to address longer-term industry challenges – such as competitiveness, supply chain resilience, technological sovereignty, and sustainability – has encouraged European companies to unlock investment for more strategic purposes. Additionally, active engagement with SMEs and the start-up community in these projects has created new business opportunities. Indeed, the refocusing efforts under the KDT JU towards value chains have supported a mix of low and high TRL activities, attracting a diverse range of participants through its open calls, and enhancing the overall impact and reach of the initiatives.

The added value of the **Chips JU** is evident through its capacity to mobilise resources and expertise across Member States, thereby strengthening the European semiconductor ecosystem. The programme's emphasis on technology leadership, skills development, and setting up new infrastructure in the EU, highlights its strategic importance in boosting Europe's global competitiveness. By helping address strategic dependencies in semiconductor technologies, the Chips JU enhances Europe's autonomy in this critical sector, reducing reliance on non-EU sources and bolstering competitiveness. The projects funded under the Chips JU banner are expected to yield innovative outputs that are reshaping the electronic-devices landscape. For instance, the development of pilot lines for sub-2nm FinFET and 7nm FD-SOI technologies will mark a significant leap forward. These advancements are critical for next-generation electronic devices, offering unparalleled performance, energy efficiency, and miniaturisation capabilities. Additionally, the pilot lines launched under the Chips for Europe Initiative are expected to foster increased collaboration.

The **tripartite approach**, which involves co-funding and joint decision-making, promotes coordination with national activities, contributing significantly to the European Research Area in the microelectronics field. The critical mass achieved through tripartite funding enables large-scale projects of national and industrial importance which individual companies or national funding bodies may not be able to undertake alone. However, outcomes are still influenced by national priorities, and balancing the Commission's goal of expanding focus topics with the specific priorities of participating states remains a challenge, especially when participating states do not have clear strategies for the semiconductor sector⁵⁶ and when everything and nothing is a priority for the private members.

Despite the success, there is still **more work needed to eliminate the existing fragmentation within the sector and to combine resources from various initiatives**. Ensuring sustained or increased industrial investment levels requires projects to be driven by industrially relevant research that is strategically linked to industrial roadmaps. Increased funding may attract more applicants and generate a leveraging effect by incorporating additional resources and industrial funding. This approach should enhance Europe's industrial competitiveness in semiconductor technologies, which are crucial for the digitalisation of Europe's industry.

7. Relevance

Established in 2014, the **ECSEL JU** played a crucial role in enhancing Europe's leadership in technology development, fostering a strong and competitive ECS industry, and ensuring the availability of ECS for key markets and societal challenges. The partnership effectively bridged the gap between research and market exploitation, contributing to economic growth and employment

⁵⁶ Jan-Peter Kleinhans, 'The Missing Strategy in Europe's Chip Ambitions', <https://www.interface-eu.org/publications/europe-semiconductor-strategy>.

within the EU, by adopting a market-pull, supply-drive approach. The substantial project participation of over 3 000 organisations, including leading semiconductor manufacturers and systems companies, highlighted ECSEL's relevance and attractiveness to industry stakeholders. Operating a bottom-up approach, it aligned with the short-term interests that industrial actors had at the time. Collaborative efforts by stakeholders helped formulate the ECS-SRIA, which the ECSEL JU took over as its SRIA. At the time, the SRIA organised research into key applications (e.g. smart mobility, society, energy, health, production) and essential technology capabilities (e.g. semiconductor manufacturing, technology, equipment, materials, design technology, cyber-physical systems, smart system integration). This matrix provided a wide roadmap for research and innovation. Major industry challenges were addressed through extensive projects, influenced by H2020 objectives and strengthened by Lighthouse initiatives in industry/manufacturing, mobility, and health.

Launched in 2021, the **KDT JU** succeeded the ECSEL JU with an expanded focus on key digital technologies critical for Europe's digital transformation. Its strategic goals aimed to boost industrial competitiveness, ensure EU digital autonomy, support the Green Deal through sustainable technologies, and advance intelligent ECS-based systems⁵⁷. This alignment with Horizon Europe's objectives ensured that the KDT JU remained relevant by addressing current technological and market needs, including edge AI and next-generation computing. The ECSEL JU faced criticism for its lack of (top-down) strategic direction⁵⁸. This was addressed to some extent in the KDT JU by introducing 'focus topics', which enabled longer-term targeted responses to policy priorities. Funding was pre-allocated to these topics, influenced by the European Commission, public authorities, and industry partners. These topics targeted strategic challenges and fostered greater synergy throughout the value chain. By addressing both low- and high-TRL activities, the JU ensured comprehensive coverage across the innovation spectrum. The industry associations restructured the ECS-SRIA to focus on foundational technology layers, cross-sectional technologies, and key application areas. The annual updating of the ECS-SRIA, involving extensive stakeholder consultations, ensured that the KDT JU could in theory swiftly adapt to evolving market and policy needs, aligning with the EU's strategic priorities, such as the Digital Decade and the Green Deal. Nevertheless, this was compromised in practice by the dominance of the bottom-up approach in work programmes, coupled with the SRIA's extremely wide and diverse scope.

The **Chips JU** also addresses the critical issue of technology leadership. This partnership directly supports the EU's goals of technological sovereignty⁵⁹ and economic security⁶⁰ ensuring that Europe remains at the forefront of semiconductor research and development. The Chips JU is designed with inherent flexibility to respond dynamically to the fast-paced semiconductor industry. It aims to stay relevant amidst rapidly changing technological and market conditions. This flexibility is essential for fostering innovation and ensuring that new semiconductor technologies can swiftly move from research to market deployment. Via a slight shift, the Chips JU assumes greater responsibility for lower TRL activities previously under the 'standard' Cluster 4 work programmes, with the opportunity to allocate full EU funding to RIAs with a TRL of up to 4. Furthermore, pilot lines within the Chips for Europe Initiative serve as capacity-building endeavours for research and innovation

⁵⁷ European Commission (2021). Horizon Europe Strategic Plan (2021-2024).

⁵⁸ European Commission (2017), Interim Evaluation of the ECSEL Joint Undertaking (2014-2016) Operating under Horizon 2020.

⁵⁹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A Chips Act for Europe, COM(2022) 45, 8 February 2022.

⁶⁰ Joint Communication to the European Parliament, the European Council and the Council on 'European Economic Security Strategy', JOIN(2023) 20, 20 June 2023.

prototype lines, helping industry explore new technologies. Potential gaps between the pilot lines and industrial applications need to be addressed by collaboration between pilot line consortia and the industry associations.

The ECSEL, KDT and Chips JUs have been **pivotal in advancing Europe's strategic objectives in technology leadership and digital transformation**. These partnerships have continuously aligned their objectives with the evolving needs and challenges posed by the EU's framework programmes, particularly Horizon 2020 and Horizon Europe. The flexibility in adjusting objectives, activities, and resources has been instrumental in the JUs maintaining their relevance. Nevertheless, it remains a challenge to find the right balance in work programmes between longer-term strategic priority setting and shorter-term industry needs, supporting low- and high-TRL activities, addressing R&I and capacity building, etc.

8. Directionality

The **ECSEL JU** played a key role in addressing the need for excellent science and industrial leadership under Horizon 2020, targeting goals such as competitiveness and sustainability through a fully bottom-up implementation. Funded activities followed this approach, with proposals often addressing the private members' shorter-term research challenges contained in the ECS-SRIA. Valuable key areas included advancements in power electronics for electric vehicles and support for transformation. However, the bottom-up implementation led to a fragmented approach, leaving the alignment of projects with broader EU policy objectives and strategic priorities to chance. The need for a more directional approach was obvious⁵⁸.

Building on the lessons learned from the ECSEL JU, the **KDT JU** adopted a more focused approach by implementing focus topics. These topics guided applicants towards areas identified in the SRIA that aligned with EU policy objectives, such as edge AI, processors for automotive, and environmental sustainability. This hybrid strategy, which combines bottom-up innovation and top-down strategic direction, enhanced the alignment of KDT JU projects with EU goals. The KDT JU continued to drive the digitalisation of industries, addressing almost all key strategic orientations (KSOs) with significant impacts on sustainability and the Green Deal. For instance, technologies developed under the KDT JU aimed to reduce power consumption and optimise semiconductor manufacturing processes. Approximately two thirds of KDT JU projects have positively impacted or contributed to the Green Deal, although there is still potential for a more explicit integration of sustainability objectives.

The transition from the KDT JU to the **Chips JU** marked a significant development in Europe's strategic efforts to secure its position in the global semiconductor ecosystem. The Chips JU's directionality is heavily influenced by the European Chips Act, emphasising technology leadership, strategic autonomy, increased resilience of the European semiconductor sector, and increased insights in supply chains. The Chips JU particularly targets the EU's strategic objective of technology leadership. The partnership employs a hybrid model that balances strategic direction with bottom-up innovation, ensuring flexibility and alignment with EU goals. When rightly balanced, this approach could leverage the strengths of both strategies, fostering innovation while maintaining strategic coherence. This is reflected in the continuous review and update of the ECS-SRIA, which ensures that the main objectives remain relevant amidst changing geopolitical situations and market trends. Key focus areas outlined in the ECS-SRIA include sustainability goals, such as eco-design, circularity, sustainable manufacturing, and reducing greenhouse gas emissions. However, more

important for priority-setting than SRIA reviews are the selection and definition of appropriate topics in work programmes.

9. International positioning

As the world increasingly relies on digital technologies, Europe's positioning in the semiconductor industry has become a **strategic priority, both economically and geopolitically**. Recognising this, Europe is taking decisive steps to strengthen its presence in the global semiconductor market. This effort is not merely about economic gains; it is also a matter of geopolitical significance, ensuring technological sovereignty and security, as highlighted by Article 22(5) of the Horizon Europe Regulation.

At the heart of these endeavours lies the importance of **international cooperation**, which is pivotal for advancing research and innovation in the semiconductor industry⁵⁹. By fostering collaborative efforts across borders, Europe aims to drive forward technological advancements, secure supply chains, and maintain a competitive edge in this crucial field. The international positioning of the ECSEL JU, KDT JU, and Chips JU reflects the evolving strategies of the European Union for the semiconductor sector.

Despite the **ECSEL JU's** significant contributions to the semiconductor sector, the partnership faced challenges in establishing a clear strategy for international collaboration. The ECSEL JU's international collaboration was not systematic and lacked a formal strategy, except for the involvement of European Economic Area countries Norway and Iceland and associated countries such as Türkiye and Switzerland. Participation from organisations from countries outside Europe, for instance from third countries such as the United States, Brazil, India, and Tunisia⁶¹, was sporadic and primarily driven by individual project needs rather than by coordinated efforts.

Like its predecessor, the **KDT JU** faced limitations in developing a clear international collaboration strategy. Regarding international engagement and participation, the KDT JU experienced a slight increase in participation from associated countries and maintained a stable level on involvement from EU13 countries^{62,63}. However, systematic collaboration with non-European countries was still lacking. The KDT JU maintained the primary focus on supporting research and innovation among organisations from its participating states, with an increasing emphasis on technological sovereignty and strategic autonomy. The focus on high TRL activities and commercial sensitivities posed challenges for international collaboration. The involvement of industry associations AENEAS, EPoSS, and INSIDE in the International Cooperation on Semiconductors (ICOS) project⁶⁴ enhanced visibility and identified promising global scientific collaborations.

Regarding **international standardisation**, the KDT JU's impact was mainly through individual projects. The ECS-SRIA recommends standardisation activities on (for example) standards for chiplet interconnect schemes, interoperability standards for edge devices, certification and safety standards

⁶¹ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 41.

⁶² EU13 stands for the group of Member States that joined the EU since 2004.

⁶³ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 68.

⁶⁴ International research cooperation for the growth of European industry (grant number 101092562).

for systems-of-systems, and more⁶⁵. The ECS-SRIA 2023 highlights the importance of standardisation and interoperability, aligning with private members' strategic initiatives. However, there was no dedicated working group for standardisation within the partnership, leading to fragmented efforts despite some notable achievements.

The **Chips JU** represents a strategic shift towards positioning Europe as a global leader in semiconductor technology. This partnership aims to enhance research and innovation and capacity building to maintain technology leadership in future. Under the Chips Act, international collaboration agreements have been signed with like-minded countries such as Canada, India, Japan, Singapore, South Korea, and the United States. A notable example is the joint call with South Korea²³ in 2024, involving a significant investment to strengthen cooperation and economic resilience in the digital sector. This international collaboration focuses on joint R&D in semiconductor technology enhancing supply chain resilience, driving technological innovation, and boosting market competitiveness. By fostering global cooperation, the international partnership aims to create resilient supply chains, develop cutting-edge technologies, and influence global standards and policies.

10. Phasing-out preparedness

Under the Horizon Europe Regulation, all partnerships are required to formulate **appropriate measures ensuring phasing out of EU funding** in the absence of renewal. Partnerships could continue their activities and achieve their goals even as EU funding decreases over time. This necessity is outlined in Article 10.2(c) and Annex III of the Horizon European Regulation, as well as the Single Basic Act⁶⁶.

Integrating phasing out strategies into the partnership's overall strategy is essential because European partnerships are intended to be longer-term and should aim for sustainability. Achieving independence from EU funding can be difficult though, given that this funding often acts as crucial support for the networks and supporting offices involved. However, developing a phasing out strategy does not mean that the partnership will end. Instead, it should be seen as an opportunity to **transition and reflect** on the partnership's unique contributions, its alignment with EU policy goals, and its broader economic impact and acceptance. The KDT JU evolved into the Chips JU in 2023 to implement some of the objectives of the European Chips Act, in particular the majority of the Chips for Europe Initiative. The change to the Chips JU was also used as an opportunity to fine-tune governance provisions, to reassess administrative budgets, and to cater for lower TRL activities with the goal of supporting a comprehensive innovation pipeline covering low- and high-TRL research. The evolution of the KDT JU into the Chips JU saw considerable growth not only in scope and budget but also in the personnel involved in the partnership's Office.

In December 2023, the Chips JU's Governing Board adopted the **initial segment of the phasing out plan**⁶⁷, which included administrative and operational adaptations with the aim to allow the JU to proceed in its activities in case of EU funding under the next Framework programme would not be available. The partnership is expected to adopt an updated phasing out plan in 2025. The plan should outline potential future scenarios that serve the best interests of the JU's members, including the EU.

⁶⁵ AENEAS, EPoSS and INSIDE (2023), ECS-SRIA 2023.

⁶⁶ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.

⁶⁷ Chips JU Governing Board decision GB 2023.61 'Phasing out plan', https://www.chips-ju.europa.eu/File/download.aspx?entity=shv_library&attribute=shv_file&ID=b52fcc51-a6d4-ee11-904d-0022489e2472.

A well-structured and comprehensive plan is crucial for the phasing-out of the Chips JU to ensure that objectives are achieved, and that the impact of its initiatives is maintained. By emphasising project completion, knowledge dissemination, financial management, stakeholder engagement, and sustainability, the phasing out plan should facilitate a smooth transition and provide lasting benefits for the EU semiconductor industry.

Interviews with Chips JU members and office staff suggest that **the Chips JU cannot sustain its activities without continued EU funding**⁶⁸. The Chips JU's office emphasised the critical need for ongoing and strengthened initiatives under the partnership in the context of digital transformation. They attributed this need to the intense competition from regions outside the EU, the rapid pace of innovation in the digital sector, and the swift and sometimes disruptive changes occurring in key parts of value chains. The Chips JU's office pointed out that, given the pivotal role of key enabling technologies across numerous application fields, supporting them through robust partnerships was essential. The European Commission noted that a transition at the end of the partnership could take various forms, such as continuing with the same legal status and new objectives, implementing the bottom-up part separately via various possible formats, reducing or eliminating EU funding with compensation from other sources, merging with other partnerships, becoming entirely private, and others.

Where the European Commission decides to propose a continuation/transition at the end of the Joint Undertaking, **a future partnership** will need to build on experience from previous European partnerships. It will also need to meet the increasingly stringent societal, economic, and technological impact criteria set by the EU. Therefore, the goals and scope should be adapted to the evolving geopolitical landscape and ongoing technological convergence. This could involve expanding beyond microelectronics to include pertinent aspects of advanced photonics, quantum computing, and other technologies.

⁶⁸ Horizon Europe and the Digital & Industrial Transition – Interim Evaluation support study. Phase 2 – Horizon Europe. Institutionalised partnership report. ECSEL & Key Digital Technologies (KDT) Joint Undertakings, page 50.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 12: Evaluation of Circular Bio-based Europe (CBE) JU

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

This section presents an analysis of the effectiveness of the partnership between the EU and the Bio-based Industry Consortium (BIC), which operated through the Bio-based Industry Joint Undertaking (BBI JU) from 2014 to 2020 and the Circular Bio-based Europe Joint Undertaking (CBE JU) – building on the legacy from the BBI JU – from 2021 up to 31 December 2023.

1.1 Achievement of the partnership and Horizon's objectives

The legal base for the BBI JU sets out seven specific objectives, which are reflected in the strategic innovation and research agenda (SIRA) published in 2013 and updated in 2017¹. The main objectives of the CBE JU are set out in the 2021 [Council Regulation](#) establishing the Joint Undertaking, namely: 1) to accelerate the innovation process and development of bio-based innovative solutions; 2) to accelerate the market uptake of existing mature and innovative solutions; 3) to ensure a high level of environmental performance; and a few more specific objectives, to focus the mission of the CBE JU. The 2022 SRIA describes the strategic priorities to steer R&I and other activities by the JU to achieve these. Following the Council Regulation, the CBE JU is a legal successor of the BBI JU. However, the CBE JU is not a simple continuation of the BBI JU, but builds on lessons learned from implementation of the BBI JU, and is shaped by the recommendations included in BBI JU interim evaluation².

Compared to the BBI JU, the CBE JU brings about several notable changes³. One of the key changes is the increased emphasis on circular economy principles throughout the entire bio-based value chains. The CBE JU seeks to foster the transition from linear to circular business models, promoting resource efficiency, waste valorisation, and the sustainable use of biomass. Another significant change is the expanded scope of the CBE JU. While the BBI JU primarily focused on bio-based industries, the CBE JU aims to integrate circular bio-based economy approaches across a wider range of sectors, including stronger participation by the primary biomass producers. This broader scope allows for greater synergies and collaboration across different economic sectors, fostering cross-sectoral innovation and systemic change. Additionally, the CBE JU is expected to enhance the participation of under-represented EU countries and regions.

The EU/BIC partnership has been evaluated as effective⁴. The partnership has resulted in funding for 194 projects so far⁵, of which 142 are under the BBI JU, and the rest under the current CBE JU, covering research and innovation actions (RIAs) and innovation actions

¹ The first BBI JU SIRA focused on five value chains, based on different feedstock (lignocellulose, forestry biomass, agro-based biomass, organic waste) which led to the update in the new SIRA including aquatic biomass.

² European Commission: Directorate-General for Research and Innovation, [Interim evaluation of the Bio-based Industries Joint Undertaking \(2014-2016\) operating under Horizon 2020](#) – Experts group report, Publications Office, 2017, <https://data.europa.eu/doi/10.2777/557859>. Pages 101-108.

³ [Partnership Evaluation Report: "Circular Bio-Based Europe Joint Undertaking"](#) Evaluation study on the European Framework Programmes for Research and Innovation for addressing Global Challenges and Industrial Competitiveness: Focus on activities related to the Green Transition. It is the recent external experts' report. Page 27. From now on, cited as 'External report 2024'.

⁴ Ibid. p. 27.

⁵ [Projects | Circular Bio-based Europe Joint Undertaking \(CBE JU\) \(europa.eu\)](#)

(IAs) – each targeting a specific technological readiness level (TRL) – and coordination and support actions (CSAs). The deployment of large-scale, first-of-a-kind projects at TRL 8, referred to as ‘innovation action-flagships (IA-FLAGS)’, has demonstrated the upscaling of bio-based sectors to market level, also yielding a high participation of small and medium-sized enterprises (SMEs) as coordinators and main investors.

However, there is a difference in the financial arrangements between BBI JU and CBE JU. In fact, a new ‘award criterion’ has been added to the evaluation process in the CBE JU calls to ensure that the minimum in-kind contribution to operational activities (IKOP) defined in the project proposal is: 20% of the total eligible cost of the project for IA-FLAG projects and 15% for IA projects which are not flagships⁶. Only contributions from members of the BIC are counted for IKOP.

Regarding the overall performance of BBI/CBE JU monitored through their key performance indicators (KPI) scheme, final results are available for BBI JU but not for the CBE JU, which funded projects from 2022 on. The assessment by the independent experts from the Teknologisk Institut⁷ – done at the end of the BBI JU KPI for the validation process – shows that most projects reached their key project objectives and that most BBI JU KPIs were achieved. In 2020 already, half of the KPIs were surpassing the targets set in the BBI JU SIRA 2017, as shown in the table below⁸.

BBI JU KPIs – numbers and definitions	KPI target in 2017 SIRA (to be achieved by end of the JU)	KPI reached in 2020	KPI reached in September 2023
KPI 1 - New cross-sector interconnections in BBI JU projects	36	47	181
KPI 2 - New bio-based value chains created with BBI JU projects	10	33	154
KPI 3 - Number of grant agreements signed between BBI JU and the project consortia	200	123	140
KPI 4 - New bio-based building blocks	5	22	112
KPI 5 - New bio-based materials	50	24	204
KPI 6 - New demonstrated consumer products based on bio-based chemicals and materials in IA projects	30	17	80 ⁹
KPI 7 - Number of flagship grant agreements signed between the BBI JU and project consortia	5	11	13
KPI 8 - Number of validated technologies that have achieved a ‘TRL gain’ of at least one level in RIA projects	20	12	47

⁶ For IAs the funding for profit-organisation is 60%, which is below the funding rate of Horizon Europe (70%).

⁷ Teknologisk Institut (2021): Study on BBI JU project portfolio and KPIs validation. Executive Summary. Prepared for Bio-Based Industries Joint Undertaking. Hg. v Danish Technological Institute/Food & Bio Cluster Denmark.

⁸ Compiled using figures reported in the BBI AAR 2020 and [CBE AAR2023](#).

⁹ In a wide range of applications, such as bio-based packaging, food and feed ingredients, cosmetics, construction, fertilisers and agricultural chemicals, textiles, etc.

Moreover, the evaluation of the project portfolio by the Technologisk Institut shows that the project portfolio reflected the update of the SRIA: from a focus on biomass resources derived from agriculture and forestry in the first annual work programmes (AWPs), the scope of projects gradually changed towards the introduction of new sources (e.g. aquatic, municipal biowaste, wastewater, biogenic CO₂) from the 2016 AWP onwards. For instance, the update was mirrored by funding an IA-FLAG for a first-of-a-kind biorefinery valorising the organic fraction of municipal solid waste and aquatic-based feedstock in [CIRCULAR BIOCARBON \(2020\)](#), and, especially, an IA-FLAG for a first-of-a-kind biorefinery valorising aquatic-based feedstock in [SCALE](#).

The KPI scheme for CBE JU is an update of the one for BBI JU. It is highly complex, with 21 KPIs clustered in 10 main sectors. The KPIs will be mentioned below where relevant.

1.2 Long-term scientific, technological, societal and economic impacts

The evaluation of BBI/CBE JU impacts – part of partnership evaluation – has highlighted that reporting from BBI/CBE JU activities could include some additional elements, so it is more in line with the Horizon Europe (HEU) monitoring framework, as described in the following sections.

1.2.1 Scientific impacts

This section assesses BBI/CBE JU contribution towards the three key impact pathways¹⁰ (KIPs) focusing on the anticipated scientific impacts, namely 1) creating high-quality new knowledge, 2) strengthening human capital in R&I and 3) fostering diffusion of knowledge and open science.

Creating high-quality new knowledge (KIP 1): between 2015 and 2023, CBE JU and BBI JU projects delivered 808 publications, 149 patent applications (with 30 patents awarded), 1 registered design and 6 trademarks¹¹. Among the publications, 16% of the projects' past publications were highly interdisciplinary (against a benchmarking range of 9%-11%), 24% were highly multidisciplinary (benchmark: 13%-17%), and 22% were written as academic-private co-publications, well above the two relevant benchmarks¹². Furthermore, 64% were thematically aligned with one or more SDG. The share of these publications that was highly interdisciplinary was 6%, slightly below the benchmark (9%-11%). **However, the status of peer-reviewed publications still needs to be assessed.**

Strengthening human capital in R&I (KIP 2): the BBI JU reports a high proportion of projects contributing to creating and transferring knowledge (85% overall) based on the interdisciplinary nature of publications, including the transfer from academia to industry (77%) and building a scientific community (75%). **Data on researchers involved in**

¹⁰ Annex V to Regulation 2021/695/EU, the [Study to support the monitoring and evaluation of the framework programme for research and innovation along key impact pathways - Publications Office of the EU \(europa.eu\)](#) (which is the Indicator methodology and metadata handbook) and the [Study to support the monitoring and evaluation of the framework programme for research and innovation along key impact pathways - Publications Office of the EU \(europa.eu\)](#) (which is the Baseline and benchmark report).

¹¹ [CBE AAR2023](#) pages 78 and 154.

¹² 'External report 2024', page 46.

upskilling activities, or those already upskilled, including in terms of salaries – as requested in the KPI 2 – is not available.

Fostering diffusion of knowledge and open science (KIP 3): To encourage open-access publication, the CBE JU AWP’s include a paragraph – in the ‘Specific requirements’ chapter – referring to the principles of open science and the possibilities offered by the European Open Science Cloud (EOSC) for storing and giving access to research data. **The proportion of publications that are open-access has not yet been recorded.** The ‘External report’ also includes a recommendation¹³ to build partnerships with academic institutions, research bodies, and industry associations for ongoing knowledge exchange.

1.2.2 Societal impacts

This section assesses the BBI/CBE JU contribution towards the three key impact pathways¹⁴ focusing on the anticipated societal impact, namely KIP 4 (addressing EU policy priorities & global challenges through R&I), KIP 6 (strengthening the uptake of R&I in society). It does not consider KIP 5 (delivering benefits and impact via R&I Missions), which is not relevant here.

Addressing EU policy priorities & global challenges through R&I (KIP 4): The societal impacts pursued by the partnership – in response to EU policy priorities and global challenges – encompass environmental protection, in terms of climate change mitigation/adaptation, biodiversity protection, zero pollution, circularity and reduced/efficient use of resources including water, and the contribution to the Sustainable Development Goals.

All projects funded under the two JUs contribute to some aspects of environmental protection⁸. A summary is given below.

Results from project	Share of BBI/CBE projects
Reduced CO ₂ and other greenhouse gas emissions	66%
Reduced energy consumption	34%
Reduced land use	21%
Water use efficiency	28%
Biodiversity protection/enhancement	11%
Utilisation and recycling of CO ₂ and other GHG	12%

The CBE JU places strong emphasis on achieving such impacts, drawing from lessons learned from its predecessor, BBI JU, which already aimed to deliver projects with reduced environmental impacts. In fact, the CBE JU is driven by the specific objective, among others, to *‘Ensure the integration of circularity and environmental sustainability requirements, contribution to climate neutrality and zero pollution ambition in the development and implementation of bio-based research and innovation and facilitate societal acceptance’*. To meet this objective, the CBE JU AWP’s require that R&I projects comply with specific

¹³ ‘External report 2024’, pages 40-42.
¹⁴ Regulation - 2021/695 - EN - EUR-Lex Annex V KEY IMPACT PATHWAY INDICATORS.

requirements on their environmental performances, both in the supply chain (especially in the case of primary biomass use) and in all segments of the value chain, including through a life-cycle assessment. To ensure the long-term impacts of the new generation of bio-based value chains contributing to environmental protection, specific requirements on environmental performances have been included in the current CBE JU work programme and are updated each year. A task force on sustainability aspects has recently been set up in the CBE JU Scientific Committee. Its remit is to tackle this challenge of long-term forecasting on environmental protection, and social and economic sustainability and long-term impacts on employment and economic growth throughout the EU, not only in urban areas but also in rural and coastal territories where biomass is produced, and which are often peripheral regions that rarely benefit from industrial development.

BBI JU projects contributed significantly to several SDGs¹⁵ (based on self-reporting, CBE JU AAR2023) especially SDG 12 (70% of the projects); SDG 9 (67%); SDG 13 (67%), and SDG 8 (41%)¹⁶. The current CBE JU puts more emphasis than its predecessor the BBI JU, on the circularity and environmental impacts of the bio-based economy. CBE JU projects are expected to contribute to SDGs 9, 12, 13, as the BBI JU did, but also to SDGs 14 and 15¹⁷.

Strengthening the uptake of R&I in society (KIP 6): Bioeconomy value chains present an opportunity for employment and inclusiveness, bringing a revitalisation of rural and coastal areas – where the biomass is produced – and the engagement of local communities, such as primary producers, public authorities and consumers.

The employment potential is better described under KIP 8. Regarding inclusiveness, primary producers have a key role in the development of the bio-based economy regarding essential aspects such as biomass provision, soil health, rural development and engagement of local economies, among others. At the same time, bio-based value chains present an opportunity for primary producers to diversify their sources of income, reduce bio-based residues or incorporate innovative technologies. Currently, 30% of BBI JU projects¹⁸ engage primary producers in their projects, and projects such as BRILIAN and ROBOCOOP-EU work on the development of new cooperative business models to maximise new business opportunities for primary producers. In addition, a new advisory body in the CBE JU governance structure, the Working Group on primary producers, will be established to promote the engagement of primary producers in the bioeconomy. Also, other KPI data reported for CBE JU, such as KPI1.2 (participation of biowaste managers, scoring 8 out of 20), KPI7 (participation of brand owners scoring 7/20) and KPI10 (under-represented countries and regions, scoring 67/150), are encouraging for the objective of inclusiveness.

¹⁵ SDG 12 - Ensure sustainable consumption and production patterns; SDG 9 -Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation; SDG 13 - Take urgent action to combat climate change and its impacts; SDG 8 - Promote inclusive and sustainable economic growth, employment and decent work for all.

¹⁶ From [CBE AAR2023 p. 77, Fig. 53.](#)

¹⁷ SDG 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development; SDG 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt the reverse land degradation and biodiversity loss.

¹⁸ From [CBE AAR2023 p. 75 Fig. 50.](#)

The engagement of local communities is well addressed, with 44% of BBI JU projects reporting synergies with local regional initiatives, 30% establishing an active collaboration with a regional administration, 45% reusing local residues, 37% mobilising local resources, 16% valorising unexploited marginal land and 14% reconverting industrial facilities¹⁹. This offers the potential for making the bioeconomy more inclusive in the long term – something that needs to be assessed in the evaluation looking at a potential continuation of the partnership.

1.2.3 Technological and economic impacts

This section assesses the BBI/CBE JU contribution towards the three KIPs focusing on the anticipated economic impact, namely 1) generating innovation-based growth, 2) creating more and better jobs, as well as 3) leveraging investments in R&I.

Generating innovation-based growth (KIP 7): Bio-based industries can play a role in ensuring EU's technological sovereignty and strategic autonomy and in boosting competitiveness, especially that of SMEs, while addressing the challenges of a green and just transition. The outcomes from the BBI JU, based on the KPIs (see the table in Section 1.1), show a strong commitment to achieving technological results, and success in doing so. Moreover, circularity is addressed in many projects. For example 42% of BBI JU projects address biodegradability (in specific environments and for specific applications) and 36% address (mechanical) recyclability²⁰. Finally, the 149 patents²¹ have already been mentioned.

The Council Regulation establishing the CBE JU calls for ‘a strong, resource-efficient and competitive bio-based innovation ecosystem. ...can decrease dependency on and accelerate the substitution of non-renewable fossil raw materials and mineral resources.. ...create value from local feedstock, including waste, residues and side-streams, to deliver jobs, economic growth and development throughout the Union, not only in urban areas but also in rural and coastal territories where biomass is produced and which are often peripheral regions that rarely benefit from industrial development’. With the continuation of the partnership between industry and the public sector, and the involvement of actors across different sectors, the aim is foster a market for innovations thus generating innovation-based growth. This is facilitated in particular by the JU mechanism of scaling-up processes throughout R&I actions, from lab scale to demonstration up to the (pre-) commercial level (TRL 8).

Looking back to impacts of BBI JU projects and ahead to what is expected from CBE JU projects, including IA-FLAGS, figures are not yet available on the actual rate of value chains achieved due to the JUs, for instance figures on market penetration or monetary equivalents (e.g. on change/increase in income of operators) which could help to quantify KIP 7. However, if the KPIs for the BBI JU projects continue to be monitored for the CBD JU projects, this could produce some statistically robust figures; it could also provide insights into the actual progress across the whole period 2015-2031, and possibly beyond.

Creating more and better jobs (KIP 8): Nearly 80% of BBI JU projects contribute to the creation of new jobs, targeting the creation of high-skilled jobs, especially in rural and coastal

¹⁹ From [CBE AAR2023](#) p. 75, Fig. 50.

²⁰ From [CBE AAR2023](#) p. 74 Fig. 49.

²¹ [CBE AAR2023](#) page 154.

areas. The creation of new local jobs is particularly important for IA-FLAG projects: the first 13 IA-FLAGs reported an estimated number of 4 700 and 15 000 new direct and indirect jobs, respectively²². For the CBE JU (last 6 IA-FLAG projects), this estimation is still pending, as the first projects started only in 2023. Still, CBE JU KPI 9 monitors the number of projects contributing to the development of skills and capacity needed by the EU bio-based sector. For the two first calls in 2022 and 2023, 20 projects were deemed to contribute, out an overall target of 50). **As a general consideration, the focus on innovation, including automation, digitalisation and other broader technologies supporting higher efficiency (e.g. in primary biomass production, but also in biomass biorefining conversion processes), may potentially limit the number of jobs created over the medium-term. However, the same innovation may result in higher-quality jobs and, once biorefineries have been deployed all over the EU, also the number of jobs absorbed by these industries may increase.**

Leveraging investments in R&I (KIP 9): The short-term impact from the partnership on investment – i.e. the amount of public and private investment committed in the partnership itself – is described under the next section, ‘Additionality’.

It is hard to assess the medium-term impact, in terms of the amount of public and private investment to exploit or upscale results from the partnership. The long-term economic impacts, for example the growth and market shares of companies having developed innovations under the BBI/CBE JU and the contribution to the 3% GDP target, is hard to assess, as well. In addition to the inherent complexity of these indicators, which depend on external dynamics such as markets, other constraints materialised during the evaluation period, in particular the COVID-19 pandemic and Russia's war of aggression against Ukraine, with major consequences for the EU, its industry and its competitiveness (energy, resource accessibility, market instability, etc.). **Thus, it is still hard to evaluate how effectively this partnership is leading to the deployment of first-of-a-kind biorefineries in the EU market.** However, the establishment of 19 IA-FLAGs within the scope of the of BBI/CBE JUs (at different operational level) between 2015 and 23, with high replicability potential, shows that JUs are capable of achieving such a long-term impact.

As a benchmark for BBI/CBE JU partnership, the long-term effect of Horizon Europe, in terms of expected GDP gains, can be considered. Based on NEMESIS economic modelling, data shows a steady increase in expected GDP gains attributable to Horizon Europe for the EU as a whole (EU27) – from EUR 0.2 billion in 2021, to EUR 3.3 billion in 2023 and EUR 14 billion by 2032-2034, making up 0.0012%, 0.023%, and 0.085% of GDP respectively (from the draft Commission staff working document on the evaluation of Horizon Europe).

The overall effectiveness of the BBI/CBE JU is apparent in the organisation's ability to drive its ventures towards achieving set objectives. However, it also underscores the complexities inherent in such partnerships. Therefore, there are some recommendations as to how it can maintain its overall efficacy. Most of these come from interviewees but they are backed up by the assessment findings²³:

- implement a robust stakeholder engagement strategy;

²² [CBE AAR2023 p. 57](#).

²³ ‘External report 2024’, pages 40-42.

- enhance JU's role by strengthening internal collaboration with the European Commission and BIC programming teams, aligning with other Joint Undertakings;
- implement a comprehensive risk management framework, to help address operational hindrances in the implementation of flagship projects;
- integrate with other EU policies and activities, e.g. dialogues and meetings with relevant Commission Directorates-General and EU agencies.

2. Additionality

2.1 Public and private R&I contribution mobilised by BBI/CBE JU

From the evaluation of all JUs performed by the European Commission (RTD.G2):

JU name	Horizon Europe contribution (a) (€)	Other EU contribution (b) (€)	Participants co-investment in EU R&I projects (c) (€)	Additional activities of JU members, costs incurred (d) (€)	Direct 'call' leverage factor (c) / (a + b) (€)	Direct leverage factor including additional activities (c + d) / (a + b) (€)
BBI-CBE	820 647 794		391 606 355	2 150 572 377	0.48	3.10
CBE	116 257 141	0	29 591 423	61 539 083 (388 094 406) ²⁴	0.25	0.78 (3.6)

2.2 BBI/CBE JU 'internal' leverage²⁵

In June 2018, the Governing Board of the BBI JU, June 2018 adopted a decision stating how the in-kind contributions had to be considered, for operational activities (IKOP), additional activities (IKAA) and financial contributions, to determine the final leverage effect. This figure will be called 'internal' leverage in this context. On this basis, the 'internal' leverage of the BBI JU at the end of 2023 was 3.2, as reported in the table below. Contributions are still being validated.

	In-kind contributions to operational expenditure from all participants	Financial contributions to operational expenditure	In-kind contributions to additional activities	Total contributions other than EU	EU funding	Leverage
BBI JU	€487 928 957	€3 250 000	€2 150 572 377	€2 641 751 334	€822 066 902	3.2

In this calculation of the leverage, IKOP and IKAA are, conceptually, the same as columns (c) and (d) in the table provided in paragraph 2.1, but figures are slightly different.

Under the CBE JU, leverage has been calculated using the definition of the IKOP and IKAA in the [Council Regulation](#) establishing the JUs; only private partners are included. BIC

²⁴ Estimated IKAA, see next paragraph 2.2.

²⁵ According to the formula adopted by the GB

$\text{Operational leverage} = \frac{\sum APIK^4 + \sum FC^5}{\sum EU \text{ contribution}^6}$ $\text{Additional leverage} = \frac{\sum IKAA^7}{\sum EU \text{ contribution}^6}$	⁴ Total amount of in-kind contributions committed by all participants (both BIC and non-BIC constituent entities) in grant agreements signed by the cut-off date of the data reported in the AAR ⁵ Total amount of financial contributions ('FC') by BIC, delivered at programme level, and/or by all participants (both BIC and non-BIC constituent entities) that are beneficiaries not receiving funding, delivered at project level and committed by the cut-off date of the data reported in the AAR. ⁶ Total amount of EU funding committed in grant agreements signed by the cut-off date of the data reported in the AAR. ⁷ Total amount of in-kind contributions to additional activities ('IKAA') by BIC and/or its constituent entities implemented by the cut-off date of the data reported in the AAR and duly certified later

leading to the calculation of the 'Total leverage effect=additional leverage + operational leverage'.

beneficiaries have to report their IKAA estimations annually through the corporate IT tools and certification of IKAA for the CBE JU is performed by an independent auditor, typically after the investment has taken place. Thus, certification will be finalised only at the end of the CBE JU programme, likely between 2027 and 2031. However, the **estimated IKAA** and IKOP for the 2022 calls provide an expected **leverage of 3.6**, as reported below.

	Estimated In-kind contributions to operational expenditure from private partners	Estimated In-kind contributions to additional activities from private partners	Total contributions other than EU	EU funding	Leverage
CBE JU 2022 calls	€25 223 304	€388 094 406	€413 317 710	€116 257 141	3.6

3. Transparency and openness

3.1 New participants' and SMEs' access to projects

BBI/CBE JU's stated ambition includes a commitment to full transparency and openness, supported by its effort to engage a diverse range of entities in its programmes, with a particular focus on SMEs (see tables below on the participation patterns).

Newcomers to the CBE JU, defined as entities that have not applied for or received funding in the BBI JU or in any previous CBE JU calls, are strongly represented among both applicants and beneficiaries. The level of newcomers is high: 54% of CBE JU applicants (1056 out of 1944) had not applied under any of the BBI JU calls and 62% of CBE JU beneficiaries (366 out of 586) have not received funding previously. Newcomers are particularly successful in the partnership's calls, as the level of newcomers is even higher among beneficiaries than among applicants. In addition, 23% of them are SMEs (136 out of 586).

Already in BBI JU, a very high **SME** participation rate was observed. Concretely, between 2014 and 2020, SMEs received 37% of total BBI JU funding, accounted for 40% of all beneficiaries and two thirds of the private organisations involved in the projects. These rates far exceed the SME participation rate for H2020²⁶.

The expert evaluation report finds that 'The BBI/CBE JU framework has seen a transformative rise in SME engagement, underscoring their evolving roles in the bio-based economy. Initially, SMEs were mainly involved in innovation actions, often partnering with larger enterprises. However, they have progressively taken the lead, not only in research phases with lower TRLs, but also as primary coordinators for flagship projects²⁷.'

²⁶ 'External report 2024' p. 34.

²⁷ Ibid. p. 35.

Types of beneficiaries (%) in CBE JU and BBI JU projects (incl. multiple participations) ¹⁴				
Type of entity	CBE JU calls (2022 -2023) & BBI JU calls (2014-2020)	CBE JU 2023 call	CBE JU 2022 call	BBI JU (calls 2014-2020 calls)
Private companies	58.5%	49%	56%	59%
Research organisations	19.0%	21%	24%	19%
Higher education	13.7%	19%	11%	13%
Other	8.8%	11%	9%	9%

A similar picture emerges in the CBE JU, with SMEs accounting for 33% of beneficiaries and receiving 39% of funding in CBE JU Call 2022 projects³ (compared with only 20% so far in Horizon Europe (HEU)) (p. 1 of [Horizon Europe implementation – Key figures 2021-2023](#)).

Participation of SMEs in CBE JU and BBI JU projects				
	CBE JU calls (2022 -2023) & BBI JU calls (2014-2020) ²⁸	CBE JU 2023 call ²⁹	CBE JU 2022 call ¹⁴	BBI JU (2014-2020 calls) ¹⁴
SMEs	32%	22%	33%	40%
Funding to SMEs	32%	25%	39%	37%

In addition, a significant number of coordinators (e.g. in call 2022,)²⁹ are SMEs.

3.2 Procedures for involving new stakeholders and grant beneficiaries

Starting with BBI JU results³⁰, the CBE JU has continued promoting collaboration and mobilisation of different stakeholders across the value chains (see KPI 1 – new cross-sector interconnections and KPI 2 new bio-based value chains). This has helped to broaden the range of beneficiaries (e.g. new focus on aquatic biomass and its producers). The independent expert report also pointed to the many communication and outreach activities under the BBI JU, including a successful launch campaign for the CBE JU carried out by the CBE JU PO programme office³¹. This is crucial to ensuring transparency and openness towards all potential participants.

In BBI JU projects, 38% of beneficiaries are BIC members. So far in CBE JU, the data based on the calls in 2022 and 2023 shows a significant further increase in BIC participation, to 45.9% of all beneficiaries (269 out of 586, unique), with 22% BIC newcomers (132 out of 586). This increase is mainly attributable to new BIC memberships, which is positive, as it confirms the increased engagement and commitment from private-sector partners. It may also be due to the new rules for participation that promote BIC membership³². For instance, a

²⁸ Source: CBE JU presentation in fifth CBE JU Scientific Committee meeting on 6 June 2024.

²⁹ Ibidem³: 'Initially, SMEs were mainly involved in innovation actions, often partnering with larger enterprises. However, they have progressively taken the lead, not only in research phases with lower TRLs, but also as primary coordinators for flagship projects.'

³⁰ [CBE AAR2023](#), p. 82.

³¹ (CBE JU 2022a).

³² For innovation actions, under CBE JU, including the flagships, applicants need to be a BIC member or become a BIC member before the call closure date, as the level of in-kind contribution to operational activities (IKOP) will be taken into account during the evaluation of such proposals, and IKOP can only be provided by BIC members.

significant share of all CBE JU Call 2023 applicants were entities that had newly joined BIC when they made their call proposal submission.

It remains to be determined whether BIC mobilises all relevant actors from the emerging European bio-based sector, as the way the sector is defined is changing. For example, it is unclear to what extent the broader industrial sector, such as chemical industry, is included, of how engaged market actors (e.g. brand owners) are in the green transition.

To expand participation in CBE JU projects, a dedicated [CBE JU widening strategy](#)³³ has been put in place, with an [action plan](#)³⁴, for 2023-2024. These aim to increase participation from the Horizon Europe ‘widening countries’ and has already produced a (limited) increase in the number of participants in funded projects, including some IA and IA-FLAG projects in such countries. In this context, a specific KPI has been set for the CBE JU (CBE JU KPI 10: ‘Improve participation of regions and countries with high unexploited potential and strategic interest to develop it’). However, increasing participation across the EU remains a work in progress (which is true also for other Horizon Europe instruments), and more efforts are needed, including at national level (e.g. focused support schemes, bio-based innovation programmes or broader bioeconomy governance). In this context, it is worth mentioning that at present almost no EU Member States from the Central and Eastern European macro-region (except Latvia) included under the widening instrument have developed and implemented a national bioeconomy strategy that recognises the role of the circular bio-based sector and related industry.

3.3 New BICs members

Since its foundation in 2013, BIC membership has evolved significantly in terms of the number of entities involved, sectors represented and geographic spread. The current membership includes 65 large enterprises, 135 SMEs (including microenterprises and startups), and 16 regional/national/international clusters representing a further 105 SMEs. SMEs (including those represented by clusters) account for almost 80% of industry members. Out of the 200 direct industry members (i.e. excluding clusters and the SMEs they represent), 24 (12%) come from widening countries and 19 (10%) from associated countries. The presence of such entities is steadily increasing, with a marked acceleration in the last three years thanks to awareness-raising by the BIC (e.g. participation in local events, organisation of dedicated webinars for widening National Contact Points (NCPs), and by CBE JU and CBE JU State Representatives Group members. It is expected to keep on growing significantly thanks to a dedicated ‘widening’ topic under the CBE JU 2024 AWP. In addition to industry members, the BIC also has 274 associate members, i.e. academia, research centres and associations.

3.4 Openness and transparency of consultation and priorities setting

The CBE JU priorities, reflected in the AWP and all the other activities of the JU, are agreed on between the two partners, the EU (through consultation with many Commission

³³ [CBE-JU-widening-strategy.pdf \(europa.eu\)](#)

³⁴ [CBE-JU-widening-action-plan-2023-2024.pdf \(europa.eu\)](#)

departments) and the BIC. Two advisory bodies are also consulted: the State Representatives Group and the Scientific Committee, to ensure alignment with national and regional policies and priorities, and with the most recent scientific findings.

Moreover, involving societal groups and considering their perspectives can contribute to a more inclusive and holistic approach to bio-based economy initiatives. There may be room for improvement in terms of effectively capturing and harnessing the impact of all actors involved in the projects, and other actors so far not engaged, e.g. non-governmental organisations (NGOs).³⁵ An inclusive participation strategy could be put in place, involving, for example, NGOs, small businesses and under-represented groups, as well as countries or regions. To improve inclusivity, CBE JU work programmes consider and may apply the multi-actor approach (MAA), which ensures the involvement of a targeted array of actors, including researchers, farmers, aquaculture producers, other businesses, consumer associations and civil society organisations including NGOs. Such an approach is applied as a mandatory element in all CBE JU IA projects, including IA-FLAG, and in some RIA and CSA projects.

In addition, under the CBE JU, partnership governance arrangements include new advisory bodies known as ‘deployment groups’ (DEGs). DEGs not only act as advisory bodies but also actively participate in strategic discussions setting the agenda for the partnership³⁶. It has been crucial to include these advisory bodies in the governance structure to ensure wider participation and higher private investment in the circular bio-based sector. At the time of writing (October 2024), work on setting up the first two DEGs is at an advanced stage and includes a Working Group on primary producers³⁷ and the DEG on finance and investment³⁸. However, it is still too early to estimate their real impact on the implementation of the partnership or, any broader influence on the European bio-based sector.

4. Efficiency

4.1 Operational and administrative budget implementation

The table below includes the total **operational costs** (OC) (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), **certified IKAA** and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU³⁹) for the period 2014-2023. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

³⁵ ‘External report 2024’ pages 40-42.

³⁶ Council Regulation 2021/2085, recital 47.

³⁷ [Concept-note-CBE-JU-DEG-primary-producers.pdf \(europa.eu\)](#). Moreover, a specific 2023 Work Programme CSA topic [Supporting the CBE JU Deployment Group on Primary Producers](#) will support the implementation.

³⁸ [Note-on-deployment-group-finance-investments.pdf \(europa.eu\)](#)

³⁹ The administrative total contributions are paid equally by the Commission and BIC.

Operational and administrative expenditures (source: CORDA database)

The table includes data for Circular Biobased Europe and Biobased Industries-BBI Joint Undertakings. **OC**: Operational Costs; **IKAA**: Certified IKAA; **RC**: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	77,746,937	251,032,959	256,045,853	129,300,632	168,254,662	165,240,462	164,632,646	-	145,848,564	1,358,102,714
IKAA	-	291,482,000	187,377,001	195,985,238	59,919,566	79,083,090	196,913,147	307,840,098	420,496,032	-	1,739,096,172
RC	580,758	3,032,300	4,192,711	4,957,193	4,950,678	3,025,544	5,282,632	461,506,000	6,104,052	5,551,514	42,292,448

The overall **implementation rate** for BBI JU CAs was very high, at 99.6%, due to the huge response to the calls for proposals and the ability to maximise unused CAs for subsequent calls for proposals. The remaining unused commitments were also reactivated to complement the first CBE JU call, thanks to a provision in the Council Regulation. The first CBE JU calls (2022 and 2023) show similar levels of implementation (98.9%).

The implementation rate for BBI JU PAs is 97.5% so far, with some BBI JU projects still running. PAs for the CBE JU have been used up for the prefinancing payments of call 2022.

Implementation of the administrative budget for the BBI JU has been particularly efficient (93%), aiming at consuming the full budget by the end of 2024. The corresponding figure for the CBE JU is just 4%, which is unsurprising given that large amounts of appropriations were received in 2022 and 2023 and the CBE JU is prioritising the execution of the unused reactivated appropriations for the BBI JU up to end 2024.

4.2 Operational efficiency indicators (time to pay (TTP), time to inform (TTI) and time to grant (TTG))

In terms of budgetary and financial management over the whole period (2014-2023), the KPIs reported below show a strong performance for both BBI and CBE JUs.

- TTP for admin transactions was/is 20 days for both the BBI JU and the CBE JU on average (out of the Horizon Europe target of 30);
- TTP for operational payments (interim and final) was 69 days (out of 90) for the BBI JU on average;
- TTI was/is 116 days for the BBI JU and 126 days for the CBE JU (out of a target of 153) on average;
- TTG was/is 234 days for both the BBI JU and for the CBE JU (out of a target of 245) on average.

For the BBI JU, 97% of all interim and final cost claims validated were paid on time. There have not yet been many administrative payments for the CBE JU, but for the BBI 95% of administrative payments were paid on time, with the average TTP being 20 days – well within the 30-day time limit. Regarding the TTG, all CBE JU grants were signed within the TTG deadline.

In the above calculations, no applicant costs and/or beneficiaries' administrative burden are included, as they are not available/applicable.

5. Coherence and synergies

5.1 Coherence with regional and national policies

Coherence with regional and national policies/programmes in the BBI JU and the CBE JU is ensured by the State Representatives Group (SRG) as advisory body to the Governing Board, which, through its consultations, checks that all JU programming levels, from SRIA to AWP, are well aligned with such policies and their priorities via its consultations⁴⁰. An example of such interaction is the potential impact of the CBE JU on the 11 Central and Eastern European EU Member States grouped under the BIOEAST Initiative, which consider the CBE JU as a key example for strengthening their bio-based R&D landscape, in particular, with interaction with EU R&I leaders and the BIC. The SRG also provides the Governing Board with information on regional and national research and innovation programmes and initiatives to ensure complementarities and synergies with the CBE JU programme.

5.2 Coherence with EU policies

The BBI/CBE JU's initiatives are underpinned by the EU bioeconomy strategy and its update. The coherence of the CBE JU with EU policies/programmes has been analysed and included in the SRIA. The CBE JU's objectives are in line with the European Green Deal – addressed by the daughter policies – to produce major contributions to the EU climate targets by: delivering innovative bio-based solutions and paving the way for Europe to become the first climate-neutral continent by 2050; protecting and enhancing biodiversity; combating pollution; reducing fossil resource dependence; and deploying a just transition. The priorities set by the Commission through the new Biotechnology and Biomanufacturing initiative⁴¹ alongside those set by other EU institutions such as the European Council and the European Investment Bank, position CBE JU activities in the broader context of European competitiveness and strategic autonomy, supporting growth and job creation and a stronger involvement of the primary biomass sectors (agriculture, forestry and aquatic sector).

5.3 Coherence and synergies with other parts of the Framework Programme and with other EU, regional and national programmes

Alignment at programming level has been used to tackle issues of coherence and synergy, especially complementarity, between the BBI/CBE JUs and activities under Horizon 2020 and Horizon Europe, including missions and other relevant partnerships (see also Section 7).

In fact, the scope of BBI/CBE JU – as defined in the legal basis and then in their strategic agendas⁴² – coincides with the scope of some parts of the Horizon programmes. For example,

⁴⁰ [2024 biennial monitoring report](#) on partnerships in Horizon Europe.

⁴¹ COM(2024) 137, 'Building the future with nature: Boosting Biotechnology and Biomanufacturing in the EU', which recognises the CBE JU, specifically, as a key financing instrument to foster public and private investment in biotechnology and biomanufacturing under HEU. See also publication [CBE JU as key EU biotech and biomanufacturing instrument.pdf \(europa.eu\)](#).

⁴² In the [CBE Strategic Research and Innovation Agenda \(SRIA\)](#), the scope of the JU is defined as follows: 'The partnership will include all the economic and industrial sectors of the bioeconomy, therefore those that use biological resources and processes to produce food, feed, bio-based products, energy, and services. However, because the challenges for bio-based innovation in these sectors are quite broad and different, it was agreed by

specific areas of H2020 work programmes aligned closely with BBI JU: Societal Challenge (SC) 2 – focused on improving food security, developing sustainable agriculture and promoting research in the bio-based economy; SC 3 on secure, clean, and efficient energy; and SC 5 on climate action, environment, resource efficiency and raw materials, as well as the Leadership in Enabling Industrial Technologies (LEIT) programme⁴³. Of the EU contribution to BBI, 85% (EUR 828.75 million) came from SC 2 and 15% (EUR 146.25 million) from LEIT.

Under Horizon Europe (Pillar II) Cluster 6 ‘Food, Bioeconomy, Natural Resources, Agriculture and Environment’⁴⁴, Intervention Area 6 (IA6) ‘Bio-based Innovation Systems’ consists of seven ‘broad lines’ listed in the legal base. The aim is to deliver on innovation in bio-based value chains and to produce processes, materials and products from sustainable biomass, including those enabled by biotechnology and life science and their convergence with digital technologies. Further, IA6 should lead to a better understanding of the boundaries of the bio-based economy in the broader European bioeconomy, and of its synergies and trade-offs with a healthy environment. Lastly, bioeconomy should become more socially inclusive. Most of the broad lines are relevant for the programming of the CBE JU and its thematic scope. IA6 provides 90% of the public EU contribution to the implementation of the CBE JU, while IA 3 ‘Agriculture, Forestry and Rural Areas’ – from the same Cluster 6 – provides the other 10%. Building on the experience of the BBI JU, the multi-annual programming (MAP) approach developed from the CBE JU 2022 AWP onwards has helped to improve the coherence and complementarity of programming under the CBE JU and HEU Cluster 6. Basically, the approach involves the Commission and the BIC for the CBE JU AWP the drawing up a plan for R&I activities in bio-based industrial systems up to 2027 – the year of the last CBE JU AWP. The same Commission departments are consulted for the MAP as for programming under HEU, thus ensuring that the two processes are complementary (and avoiding overlaps or replications).

Despite the similarity and overlaps in scope, BBI/CBE JU activities differ from the other Horizon (H2020/HEU) activities in some key aspects of their goals and implementation instruments. BBI/CBE JU projects and governance focus on marketable solutions and deployment, also from the business point of view, including the implementation of first-of-a-kind industrial facilities, while programming activities under Horizon aim to build a systematic approach to addressing challenges and delivering integrated solutions.

With regards to potential synergies with initiatives by the European Institute of Innovation and Technology (EIT), such as EIT InnoEnergy and EIT Food, circular bioeconomy pathways

the partners that the scope of the partnership will focus on the production of bio-based chemicals, materials and products other than biofuels and bioenergy, food and feed (food and feed ingredients and soil nutrients are in the scope), pharmaceuticals and medical devices.’

⁴³ And more specifically in LEIT ‘Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing’ ‘Biotechnology’.

⁴⁴ Council Decision (EU) 2021/764 of 10 May 2021 establishing the Specific Programme implementing Horizon Europe – the Framework Programme for Research and Innovation, and repealing Decision 2013/743/EU (Text with EEA relevance).

and contributions to a circular bio-based economy could be better explored⁴⁵, with a greater emphasis on the potential for coherence and collaboration (Özbolat et al. 2019)⁴⁶.

The recent [2024 biennial monitoring report](#) indicates potential synergies between the CBE JU and four (out of five) EU Missions (Adaptation to Climate Change, Climate-Neutral and Smart Cities, Restore our Ocean and Waters, and the Soil Deal for Europe), and between the CBE JU and Cluster 4 (Industrial dimension) and its partnerships, Made in Europe and Process4Planet, along with Blue Economy, EIT Food and EIT Industries. The 2024 biennial monitoring report also recommended exploring synergies with the LIFE Programme for Environment and Climate Action, as well as the InvestEU Programme, still to be explored. However, it is important to clarify that, in this context, ‘synergies’ refers to programmatic alignment without any financial contributions (no cross-funding) from these or other programmes received by CBE JU calls or shared by the CBE JU with other programmes.

To foster pragmatic synergies with other EU funding programmes, including financial contributions, the BBI JU launched the pilot initiative ‘BBI JU Synergy Label’ in 2019. The initiative supports the uptake of excellent above-the-threshold proposals that could not be financed by the JU due to budgetary constraints⁴⁷, helping them secure alternative funding from European, national, regional or local development agencies. Despite having signed a memorandum of understanding with the European Bank for Reconstruction and Development ([EBRD](#)) and the European Circular Economy Fund ([ECBE](#)), and an advisory service agreement with the European Investment Bank under the InnovFin initiative⁴⁸, the synergy label award was ultimately not successful, because of the different economic schemes (grants versus loans) and eligible applicants (consortia versus single company). As a result of efforts to support project financing, the CBE JU has obtained a mandate to establish a deployment group on investors.

6. EU added value

The partnership approach had facilitated 194 projects as of July 2024⁴⁹, involving partners from across Europe, particularly those projects in higher TRL stages. In fact, enhanced multinational collaboration is crucial for projects at higher TRLs⁵⁰ because it enables the formation of consortia with diverse expertise and resources. Such projects could not be achieved at regional or national levels throughout the EU, especially considering the disparate level of bio-based innovation among EU Member States and stakeholders, some of which are still in the early stages.

⁴⁵ ‘External report 2024’ p. 24.

⁴⁶ Özbolat, Nida Kamil; Haegeman, Karel; Sereti, Katerina (2019): Institute of Innovation and Technology (EIT) knowledge and innovation communities (KICs): Collaboration in a RIS3 Context. Hg. v Publications Office of the European Union.

⁴⁷ [bbi-ju-aar-2019.pdf \(archive-it.org\)](#)

⁴⁸ [bbi-ju-aar-2020_published.pdf](#)

⁴⁹ [Projects | Circular Bio-based Europe Joint Undertaking \(CBE JU\) \(europa.eu\)](#)

⁵⁰ ‘External report 2024’ p. 39.

SMEs have emerged as key actors in BBI/CBE JU's projects. Their increasing participation, from IA to leading IA-FLAG projects, is a measure of how attractive and suitable the projects appear to SMEs.

The principle of inclusiveness, which is part of the mandate of the JUs, was a weak element in the BBI JU: there was an uneven geographical distribution of participants and coordinators, as well as of high TRL projects across the EU. For example, the EU13 Member States⁵¹ counted for just 7% of participation (and 11.2% of the Commission contribution), when considering the number of supported organisations in projects funded by the BBI JU⁵².

This has led to a dedicated [CBE JU widening strategy](#) and [action plan](#) (see Section 3 for details) to increase participation from widening countries, which is still very limited (in the first CBE JU calls), although the expansion of flagships across the EU has led to a more balanced geographical distribution.

The BBI/CBE JU played a crucial role in facilitating the creation and expansion of R&I networks that bring together relevant and competent actors from across Europe, thus contributing to the realisation of the European Research Area (ERA)⁵³. These networks are instrumental in driving collaboration, knowledge exchange, and the sharing of best practices, ultimately leading to enhanced innovation and scientific advancements in the bio-based economy.

Top 15 country	Number of projects	Participations		EC contribution		EC Contr. per part. (EUR 1,000)	Order
		Nb	Share (%)	EUR (1,000)	Share (%)		
Germany	107	197	10,5%	79.623	10%	404,2	1
Spain	92	318	16,9%	112.633	14%	354,2	2
Italy	83	209	11,1%	83.436	10%	399,2	3
Belgium	80	149	7,9%	63.995	8%	429,5	4
Netherlands	74	178	9,5%	70.531	9%	396,2	5
France	64	179	9,5%	96.290	12%	537,9	6
United Kingdom	56	94	5,0%	43.341	5%	461,1	7
Finland	36	73	3,9%	31.041	4%	425,2	8
Austria	31	51	2,7%	16.236	2%	318,4	9
Switzerland	28	34	1,8%	7.739	1%	227,6	10
Sweden	28	53	2,8%	19.394	2%	365,9	11
Portugal	26	42	2,2%	13.219	2%	314,7	12
Denmark	25	40	2,1%	14.915	2%	372,9	13
Ireland	25	36	1,9%	26.298	3%	730,5	14
Greece	22	30	1,6%	8.543	1%	284,8	15

In the above table, EC=European Commission; decimal numbers use ',' and thousands '.'

Generally, the advisory bodies from the Commission, the BIC, the EU Member States and the EU scientific community ensure that the multinational dimension is accurately represented in an EU-wide initiative, and that the strategic agenda of the JU is set to support the growth of the EU bio-based economy and to achieve common EU objectives sustainably, especially towards the European Green Deal targets.

⁵¹ EU13 Member States - countries that joined the EU in and after 2004 - in comparison with the EU15 Member States - which entered the EU before 2004

[https://www.europarl.europa.eu/stoa/en/document/EPRS_IDA\(2020\)641542](https://www.europarl.europa.eu/stoa/en/document/EPRS_IDA(2020)641542)

⁵² 'External report 2024' p. 19.

⁵³ 'External report 2024' p. 30.

7. Relevance

The relevance of the BBI/CBE JU objectives to the challenges and needs addressed by the framework programme lies in their capacity to drive innovation, foster industry engagement, and reduce dependency on raw-material imports. Additionally, the bio-based economy plays a vital role in achieving a green transition, promoting sustainable growth and revitalising rural and coastal areas². In this context, the partnership serves as a global example of dedicated R&D efforts toward a green transition and is recognised as such⁵⁴.

H2020 and HEU, the BBI JU first, and the CBE JU now, have all been aligned with the policy priorities set out in the R&I framework programmes.

- Under H2020, the BBI JU has been found⁵⁵ to be well aligned with SC 2 and the LEIT programme, the two financial sources for the BBI JU (accounting for 85% and 15% of the public budget, respectively). While SC 2 and LEIT Biotechnology continued to support research and innovation activities relating to the entire bioeconomy, the BBI JU aimed to strengthen the bio-based industry sector by industry-driven activities. It mainly financed projects with higher technology readiness levels and market potential than SC 2 and LEIT.

The links with policies were analysed carefully in the 2013 BBI SIRA, which was updated – and actually fully redrafted – in 2017, demonstrating the flexibility and adaptability of the agenda.

- Under Horizon Europe, the public budget for the CBE JU comes from IA6 (90%) and IA3 (10%), both delivering the Cluster 6 work programme contributing to HEU policy priorities on climate action, biodiversity (protection and enhancement), clean air and zero pollution, and digitalisation. The HEU 2025-2027 strategic plan describes Cluster 6 as fostering the bioeconomy and bio-based systems to replace carbon intensive and fossil-based ones, increasing stakeholder participation along the value chains, and bringing resilience to rural and coastal communities⁵⁶, objectives that are also tackled by the CBE JU.

In general, insights from interviews⁵⁷ confirmed that the strategic orientation and commitments of the CBE JU are closely aligned with the objectives of the EU's Green Deal. This alignment is well reflected in the CBE JU's SRIA, (with no plans to update the SRIA).

⁵⁴ e.g. by USA government, discussions in scope of the global bioeconomy governance, the Global Bioeconomy Summit and the International Bioeconomy Forum.

⁵⁵ Interim evaluation of the Bio-based Industries Joint Undertaking (2014-2016) operating under Horizon 2020 (June 2017).

⁵⁶ The actions underpinned by IA6 respond to the specific key strategic orientation: '29. Sustainable and circular management and use of natural resources as well as prevention and removal of pollution are mainstreamed, unlocking the potential of the bioeconomy, ensuring competitiveness and guaranteeing healthy soil, air, fresh and marine water for all, through better understanding of planetary boundaries and deployment of innovative technologies and other solutions, notably in primary production, forestry and bio-based systems.' of the Horizon Europe [2021-2024 Strategic Plan](#).

⁵⁷ In scope of the Partnership Evaluation Report: 'Circular Bio-Based Europe Joint Undertaking' Evaluation study on the European Framework Programmes for Research and Innovation for addressing Global Challenges and Industrial Competitiveness: Focus on activities related to the Green Transition.

8. Directionality

The external experts' reports recognise that, for the BBI and CBE JUs, addressing global challenges and fostering competitiveness requires a comprehensive approach that goes beyond traditional calls and work programmes³. The interviews conducted for the report highlighted the potential of the bio-based economy in marginalised areas with geographical challenges and development difficulties. It is recognised that these regions offer unique opportunities for sustainable development and economic growth. However, realising this potential requires a deep understanding of local production and social structures. Building on these premises, the JU has acknowledged the importance of aligning the worlds of agriculture, development and the bio-based economy to effectively address the complex challenges faced by European society and the European economy, including in marginalised areas facing geographical challenges and development difficulties. In addition, the interviews highlighted the need to focus on public and consumer awareness, including long-term education and awareness-raising about the bio-based economy.

As mentioned above (Section 3c), the overall complexity of integrating all these elements, is being addressed through the MAA in CBE JU programming, a new feature which is absent from the BBI. **It remains to be seen – after first projects covered by it have been completed – whether the MAA approach has been a success.**

At the same time, the continuity of delivering the IA-FLAGS, from the BBI JU to the CBE JU, facilitates the convergence of EU competitiveness – in a field aiming to replace the fossil-based economy – with the global environmental and climate objectives⁵⁸. In fact, IA-FLAGS are particularly instrumental in addressing the critical challenge known as the 'valley of death', which refers to the phase where innovative concepts face barriers in transitioning from research and development to practical implementation in the market. For example, the IA-FLAG [PLENITUDE](#)⁵⁹, produces affordable plant-based proteins (mycoproteins) for human consumption. The latest news from the project is that, when running at total capacity, the production will cut CO₂ emissions by 5 million tonnes a year compared with the production of meat proteins, consuming much less water compared to beef farming, and using agriculture waste as the main resource. However, information about the current production activities of the industrial plant (in the Netherlands) is not published on the CBE JU website.

A comprehensive and strategic communication plan is recommended by the external experts⁶⁰ to maintain the overall efficacy of the JU. BBI JU and CBE JU communication activities were carried out according to the respective communication strategies and their implementation documented in the annual activity reports, as well as in periodic reports to the Governing Board.

⁵⁸ [CBE JU A competitive bioeconomy for a sustainable future 2024 online.pdf \(europa.eu\)](#)

⁵⁹ Funded under call BBI.2018.SO3.F2 - Large-scale production of proteins for food and feed applications from alternative, sustainable sources. EUR 16.9 m EU contribution.

⁶⁰ 'External Report 2024' pages 40-42.

9. International positioning

There are neither specific objectives nor targets for collaboration with international organisations and/or entities in non-EU countries outlined in the CBE JU SRIA or in the Council Regulation establishing the CBE JU. However, the BBI/CBE JU operated/operates fully within the rules of H2020/HEU, where openness to the world is one of the principles. It is important to note that the primary objective of the CBE JU (and the preceding BBI JU) is to deploy sustainable and efficient bio-based solutions at European level. This includes establishing short sustainable supply and value chains from locally sourced bio-based feedstock. The participation of ‘third countries’ is less than 1%⁶¹.

Group of country	Number of projects	Participations		EC contribution		EC Contr. per part. (EUR 1,000)	Number of countries
		Nb	Share (%)	EUR (1,000)	Share (%)		
H2020-EU27	142	1.687	89,7%	727.879	88,6%	431,5	26
EU-14	142	1.556	82,8%	636.269	77,4%	408,9	14
EU-13	63	131	7,0%	91.609	11,2%	699,3	12
H2020-associated (exclude UK)	56	93	4,9%	50.304	6,1%	540,9	8
United Kingdom	56	94	5,0%	43.341	5,3%	461,1	1
Third Countries	5	6	0,3%	0	0,0%	0,0	4
All countries	142	1.880	100,0%	821.523	100,0%	437,0	39

In the above table, EC=European Commission; decimal numbers use ',' and thousands ' '.

In general, the efforts of the BBI/CBE JUs toward international cooperation have so far been relatively limited. Interviewees noted limited collaboration outside of Europe promoted by the BBI/CBE JUs. However, there is recognition of the potential importance of establishing future collaboration beyond Europe, and it may be advisable to explore setting up a dedicated international relations unit⁶². In addition, at programme level, the CBE JU, and previously the BBI JU, regularly cooperates with the Food and Agriculture Organization and is a member of its International Sustainable Bioeconomy Working Group (ISBWG). The CBE JU project officer also participates in key international events and congresses such as the Bioeconomy Congress on Biomass, World Bioeconomy Forum, and World Forestry Congress. **As a lesson learned, a more robust policy feedback loop from such activities into the JU programming cycle or its communication activities would be recommended.**

10. Phasing-out preparedness

According to the Single Basis Act⁶³, all JUs have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs’ activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

⁶¹ ‘External Report 2024’ page 19.

⁶² ‘External Report 2024’ pages 40–42.

⁶³ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.

CBE JU has prepared a preliminary plan which was adopted by the CBE JU Governing Board in December 2023. The preliminary plan included administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

The drafting of the updated phasing out plan is currently ongoing, and it is planned to be adopted in 2025. It should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.



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PART 5/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 13: Evaluation of Clean Aviation JU

Annex to the Commission's interim evaluation of Horizon Europe

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The Horizon Europe (HE) Clean Aviation partnership is a public-private partnership between the European Union (EU) and the European aeronautics industry and research organisations. It builds partly on the work of its predecessors, Clean Sky and Clean Sky 2, with the Clean Sky 2 programme continuing to run until 2024.

1. Effectiveness

Overall, the Horizon Europe Clean Aviation partnership planning is in line with the objectives set out in Council Regulation, but it is too early to assess the extent to which they have been achieved. The programme and budget allocation, based on the EU funding set in Council Regulation, are structured into two phases.

Phase 1 (2022-2025) has an EU funding allocation of around 806 million EUR. Twenty-eight large-scale, industry-led projects with interdependencies were launched through two open calls for proposals, with projects starting in 2023 and 2024. Small delays are expected mainly due to technical decisions that have impact on future market uptake. These 28 projects involve over 280 participants and aim to mature, integrate and demonstrate disruptive aircraft technological innovations able to lower net greenhouse gases emissions. The aim is to lower emissions by no less than 30% by 2030, compared to 2020 state-of-the-art technology, while paving the ground towards climate-neutral aviation by 2050. In line with the revised strategic research and innovation agenda (SRIA)¹, the projects are mainly focused on the regional and short-medium range aircraft segments, which account for approximately two thirds of the total aviation CO₂ emissions², affecting most of the EU aerial transportation in terms of travel and passengers.

While the main focus of the demonstration efforts will be on the ultra-efficient regional, ultra-efficient short-medium range, and hydrogen-powered aircraft concepts, the approach will involve a stepwise development and demonstration strategy. This will allow several opportunities for technology spin-off to other aircraft categories: towards commuter and vertical lift applications that can benefit from the hybrid-electric maturation of technology, and from the ultra-efficient SMR architectures towards long-range applications. Similarly, aircraft situated in-between the regional and SMR segments, such as large regional jets, will as well benefit from the technologies developed in these 2 thrusts. This is particularly important, as it will allow both a broad-based participation in the programme, and a much broader and deeper penetration of the overall air transport system with important additional environmental and climate-related benefits.

In terms of interim progress and preliminary results emerging from phase 1 ongoing projects, the following technical options by technical domain are worth mentioning at this stage (non-exhaustive list). These ongoing projects are also being aligned with the ‘SRIA’ as recently updated in July 2024.

¹ <https://clean-aviation.eu/sites/default/files/2024-09/2024-Clean-Aviation-SRIA.pdf>

² Clean Aviation’s strategic and research innovation agenda: <https://clean-aviation.eu/strategic-research-and-innovation-agenda-sria>.

Small-medium range:

- SAF-based (target entry into service (EIS)³ 2035): over 5 aircraft concepts are being explored covering engines Open Fan architecture to hybridisation concepts for ducted fan architecture targeting TRL5 2026 and improvements to wing and fuselage technologies.
- H2-based (EIS 2040+): 4 aircraft concepts are being explored (TRL3 2026).

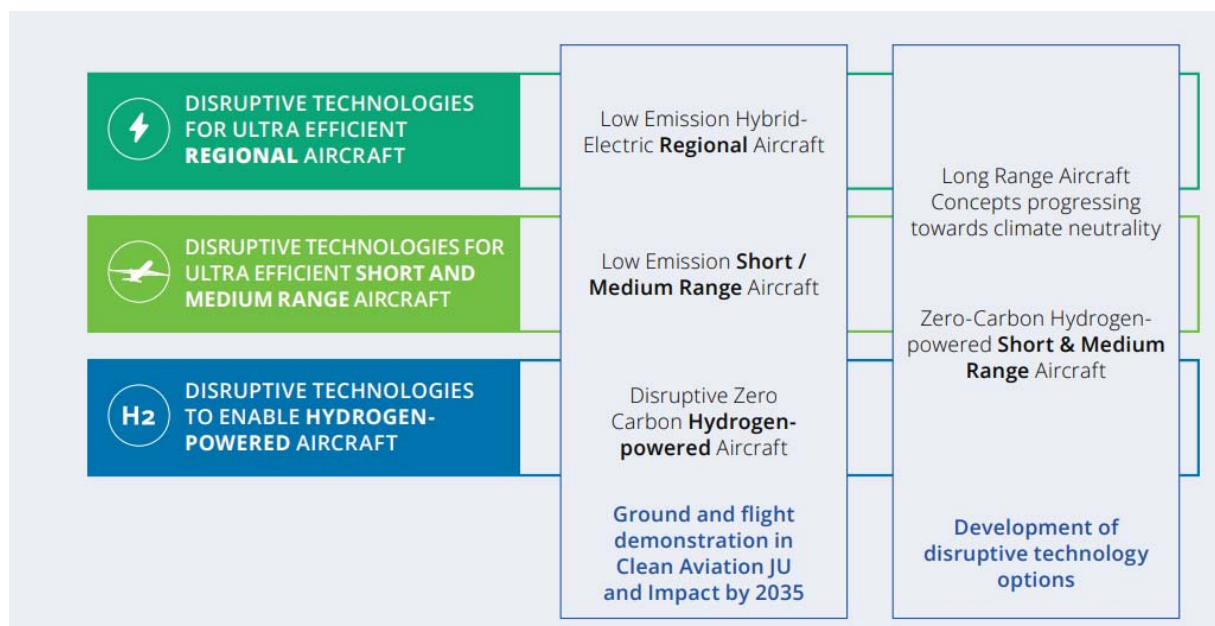
Hybrid-electric regional:

- MW hybrid-electric power train for regional aircraft (TRL5 by 2026- - EIS 2035).
- 800V HVDC network (techno-bricks up to TRL5-2026).
- 3 aircraft concepts at TRL4 by the end of 2026.

Hydrogen:

- Mega Watt fuel cell power train - TRL4 end 2026 for EIS 2025.
- H2B: first trial executed - application to SMR aircraft with EIS beyond 2035.

The chart below maps the research thrusts against aircraft categories and concepts.



Phase 2 (2025-2030) has an EU funding allocation of around 854 million EUR. While the preparation and launch of phase 2 is well under way, the focus is expected to be on the integration and demonstration of the most promising disruptive technologies of around four targeted European aircraft concepts and one scalable demonstration concept. This approach is in line with the programme aircraft integrated approach. These concepts serve as reference aircraft concepts targeting the expected impact as defined in Article 57.2 of Council Regulation for the integration and demonstration of impactful technological innovations supported under Clean Aviation, as well as for other relevant innovations supported by other EU, national, and regional programmes. It is also worth mentioning the expected launch as part of Clean Aviation phase 2 of a ‘fast-track’ mechanism to support in parallel to the large-scale topics and activities,

smaller projects to quickly mature additional or alternative disruptive technologies and solutions for possible uptake and integration at aircraft concept level. This new mechanism will also strengthen the ability to be flexible and quickly respond to new programme needs.

The European Commission's departments follow closely the technical preparations and have every reason to believe that the objectives of the industry-led partnership will be achieved towards the end of the programme.

Regarding the Horizon 2020 Clean Sky 2 partnership, the objectives set out in the Regulation⁴ have been achieved, delivering innovative technological solutions contributing to reduce CO₂, NO_x and noise levels by 20 to 30% compared to a state-of-the-art aircraft entering service in 2014. Thirty-four flagship demonstrators, more than 106 other demonstrators contributing to the flagship demonstrators, and more than 1000 technologies have been delivered by the end of the programme⁵. While major ones directly focus on the environmental benefits, all will enable better energy efficiency (and environmental benefits) while boosting the competitiveness of the EU aviation sector.

As highlighted in the 2023 Annual Activity report⁶ of the Joint Undertaking (JU), Clean Sky 2 activities also triggered in total 581 patent applications and almost 2 100 scientific publications (only peer-reviewed and technical papers) between 2014 and 2023, reflecting the excellence of the programme.

Horizon Europe Clean Aviation partnership is impact driven and a lot of effort is put on the selection of technologies with potential to market uptake. Horizon Europe Clean Aviation focuses on aircraft technological innovations for a radically new next generation of regional and short-medium range aircrafts with a target entry into service by 2035 that will be at least 30% more energy efficient while reducing CO₂ emissions by at least 30% at aircraft level. At the same time, Clean Aviation also aims to support the longer-term objective for a climate neutral aviation by 2050. With its high level of ambition and focus on impact, Clean Aviation is instrumental for the European aviation industry to lead the global transition towards a 'Net-Zero' climate-neutral aviation system by 2050, setting new standards for safe, reliable, affordable and environmentally friendly air transport for the public. Accelerating this transformation is crucial as air travel demand has rebounded following the COVID-19 pandemic (2020-2022) and is projected to double by 2050. This strongly amplifies the urgency to tackle aviation's emissions and their impact on our environment and climate.

Delivering disruptive aircraft technological innovations, such as in more efficient propulsion systems equipped with high-performance light-weight batteries, hydrogen technologies and/or electric systems, by 2030 and supporting a subsequent fleet replacement with the next-generation of low-emission 'Clean Aviation' aircrafts are necessary steps for decarbonising Europe's aviation sector. This includes the introduction of new single-aisle aircraft, new regional aircraft, and small electric aircraft on intra-European routes over the next decade, combined with up-scaling of SAF and hydrogen production and the deployment of new airport

⁴ https://clean-aviation.eu/sites/default/files/2021-12/SBA_FINAL_published%2030.11.2021_CELEX_32021R2085_EN_TXT.pdf

⁵ <https://www.clean-aviation.eu/sites/default/files/2022-03/CS2DP-October-2021.pdf>; page 33.

⁶ <https://clean-aviation.eu/sites/default/files/2024-07/CAJU-GB-2024-06-20-AAR-2023.pdf>; page 143 and 144.

infrastructure. The next-generation of commercial passenger aircraft to be developed over the next 10 years holds the potential to unlock a step-change improvement in energy efficiency of no less than 30% facilitating the transition to net carbon neutrality and in turn strengthening the competitiveness of the sector. This will also contribute to boosting European industrial leadership in aviation at global level, as well as European competitiveness and technological sovereignty of the aviation sector by reducing strategic dependencies and securing the European supply chain.

The strategic cooperation⁷ between European Union Aviation Safety Agency (EASA) and Clean Aviation to anticipate certification requirements and prepare new certification and standardisation rules for disruptive technologies contributes to the timely implementation of results, allowing for an effective market up-take from 2035. For example, the new ‘Certification Readiness Level’ (CRL) scale developed in the Clean Aviation phase 1 project ‘CONCERTO’⁸ aims to provide a standardised process to regularly assess the progress towards certification of disruptive technologies and has been taken up and introduced by EASA under its innovation services. Besides substantially reducing fuel consumption and fostering green technologies by design, the policies and actions being implemented will contribute to establishing the European aviation sector as the global leader in the sustainable aviation transition.

Ensuring the availability of future aircraft by 2035 requires additional investments to prepare for market uptake and the introduction of technologies into other aircraft segments (such as hydrogen for short-medium and long-range aircraft). Clean Aviation provides well-structured European cooperation and sets out a framework to accelerate the creation of disruptive technologies leading to a ‘skip a generation’ outlook in terms of future generation of aircraft replacement from 2035. It also provides a clear strategic R&I agenda to be implemented in close coordination with other European and national/regional R&I programmes to align on joint technical roadmaps, to create links and secure available funding.

A true European coordinated approach, aligning strategies and coordinating efforts made at European, national, and regional level for aviation R&I is needed to achieve a climate-neutral aviation system which is well beyond the capability and investment capacity of the private sector acting alone or of an EU country acting alone. As highlighted in the SRIA, the overall research and innovation effort needed to meet this challenge under the Horizon Europe timeframe is likely to exceed around 12 billion EUR. ‘This effort can stimulate a product development in this sector worth over €50 billion. This stimulus could finally lead to an overall private investment in product deployment of more than €5 000 billion by 2050⁹.’

Under Horizon 2020, the first global assessment of the Clean Sky 2 Technology Evaluator¹⁰ estimated that by 2050 the technologies and solutions developed under the Clean Sky 2 programme (CS2) could contribute to reducing global aviation CO₂ emissions per seat kilometre by around 15% and NO_x emissions by around 31% compared to 2014 technology. ‘The cumulative environmental value of this emissions reduction alone out to 2050 is estimated

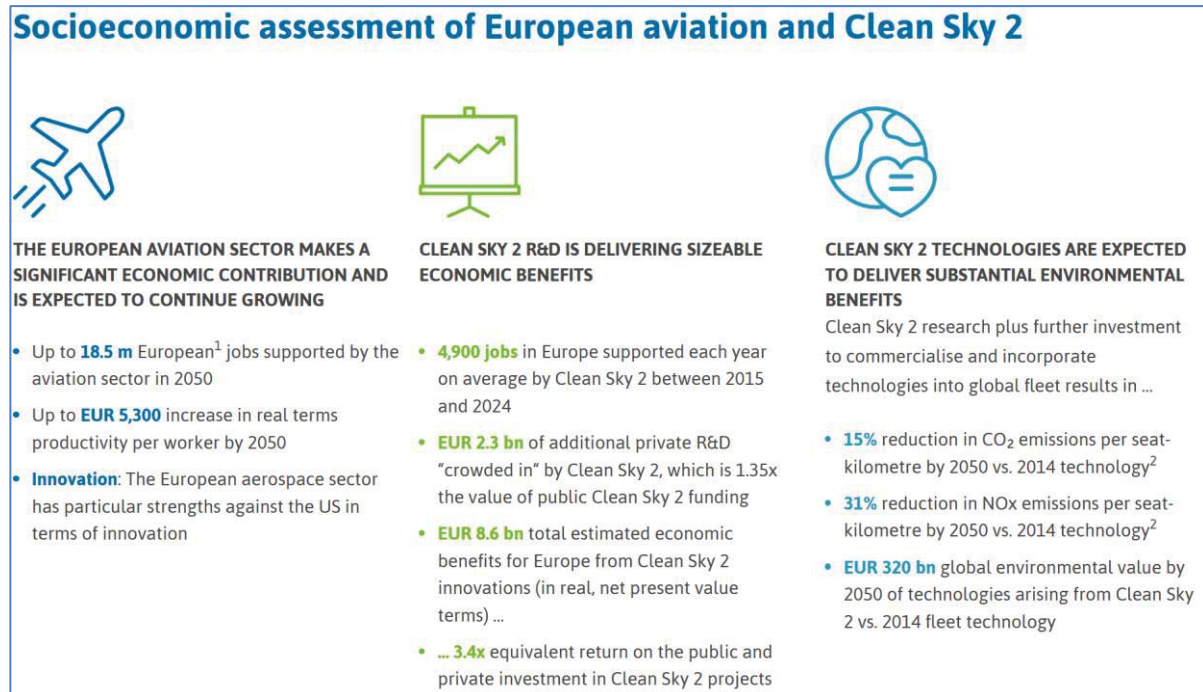
⁷ <https://clean-aviation.eu/media/news/easa-clean-aviation-enhance-cooperation-on-research-and-innovation-in-aviation>.

⁸ <https://www.clean-aviation.eu/media/news/easa-has-introduced-a-new-certification-readiness-level-crl-scale-in-aviation>

⁹ <https://clean-aviation.eu/strategic-research-and-innovation-agenda-sria>

¹⁰ https://cleansky.paddlecms.net/sites/default/files/2021-10/TE-FGA-TR_en.pdf

as at least €320 billion globally¹¹, according to an independent study on the socioeconomic impact of the Clean Sky 2 programme. This study, commissioned by the CS2JU, also estimated an economic benefit of EUR 8.6 billion of the Clean Sky 2 programme. This represents a return of 3.4 times of the total public and private investment in the programme. A summary of the potential socioeconomic benefits of the CS2 programme is set out in the chart¹¹ below:



2. Additionality

The funding streams for the Horizon Europe Clean Aviation (2022-2031) are as follows:

- Horizon Europe: EUR 1.7 billion;
- Private members: at least EUR 2.4 billion.

After the first two call for proposals, 28 Clean Aviation grants were signed with a total value of EUR 806 million, triggering a total planned in-kind contribution of EUR 1 287.44 million for the period 2022-2026. This equals a leverage factor of almost 1.6 (only from members) and exceeds the minimum expected leverage factor of 1.41 calculated as the ratio between 'private side' contribution over EU's contribution. This significant contribution from private members and the European aviation industry from the outset of the Clean Aviation programme shows their strong commitment to transforming the sector to a climate-neutral system.

In Horizon 2020 Clean Sky 2, the EU's contribution was EUR 1 716 million while private members (Leaders and Core Partners or their affiliated entities) should provide at least EUR 965.25 million. At the end of 2023, the JU incurred 98% of the total programme expenditures, whereas private members already provided 115% of the expected total in in-kind contributions, with an IKAA rate of 146%¹². Assuming that the planned/reported values for 2023 and for

¹¹ <https://clean-aviation.eu/media/publications/socioeconomic-impact-of-the-clean-sky-2-programme>

¹² <https://clean-aviation.eu/sites/default/files/2024-07/CAJU-GB-2024-06-20-AAR-2023.pdf>; page 102.

previous years will be fully validated, private members will exceed the overall EUR 2 155.00 million in-kind contribution (IKC) obligation as required by the Council Regulation.

3. Transparency and openness

R&I activities under Horizon Europe Clean Aviation partnership are selected via open calls for proposals. Phase 1 has already implemented two calls, and the 28 contracts were rewarded to over 280 participants from 24 countries (including associated countries and non-EU countries), while 14% of the participating entities are SMEs.

In phase 2, up to three more open calls will be implemented between 2025 and 2027, expecting to accelerate the creation and integration of selected technologies and support them towards demonstration. The calls are also expected to increase the overall participation and technical contributions mentioned in the programme.

Horizon 2020 Clean Sky 2 partnership launched 11 open calls for proposals as a complementary mechanism to support the (broader) activities of the Integrated Technology Demonstrators (ITDs), the Innovative Aircraft Demonstrator Platforms (IADPs) and the Transverse Activities in CS2, which were operating under a specific Grant Agreement for private members. CS2 was able to successfully create a broad eco-system¹³ involving over 900 entities. Over 330 were SMEs, from 30 countries (including associated countries and non-EU countries, such as Canada and the US) and over 110 European regions where over 550 grants were awarded by the JU.

Horizon Europe Clean Aviation partnership has already expanded its membership, which includes leading EU aviation industry and academia (RTOs and universities) from EU countries and countries associated to Horizon Europe.

Twelve associated members were selected through a call for expressions of ideas / potential members¹⁴ launched by DG RTD end of 2020. During its first Governing Board meeting in December 2021, these 12 associated members were approved and added to the 27 founding members, allowing them to join the CAJU establishment and operations from the outset.

Horizon Europe Clean Aviation partnership was also the first JU under Horizon Europe to launch a call for expression of interest for new associated members¹⁵, complementing the competences and capabilities relevant to implement the programme and its objectives.

After the successful launch and implementation of this call, the number of private members has increased from 39 founding and associated members to 59 (as of December 2023 and including two entities from the UK). Most of the Clean Aviation private members are from industry (54%), followed by public research organisations (22%), universities (14%) and SMEs (10%).

¹³ <https://clean-aviation.eu/clean-sky-2/facts-and-figures>; <https://clean-aviation.eu/clean-sky-in-your-country>; <https://clean-aviation.eu/sites/default/files/2021-09/Clean-Sky-Infographic-2021-v2.pdf>.

¹⁴ https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/call-future-clean-aviation-partnership-2020-08-26_en

¹⁵ <https://clean-aviation.eu/clean-aviation/participation/call-for-expression-of-interest-for-associated-members>

Horizon 2020 Clean Sky 2 partnership was composed of 16 leaders¹⁶ plus 31 participating affiliates which undertook to achieve the programme's full research and demonstrator activity. After the successful launch of four calls for core partners over the lifespan of the CS2 programme, CS2JU involved almost 180 core partners¹⁷ (including participating affiliates). The core partners came from the entire supply chain (large industry and SMEs) as well as from academia (universities and RTOs) who had brought substantial long-term commitments, key competences, and technical contributions to the programme. Both leaders and core partners form the CS2 private members, with the Commission representing the public part of the CS2 membership.

There are open and transparent processes for consulting all relevant stakeholders and constituent entities in the identification of priorities and one of the key tasks of the Horizon Europe Clean Aviation Technical Committee (TC) is to propose technical priorities and research actions to be included in the work programme and the research topics for open calls for proposals. While open and transparent, the sheer number of members in the TC makes the decisions lengthy and complex. As technologies have to converge to a meaningful number of platforms for market uptake, it is clear that the decision-making process is based on transparent performance indicators (which in some cases are difficult to define in detail). In addition, in such a highly competitive market, intellectual property rights and company decisions are not shared fully in the open domain.

The Commission is represented in all technical committee streams and the TC leaders are striking a very good balance between the openness and implementation. Open and transparent processes for consulting all relevant stakeholders and constituent entities in the identification of priorities, are also supported by the States' Representatives Group (SRG). The Horizon Europe Clean Aviation Governing Board is ultimately responsible for the approval of all technical and administrative decisions.

4. Efficiency

The table below shows the payment appropriations made by the JU covering the period 2014-2023 for both Horizon 2020 Clean Sky 2 and Horizon Europe Clean Aviation partnerships.

The following table includes the total **operational costs** (OC) (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), **certified IKAA** and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU) for the period 2014-2023. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

¹⁶ <https://clean-aviation.eu/sites/default/files/2024-01/Work-Programme-and-Budget-2024-2025-December-2023.pdf>; page 120.

¹⁷ <https://clean-aviation.eu/sites/default/files/2024-01/Work-Programme-and-Budget-2024-2025-December-2023.pdf>; page 122.

Operational and administrative expenditure - Clean Aviation and Clean Sky 2 JU (2014-2023)

source: CORDA

The table includes data for Clean Aviation and Clean Sky 2 Joint Undertakings. **OC**: Operational Costs; **IKAA**: Certified IKAA; **RC**: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	773,145,315	30,802,661	98,831,054	89,647,093	149,117,783	523,950,567	455,072,816	3,267,561	856,443,256	217,312,353	3,197,590,459
IKAA	-	-	199,156,575	63,252,985	160,761,149	196,819,130	218,138,020	105,926,835	85,794,229	314,750,893	1,344,599,817
RC	6,351,078	7,827,522	7,335,134	6,953,084	8,324,000	7,525,000	8,523,900	8,666,967	9,918,000	9,520,769	80,945,454

The three efficiency indicators required by the Financial Regulation are time-to-pay (TTP) (Article 116.1 of the Financial Regulation), time-to-inform (TTI), and time-to-grant (TTG) (Article 194.2 of the Financial Regulation). The Clean Aviation's average values are as follows:

- TTP: in 2023, 96% of the payments were made on time;
- TTI: in 2022, there was only one call for HE (and no calls for H2020), with a time-to-inform of 2.7 months, the target being 5-6 months;
- TTG: in 2022, 99% payments were made on time.

The Horizon 2020 Clean Sky 2 average values for TTG and TTP including the breakdown per year for the period 2016-2020 are as follows:

Average time-to-grant (TTG) for CS2 call for proposals (in Horizon 2020) was ~90%

Year	Clean Sky 2 calls for proposals in Horizon 2020	TTG
2020	CfP ¹⁸ 10 + 11	86% / 100%
2019	CfP 08 + 09	73% / 96%
2018	CfP 06 + 07	97% / 97%
2017	CfP 03 + 04 + 05	83% / 98% / 100%
2016	CfP 01 + 02	80% / 82%

Average time-to-pay (TTP) was ~97% for CS2/H2020 (2016-2020)

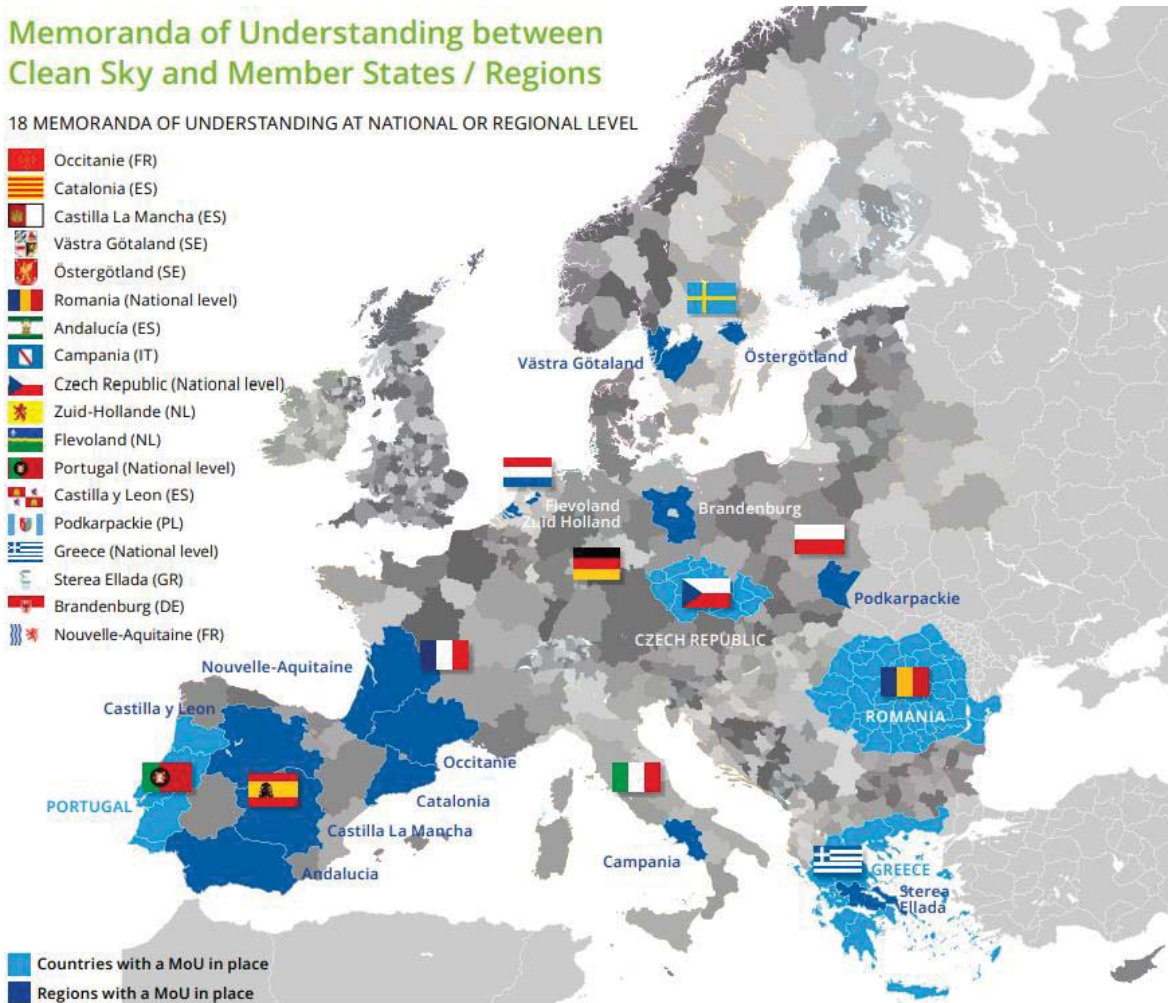
Year	TTP for Clean Sky 2/Horizon 2020
2020	99% (operations + administration)
2019	98% (operations + administration)
2018	98% (operations + administration)
2017	95% (operations + administration)
2016	95% (operations + administration)

¹⁸ Call for proposals.

5. Coherence and synergies

The Horizon Europe Clean Aviation partnership plays a central role in the European ‘innovation architecture’. It provides shared roadmaps and synergies within Horizon Europe (EU collaborative research and relevant HE PPPs), EU research programmes, national and regional research and innovation programmes, and cohesion policy funds such as the European Regional Development Fund (ERDF) and other financial instruments.

Synergies with private programmes as well as with European, national, and regional ones are fully exploited. The Horizon Europe Clean Aviation has created an ambitious plan to establish synergies with other programmes/partnerships with significant investment of effort.



In 2023, the Horizon Europe Clean Aviation partnership launched an action plan in cooperation with the Commission to establish strategic cooperations based on synergies for ‘Net-Zero’ aviation with the key European Aeronautics Regions/Member States, mainly leveraging on Cohesion Policy funds / ERDF.

- Memoranda of Cooperation (MoC) were signed with Campania¹⁹, Hamburg²⁰, Occitania²¹ and Piedmonte²², which collectively have put forward an ambition to contribute with up to EUR 300 million until the end of the operational programme to support project activities carried out in the region and contributing to the Clean Aviation objectives, based on an alignment of strategies (e.g. Smart Specialisation Strategies), technical roadmaps and work programmes/calls. A possible MoC with Andalusia is under negotiation.
- Regular strategic dialogues and interfaces with European countries having hundreds-of-million-sized national programmes targeted to Aeronautics R&I such as Germany (LUFO), France (CORAC), Spain (PTA/CDTI), as well as with the Netherlands (Luchtvaart in Transitie) and the UK (ATI).

Horizon 2020 Clean Sky 2 partnership has encouraged strategic collaborations with EU Member States and regions, largely by using synergies with the European Structural and Investment Funds (ESIF). Since the launch of this pilot programme in 2015, 18 Memoranda of Understanding (MoU) have been signed at national or regional level.

Through the 18 MoUs²³, 52 pilot projects were launched with a total additional budget of more than 50 million EUR. In addition, 12 Clean Sky Synergy Labels were awarded. These quality labels were awarded to complementary activities proposed by Clean Sky 2 beneficiaries, and they enabled those activities to be supported by ESIF funding. However, synergies between the JU and regions have been limited so far by difficulties in transferring cohesion funds to the JU to manage directly.

Horizon Europe Clean Aviation has established synergies to support and facilitate the achievement of the programme's high-level objectives.

- Memorandum of Cooperation²⁴ with European Union Aviation Safety Agency (EASA) to boost cooperation on aviation research and innovation.
- Memorandum of Understanding²⁵ with Clean Hydrogen JU to strengthen cooperation on research and innovation in hydrogen-powered aviation:

In 2023, three projects contributing to the CAJU objectives on H2 powered aviation were launched by the Clean Hydrogen JU with a support of nearly EUR 35 million in

¹⁹ <https://clean-aviation.eu/media/news/clean-aviation-campania-region-step-up-collaboration-for-sustainable-aviation>

²⁰ <https://clean-aviation.eu/media/news/clean-aviation-hamburg-set-strategic-cooperation-to-accelerate-innovation-for-net-zero-aviation>

²¹ <https://clean-aviation.eu/media/news/clean-aviation-occitanie-region-join-forces-to-accelerate-climate-neutral-aviation>

²² <https://clean-aviation.eu/media/news/clean-aviation-piedmont-region-step-up-collaboration-to-deliver-disruptive-aircraft-technologies-for>

²³ https://clean-aviation.eu/sites/default/files/2022-11/CleanAviation-synergies-report_en.pdf

²⁴ <https://clean-aviation.eu/media/news/easa-clean-aviation-enhance-cooperation-on-research-and-innovation-in-aviation>

²⁵ <https://clean-aviation.eu/media/news/clean-aviation-clean-hydrogen-partnerships-strengthen-cooperation-on-research-and-innovation-in>

EU funding (BRAVA/project ID: 101101409, NIMPHEA/project ID: 101101407 and COCOLIH2T/project ID: 101101404).

- Close collaboration with the Batteries Partnership (BATT4EU PPP):

A preliminary alignment was achieved in the Batt4EU SRIA and in the batteries topics relevant to aviation, i.e. HORIZON-CL5-2023-D2-02-01 and HORIZON-CL5-2024-D2-02-02. Both topics are under the Batt4EU Partnership but include objectives, KPIs and targets in line with the expected Clean Aviation requirements for batteries.

- Re-vitalised the strategic alignment with the SESAR 3 JU which is key to make the targeted Clean Aviation low-emission aircraft disruptive technologies and concepts compatible with their insertion into the Air Traffic Management (ATM) system, to foster the launch of disruptive new products and services and their entry into service by 2035.
- Under the Horizon Europe Cluster 5 work programme, the following projects have been identified as relevant: (i) HESTIA (project ID: 101056865); (ii) MYTHOS (project ID: 101096286); (iii) IMPACT MONITOR (project ID: 101097011); and (iv) PULSAR (project ID 101095395).
- Horizon Europe Cluster 5, Destinations 5 and 6, collaborative and fundamental aviation research complement the partnership's activities.
- There is an ongoing action, led by the Clean Aviation Governing Board, with the EU Innovation Fund to better connect the Innovation Fund to Clean Aviation goals. This action is part of the overall synergies action (at the wider EU budget (multiannual financial framework level) of CAJU with the ambition to connect all relevant EU programmes and resources aiming at a wider 'impact' and increased efficiencies.

6. EU added value

The main added value of the Horizon Europe Clean Aviation partnership is the focused joint strategic research and innovation agenda developed by the Commission and the European industry to integrate and demonstrate disruptive aircraft technologies in a (relatively) long-term framework. This avoids fragmentation of efforts in the European market and annual uncertainties in budget and orientations. It also allows for a real integration and creation of a European supply chain in the aviation sector, contributing to the sustainable competitiveness of the European aviation industry.

Furthermore, it ensures that industry's research and innovation activities are aligned with the EU's policy priorities. It contributes to building Europe's leadership in innovation and technology and to delivering jobs and economic growth throughout the transition to a climate-neutral Europe by 2050. The approach can offer future generations the promise of continued, affordable, and equal access to air travel, with all its social and economic benefits, and contribute to the UN's Sustainable Development Goals.

The institutionalised partnership with the EU, aligning R&I efforts together with the sector, is a powerful platform for integrating elements from other EU-level R&I, Member States' national research programmes and regional specialisation strategies. This partnership ensures continual

lose alignment with the Commission's policy leadership. This is instrumental in creating the regulatory and economic conditions to successfully deploy globally competitive new aircraft with disruptive performance gains, having the necessary environmental impact by 2050.

7. Relevance

Horizon Europe Clean Aviation partnership has substantially deviated from the two Clean Sky programmes under FP7 and H2020. The objectives were aligned to the EU Green Deal and industrial competitiveness goals. Interdependencies in the objectives were set, as independent CO₂ and NO_x goals were replaced by 'decreased net emissions of greenhouse gases by no less than 30% by 2030, compared to 2020 state-of-the-art technology, while paving the ground towards climate-neutral aviation by 2050'.

Therefore, the objectives of the partnerships are still very relevant regarding the challenges and needs addressed by the framework programme. Beyond supporting the achievement of the EU's Green Deal targets, Clean Aviation contributes to European competitiveness and industrial leadership in innovation and technology in aviation, while impacting sectors such as hydrogen, electrification, advanced materials, and manufacturing. It also provides jobs and contributes to economic growth during the transition to a climate-neutral Europe by 2050.

Horizon 2020 Clean Sky 2 and Horizon Europe Clean Aviation are key elements for the aviation sector to become **climate neutral by 2050** as well as to boost the EU's global competitiveness and excellence in this sector. Therefore, the programmes are well aligned with the high-level objectives as set out in the Regulation²⁶. The programmes outcome has and will continue to contribute to the high-level objective of Horizon Europe Cluster 5, which focuses on reducing greenhouse gas emissions in the energy and transport sectors. The outcome of the partnership work also lays the foundation of the Alliance of Zero-Emission Aviation (AZE) which should ensure the development of the necessary framework conditions to successfully deploy the technologies developed through the partnership in Europe.

The members of the Clean Aviation JU have recently completed the revision of its Strategic Research Innovation agenda (SRIA) after the first publication of this strategic document in November 2021. The revised version defines phase 2 of the Clean Aviation programme, planned for 2025 to 2030, which is designed to build on the advancements of the large-size, industry-led projects from phase 1, focusing on maturing and demonstrating key aviation technologies to achieve high Technology Readiness Levels (TRLs). This ensure that the programme's vision and overall ambition remain aligned to the programme's objectives as set out in Council Regulation (EU) 2021/2085, maximising the impact of the programme.

8. Directionality

Horizon Europe Clean Aviation is contributing to the EU climate goals, European competitiveness both in terms of securing highly-qualified jobs and growth in Europe and for the European technological sovereignty of the aviation sector, which is faced with strong governmental support by their counterparts in the US and China. The Clean Aviation

²⁶ OJ L 427, 30.11.2021.

partnership does this by supporting European-led innovation for the next generation of aircraft products and service by 2035 and by reducing the strategic dependencies from non-EU countries and securing the supply chain. By following a common strategy endorsed and supported by the European aviation industry and major aviation stakeholders including RTOs, Academia and SMEs and with significant level of private investments being triggered and being aligned to the programme, Clean Aviation is therefore showing strong European leadership and directionality both in terms of strategy and path to be followed. The recent revision of the SRIA in July 2024 confirmed both Hydrogen and Hybrid Electric as viable routes for the future new aircraft concepts type by 2035, as also confirmed by the recent ‘AZEIA vision document’ published by the Commission in June 2024.

Clean Aviation plans to develop within its lifetime (31 December 2031) new disruptive aircraft technologies integrated and demonstrated at aircraft level (regional and small-medium range aircrafts types) which will ensure the capacity to deliver net greenhouse gas reductions of no less than 30%, compared to the 2020 state-of-the-art scenario. The technological and industrial readiness needed to deliver new products to market should accelerate the deployment of new aircrafts with this performance level by 2035; therefore, supporting 75% of the civil aviation fleet renewal by 2050.

In phase 2 (starting from 2025) the main focus will be on integrating and demonstrating a number of selected disruptive technological innovations around four targeted European aircraft concepts and one scalable demonstration concept. These concepts serve as reference aircraft concepts targeting the expected impact as defined in Article 57.2 of Council Regulation for the integration and demonstration of impactful technological innovations within Clean Aviation, as well as for relevant innovations supported by other EU, national, and regional programmes. This shows the programme's focus on impact and its ability to encourage coordination and alignment with other relevant programmes. The results will enable the aviation sector to progress towards the common objective to become sustainable and ‘net-zero’ by 2050, while supporting EU industrial leadership and technological sovereignty in this sector.

The move towards climate-neutral aviation requires a coordinated and efficient approach supporting aircraft technological innovations from ‘research to market’, as well as the timely availability of the required infrastructures and sustainable fuels (SAF and/or hydrogen) to respectively operate and power the next generation of low-emission aircraft as of 2035.

In this context, this goal is achievable if an effective integrated framework combining various existing EU instruments is proposed to accelerate the transition towards climate-neutral aviation by 2050. However, this will be highly dependent on the level of public support at EU and national level, and on the evolution of the operating framework to ensure a joint and coordinated effort.

9. International positioning

In phase 1 of the Clean Aviation partnership, secured the participation of entities from the UK in the technical activities selected from the two calls for proposals. These UK entities are supported by EUR 77.53 million of UK funding obtained under the Transitional Agreement.

Among the new associated members selected through the CEI in 2023, two UK entities (ZeroAvia and the University of Nottingham) joined the JU membership as well as one company from Türkiye, complementing the list of associated countries (Norway) actively involved in the programme as members.

Several projects also attracted the participation of international partners from non-EU countries such as Brasil, Switzerland and the US. The programme's first 28 projects²⁷ are developing key disruptive technological innovations critical to enable cleaner (hybrid-electric) regional and short-medium range aircraft, while also exploring hydrogen-propulsion solutions. The projects are geared towards European-industry-led initiatives driven by major players, such as Airbus's (ZEROe), ATR, Leonardo, Safran, Rolls Royce, MTU. Thanks to collaborations with non-EU countries, these projects are also contributing to the international positioning of European aviation. CAJU as the leading EU R&I aviation programme, combining excellence and innovation and being at the forefront of aviation R&I, is seen as a valuable partner on the global stage.

10. Phasing-out preparedness

According to the Single Basic Act²⁸, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

In December 2023, Clean Aviation JU's Governing Board adopted a preliminary phasing out plan. It included administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

The drafting of the updated phasing out plan is currently ongoing and it is planned to be adopted in 2025. It should include concrete reflections on short- and long-term targets, strategic alignment, and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

In the case of Clean Aviation JU, this is relevant to secure the 2030 and 2050 targets for a sustainable aviation, enabling the aviation sector to become net-zero in terms of carbon emissions by 2050 and maintaining its industrial leadership.

²⁷ <https://www.clean-aviation.eu/sites/default/files/2024-09/Clean-Aviation-Daring%20projects-Infographie-Dec-2023.pdf>

²⁸ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.



Brussels, 30.4.2025
SWD(2025) 110 final

PART 6/21

COMMISSION STAFF WORKING DOCUMENT
EVALUATION

**Interim Evaluation of the Horizon Europe Framework Programme for Research and
Innovation (2021 - 2024)**

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 14: Evaluation of Clean Hydrogen JU

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The Clean Hydrogen Joint Undertaking (JU) is a unique public-private partnership supporting research and innovation in hydrogen technologies in Europe. It is the continuation of the Fuel Cell and Hydrogen JUs (FCH JU and FCH 2 JU), under FP7 and Horizon 2020 (H2020) respectively. The overall goal of the Clean Hydrogen JU is to support research and innovation (R&I) activities in the Union in clean hydrogen solutions and technologies, under EU's funding programme for research and innovation, Horizon Europe, and in synergy with other EU initiatives and programmes. Its aim is to contribute to the Union's wider competitiveness goals and leverage private investment by means of an industry-led implementation structure.

Clean Hydrogen JU differs from its predecessors, focusing on areas related primarily to the production of clean hydrogen, as well as the distribution, storage, and end use applications of low carbon hydrogen in hard to abate sectors. They are guided largely by EU's Hydrogen Strategy and REPowerEU Plan and the policy developments in this context, contributing to their implementation. According to the interim evaluation, the 2014-2016 portfolio was well aligned with these objectives, apart from the successful reduction of "critical raw materials"¹. However, the interim evaluation is not in the position to come up with a definitive conclusion on the degree of achievement for each of these specific objectives². Some key achievements of FCH2 JU projects as the legacy of the Clean Hydrogen JU are:

- In total, Clean Hydrogen JU-funded vehicles have now driven a total of almost 38.7 million km and consumed over 518.3 tonnes of hydrogen since 2016, avoiding emissions of about 1420 tonnes of CO₂³.
- After China, European countries have the largest number of fuel cell bus manufacturers, an indicator of technological progress and innovation⁴. This is partly due to the significant contribution of Clean Hydrogen JU demo projects, focusing on the large-scale demonstration of fuel cell buses in Europe since 2010. Additionally, these bus demos have improved the public acceptance of fuel cell buses in Europe. Whereas fuel cell buses are established for urban use, there is the need to advance the technology for longer distances in order to cover interurban and regional routes⁵.
- In electrolysis, based on the figures reported by the projects in 2023, the JU projects have also shown remarkable progress: since 2017, efficiency improvement has been achieved in PEM electrolyzers (PEMEL) and in solid-oxide electrolyzers (SOEL).

¹ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2), page 34

² Interim Evaluation of the Fuel Cells and Hydrogen 2 Joint Undertaking (2014-2016) operating under Horizon 2020, page 6

³ Programme Review Report 2023, page 38 (<https://op.europa.eu/en/publication-detail/-/publication/00f833fa-7ec4-11ee-99ba-01aa75ed71a1/language-en>)

⁴ <https://fuelcellbuses.eu/suppliers#29>

⁵ Programme Review Report 2023, page 35.

Scaling up the technology to advanced megawatt-scale enables a reduction of the cost of hydrogen by 50%⁶.

In its first two-and-a-half years of activity, the Clean Hydrogen JU delivered on its operational objectives and additional tasks described in the Single Basic Act (SBA), putting in place the building blocks for the specific and general objectives. These broad areas of activities are identified in the Strategic Research and Innovation Agenda (SRIA)⁷ and the Clean Hydrogen JU's Strategy Map⁸ and include: 1) supporting climate neutral and sustainable solutions; 2) focusing on research and innovation; and 3) supporting market uptake of clean hydrogen technologies.

Long-term scientific impacts

The early projects of the EU (Framework Programmes (FPs) 4 to 6) focused on the regulations, harmonisation, licensing and public acceptance of Fuel Cell Electric Vehicles⁹ (FCEV) and Fuel Cell Electric Buses (FCEB) technology. Then with FP7 and the establishment of the JU, the focus changed to the demonstration, progress and validation of the FCEV and FCEB technology and its refuelling infrastructure.

The JU has been funding projects towards the development of electrolyser technologies for hydrogen production since it was founded in 2008. The 61 JU projects, funded by the JU with EUR 232.6 million, have led the technological developments in this area, significantly increasing the size and efficiency, while reducing the capital costs, of electrolysers (as reported in the Programme Review Report 2023¹⁰). For example, the Clean Hydrogen JU still plays a leading role in the development of PEMEL technology, which offers high efficiency, rapid response times, and compatibility with renewable energy sources, making it more versatile and effective compared to other electrolyser technologies. PEMEL is considerably advancing towards reaching 2024 and 2030 Key Performance Indicators (KPIs¹¹), as well as showing a strong decrease in the use of Critical Raw Materials (CRMs) in this new iteration of the partnership. Another stepping stone to achieve this objective is the recent establishment of the European Hydrogen Sustainability and Circularity Panel. Also, SOEL shows clear progress regarding durability, a technology known for operating at high efficiencies and directly utilizing heat and electricity – making it particularly suitable for industrial applications and integration with high-temperature processes.

In terms of low temperature electrolysis, the initial JU project electrolyser system capacity of around 100 kW until 2011 in projects like DON QUICHOTE reached 1.2 MW in 2014 in HYBALANCE¹², 10 MW in 2017 in REFHYNE and, finally, 30 MW in EPHYRA.

⁶ Green hydrogen cost reduction, page 8: <https://www.irena.org/publications/2020/Dec/Green-hydrogen-cost-reduction>.

⁷ Clean Hydrogen JU: Strategic Research and Innovation Agenda 2021 – 2027 (link)

⁸ Clean Hydrogen JU: [Strategy Map and Performance Indicators](#)

⁹ Mainly referring to passenger vehicles and vans.

¹⁰ Programme Review Report 2023, pages 23-24.

¹¹ Ibid. On the average electrolyser footprint, the use of Iridium, the degradation rate and current density.

¹² <https://cordis.europa.eu/project/id/671384>

During the same period, the JU projects reduced the electrolyser capital cost per MW by more than 50-times. Similar advances took place in the field of high temperature electrolysis.

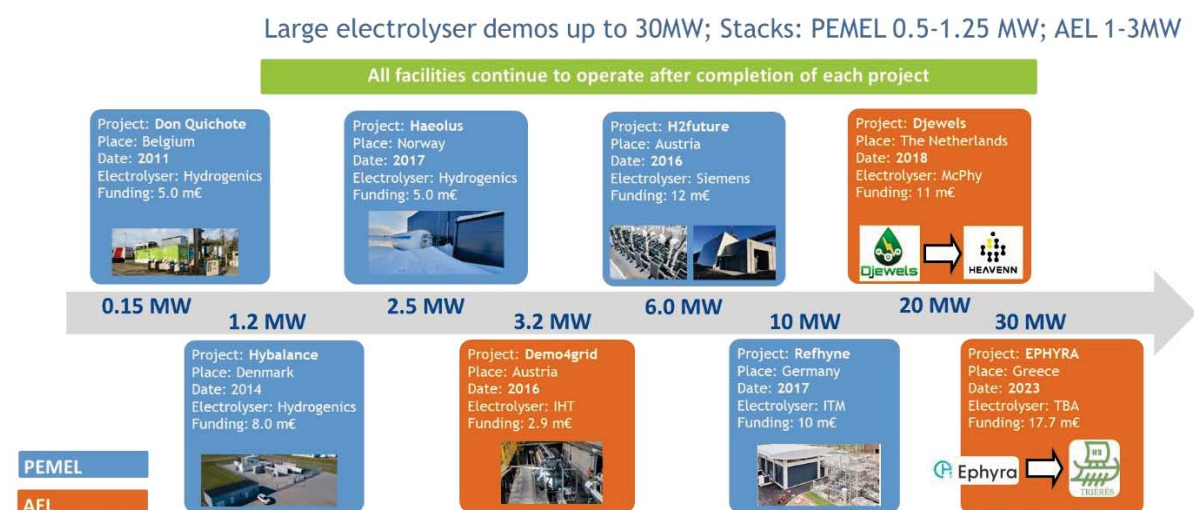


Figure 1 - Evolution of size and cost of low temperature electrolysis demonstration projects of the JU. Source: Clean Hydrogen JU, EU Research Days 2023.

Solid state hydrogen storage is one of the technologies funded by the Clean Hydrogen JU which has certain advantages for aboveground storage. Cyclability, a suitable heat supply, and thermal management have proven to be particularly challenging. This research area currently consists of one finished project, [HYCARE](#), focusing on solid state storage. The HYCARE project target is the upscaling of a solid-state hydrogen storage system based on metal hydrides, albeit at a much smaller scale (44 kg H₂ reversibly stored) than the SRIA target of five tonnes for 2024. Furthermore, and depending on the source of hydrogen, hydrogen may need to be either separated from a gas mixture or further purified. Higher reliability of the compressors must be achieved, especially for Hydrogen Refueling Stations (HRS); work in this area is ongoing in the [COSMHYC XL](#) and [COSMHYC DEMO](#) projects.

The [H2ME](#) – Hydrogen Mobility Europe initiative, originally a Clean Hydrogen JU-funded project, is the largest European deployment to date for hydrogen mobility, planning to deploy more than 1,400 vehicles in nine countries and 50 HRS in six countries. Similarly, [JIVE](#) and [JIVE2](#) are deploying over 300 FCEB in 22 cities across Europe – the largest deployment in Europe to date. The latest success of the JU was in aviation, with the project [HEAVEN](#). The consortium successfully completed, for the first time in the history of aviation, a flight test of a 2–4-seater aircraft propelled exclusively with liquid hydrogen.

The Clean Hydrogen Joint Undertaking (JU) has significantly advanced hydrogen mobility in Europe by deploying over 1,300 Fuel Cell Electric Vehicles (FCEVs) and more than 400 Fuel Cell Electric Buses (FCEBs) between 2005 and 2023. These efforts have demonstrated the

benefits and readiness of hydrogen-powered transport and laid the groundwork for a pan-European hydrogen refuelling network¹³.

There have been many basic and applied research projects funded throughout the lifetime of the FCH 2 JU, targeting consecutive generations of Proton Exchange Membrane Fuel Cell (PEMFC) and Solid Oxide Fuel Cells (SOFC) products in the 0.3-5 kW power range. Several lower TRL projects considered materials development and improved the existing cell and stack technologies, especially in terms of durability.

In the SRIA pillar 3.2 – Hydrogen end uses: clean heat and power, the key objective of the [ComSos](#) project is to validate and demonstrate fuel cell based combined heat and power solutions in the mid-sized power ranges of 10-12 kW, 20-25 kW, and 50-60 kW. As a project important for the SOFC market, the activity developed during the project has increased manufacturing capability, often bringing innovation to the technology (e.g. reducing the number of components and reducing costs). In addition, several thousand units have been deployed in Europe through the JU projects [ENE.FIELD](#) and [PACE](#) (a FCH 2 JU project), creating a track record of micro-CHP installations.

In the area of awareness and education, the FCH Observatory (FCHO) plays an important role. As this knowledge management tool became an overarching provider of structured data and indicators for professional operators, stakeholders and general public. It also provides a list of trainings and course materials. The Clean Hydrogen JU revamped the platform as the [European Hydrogen Observatory](#) in September 2023.

Long-term societal impacts

The FCH 2 JU and the Clean Hydrogen JU have significantly contributed to societal awareness and education about hydrogen technology¹⁴. By involving a diverse range of stakeholders and maintaining high participation rates from small and medium-sized enterprises (SMEs) – see below for KPI-5, the partnership has fostered an inclusive and well-informed community. The creation of Hydrogen Valleys has been particularly impactful, developing local hydrogen ecosystems and supporting regional industries, which can be replicated across Europe. Hydrogen Valleys play a crucial role in both the clean hydrogen sector and the broader energy transition, influenced by global geopolitical shifts. Developers' motivations for these projects reflect changing macrorends over recent years¹⁵. By July 2024, more than 50 European hydrogen valleys featured the MI Hydrogen Valley Platform, out of a total of close to one hundred¹⁶.

¹³ Historical Analysis of Clean Hydrogen JU Fuel Cell Electric Vehicles, Buses and Refuelling Infrastructure Projects, page 98

¹⁴ Awareness of Hydrogen Technologies - Survey Report: https://www.clean-hydrogen.europa.eu/media/publications/awareness-hydrogen-technologies-survey-report_en

¹⁵ Making it happen: Hydrogen Valleys progress in an evolving sector, page 16: https://www.clean-hydrogen.europa.eu/media/publications/making-it-happen-hydrogen-valleys-progress-evolving-sector_en

¹⁶ Ibid., page 4.

Long-term economic impacts

The partnership's focus on developing the local hydrogen ecosystem through the Hydrogen Valleys approach created new market opportunities, being an essential feature of the European Hydrogen Strategy. This was made even more evident with the recent publication of the Staff Working Document *“Towards a roadmap for accelerating the deployment of Hydrogen Valleys across Europe: challenges and opportunities”*. The participation of SMEs has been notably high, at 23% for FCH 2 JU and 21% for Clean Hydrogen JU, significantly above the FP7 average of 13%. Being SMEs the majority of companies in the market, this is specially relevant for promoting growth and ensuring economic sustainability.

Long-term technological impacts

In accordance with the Independent Expert Group (IEG)¹⁷, however, the objective of "bringing Europe to the forefront of FCH technologies worldwide" had been formulated too ambitiously and unrealistically in view of the considerable combined expertise of the global competition. This is, therefore, a difficult objective to measure. However, and technologically, the FCH 2 JU has ensured that Europe remains a leader in hydrogen fuel cell buses and refuelling infrastructure. The partnership has facilitated the development of numerous prototypes, testing activities, and new products, processes, and methods. Between 2014 and 2020, 101 SMEs introduced innovations, and there were 490 peer-reviewed publications, 15 awarded patents, and six pending patent applications. The partnership's ability to mobilize stakeholders and anticipate future challenges has been critical in maintaining its R&D focus and driving technological innovation. Despite some concerns about balancing R&D with deployment, the Clean Hydrogen JU continues to foster disruptive innovations within the hydrogen sector, as mentioned in the previous sections.

There are areas for improvement, starting for not overlooking the support of demonstrations in detriment of R&D projects – still necessary in technologies such as compression. Advanced hydrogen compression technologies can improve the efficiency of hydrogen storage and transportation, leading to lower operational cost, and enable the handling of larger volumes of hydrogen, which is essential for scaling up hydrogen production and distribution infrastructure.

2. Additionality

Joint Undertakings have the highest leverage factor (about 0.9) among main action types. On average, the EU covers 53% of eligible costs in JU projects, with participants covering the remaining 47%. Leverage factors vary widely across JUs, whether additional activities are included or not. Most JUs do not achieve equal contributions between the EU and partners (leverage factor of 1) through call activities alone. However, the Clean Hydrogen JU is one of the two exceptions, with participant co-investment significantly exceeding EU contributions.

¹⁷ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2) 2023, page 36

The Clean Hydrogen JU has a direct “call” leverage factor – excluding additional activities (AAs) – of 1.75, which ranks the partnership in second place for this indicator. However, when counting AAs, the leverage factor is of 3.62, which is notably higher than any other JU and more than double the average.

Most Joint Undertakings under Horizon Europe have predecessors in Horizon 2020, with some previous projects still being implemented. However, the reliability of current data from Commission monitoring systems is not assured. Comparing CORDA data with the latest European Court of Auditors (ECA) report, which covers contributions until 31 December 2022 using JU-provided data, reveals several unexplained differences due to reference date and methodology variations¹⁸. For the former FCH 2 JU, the direct “call” leverage factor is of 0.86, around the average, and it raises to the second highest when counting AAs – leverage factor of 2.49. Its value is, however, lower in the ECA report – although still being the second highest¹⁹.

In-kind contributions from JU members are of two types:

In-kind contributions to operational activities (IKOP): Defined in the legal basis (“Single Basic Act”) for JUs as “eligible costs incurred by [members of the partnership] in implementing indirect actions, minus the contributions of the joint undertaking and participating states to those costs.”

In-kind contributions to additional activities (IKAA): Costs incurred by members to implement additional activities, excluding any contributions from the EU and participating states.

In the case of the Clean Hydrogen JU, the entire co-investment from private partners to date in signed grant agreements consists of in-kind contributions. In terms of additionality, stakeholders believe that Hydrogen Valleys achieve excellent leverage due to their specificities. Calculations by the Clean Hydrogen JU show a leverage of 3.75 for H2020 (3 valleys), 4.78 for the 2022 Call of HE, and 5.27 for the combined H2020+2022 Call. For Hydrogen Valleys, the leverage factor (excluding valleys funded under the FCH 2 JU) is predicted to be of 4.92 – for the EUR 151.8 million dedicated in calls 2022 and 2023, an overall investment estimated of 898.8 million is presented in the projects proposals.

¹⁸ European Court of Auditors, Annual report on EU Joint Undertakings for the financial year 2022. The reports from the Court of Auditors do not distinguish between contributions to project activities and contributions for administrative costs.

¹⁹ CORDA (Horizon Europe contribution and costs), Annual Activity Reports of JUs (for additional activities), European Court of Auditors 2022 report on JUs, table 2.1.

3. Transparency and openness

The Clean Hydrogen JU demonstrates a high level of openness to new participants, as reflected in several KPIs related to transparency and engagement²⁰. From the Annual Activity Report (AAR) 2023²¹:

KPI-5: Share & Type of Stakeholders and Countries Engaged

A substantial number of stakeholders from diverse countries and types have been involved in the JU's activities. This includes participation in proposal submissions, projects, governance structures, and panels²².

For the FCH2 JU, the total figure was 1 599 participations (with 823 different beneficiaries) from 50 countries, while for Clean Hydrogen JU the partnership already has 1059 participations with 710 different beneficiaries from 65 countries²³. The fact that in just its first two years the Clean Hydrogen JU has already two thirds of the number of beneficiaries of the whole FCH 2 JU Programme (noting that these two different periods had a similar level of funding available), and with the participation of 15 more countries, confirms the high interest in the Clean Hydrogen JU Programme²⁴.

KPI-6: Number and Types of Newcomer Members in the Partnership

It is not applicable to the Clean Hydrogen JU in its current definition as the JU's membership is defined and fixed Article 75 of SBA. The actions of the Clean Hydrogen JU, especially the calls for proposals, are fully open²⁵.

KPI-7: Number and Types of Newcomer Beneficiaries

The FCH2 JU previously recorded a high number of new beneficiaries in its funded projects, with over 70% being new to the JU, reflecting the growing hydrogen sector. The Clean Hydrogen JU continues this trend, with almost 56.5% of beneficiaries in Call 2023 being new, predominantly private for-profit companies. Overall, more than one-third of Clean Hydrogen JU beneficiaries in Call 2022 and Call 2023 were new²⁶.

This data illustrates that the Clean Hydrogen JU remains accessible to new participants, including SMEs, which often comprise new private for-profit companies. The significant proportion of new beneficiaries and the broad engagement of stakeholders across various countries and sectors highlight the partnership's commitment to inclusivity and the promotion of diverse participation in its activities.

²⁰ The JU is required to monitor several KPIs as outlined in Section 7 of its SRIA, grouped into: Horizon Europe KPIs (Key Impact Pathways for the Horizon Europe Programme or KIPs); Common JU Indicators (from the monitoring framework by an Expert Group supporting European R&I partnerships); Clean Hydrogen JU KPIs (tracking progress towards Strategy Map objectives); and Technology KPIs (assessing technology and innovation progress towards SRIA priorities).

²¹ Clean Hydrogen JU, Consolidated Annual Activity Report 2023

²² Ibid.

²³ Ibid.

²⁴ Ibid., page 69

²⁵ Ibid.

²⁶ Annual Activity Report 2023, page 69

Membership of the partnership is limited, as per the SBA, to the current three members: European Union represented by the European Commission (EC), Hydrogen Europe (HE) and Hydrogen Europe Research (HER). Calls for proposals are fully open: the Clean Hydrogen JU has established effective procedures to involve new participants in projects. The Clean Hydrogen JU supports non-members and ensures that calls for proposals are open to all interested parties. This inclusiveness facilitates the expansion of the partnership network. However, for strategic topics within the calls, there is a stipulation that requires at least one consortium member to be affiliated with HE or HER. This mechanism ensures that strategic initiatives benefit from continuity and that results are thoroughly exploited for further development. Thus, while maintaining open access to new participants, the Clean Hydrogen JU also strategically involves key organizations to sustain and build upon important areas of research and development.

The Clean Hydrogen JU has implemented open and transparent processes to consult relevant stakeholders and constituent entities in identifying priorities. The recent expansion of the Stakeholders Group²⁷, via an open Call for Expression of Interest, meant the inclusion of institutions such as the Committee of Regions, but also private companies and business associations. This group, as well as the States Representatives Group, meet twice per year. As per the SBA, the Stakeholders Group and States Representatives Group both perform an advisory function, for example by receiving multiple iterations of the Annual Work Programmes (AWPs). The organisation of the Programme Review Days at the European Hydrogen Week further contributes to bring the scientific community together and discuss future priorities and the implementation of the SRIA.

Additionally, the Clean Hydrogen JU Governing Board²⁸ maintains transparency by publishing a list of its main decisions on its webpage²⁹, as well as having already addressed the request of EC services for access to projects data. For the AWP 2025, work has been done to better detail to the general public the use of top-ups to the annual budgets (namely, the RePowerEU top-up) when publishing the AWPs.

4. Efficiency

The FCH2 JU has been recognized as cost-effectiveness. A support study to the Horizon Europe interim evaluation considered it a "lean and efficient organisation"³⁰. The operational efficiency

²⁷ As per the Partnership website: the Stakeholders Group is an official advisory body, to be consulted on various horizontal issues or specific questions in areas relevant to the work of the Clean Hydrogen JU ([link](#))

²⁸ As per the Clean Hydrogen website: The Governing Board is the main decision-making body of the Clean Hydrogen Joint Undertaking. All three members of the joint undertaking are represented on the Governing Board ([link](#)).

²⁹ https://www.clean-hydrogen.europa.eu/about-us/organisation/governing-board/governing-board-decisions_en

³⁰ European Commission, DG R&I, Zhechkov, R. (2024) Clean hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2) : Horizon Europe and the green transition interim evaluation support study : partnership evaluation report. <https://data.europa.eu/doi/10.2777/577004>

of FCH2 JU has improved as the institution matured, with timely settlements of prepayments and cost claims, which are important for SMEs and large demonstration project beneficiaries.³¹

Operational budget and running costs:

The table below includes the total **operational costs** (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), **certified IKAA** and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU) for the period 2014-2023. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Table 1 Operational and administrative expenditures of the JUs (source: CORDA database)

The table includes data for Fuel Cell Hydrogen 2-FCH2 and Clean Hydrogen Joint Undertakings.

OC: Operational Costs; **IKAA**: Certified IKAA; **RC**: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	126,247,377	315,027,394	310,963,339	61,317,172	229,204,964	129,912,445	15,000,558	91,421,770	1,281,429,000	2,560,524,020
IKAA	-	148,435,714	148,435,714	148,435,714	148,435,714	148,435,714	148,435,714	148,435,714	240,429,088	444,905,473	1,724,384,562
RC	602,894	961,116	934,736	113,516	4,683,846	5,369,550	5,304,573	5,298,500	6,880,000	7,060,605	37,209,336

Beneficiary satisfaction:

The Independent Expert Report indicates that, as of 2016, beneficiary satisfaction with FCH2 JU services was high, with almost 100% of survey respondents being either satisfied (55%) or very satisfied (42%). No other survey has been reported to having taken place in the subsequent years.³²

Budget contributions:

At the end of 2023, half of the overall operational budget of the Clean Hydrogen JU for the period from 2021 to 2031 has been committed, and the overall portfolio of projects has doubled in size (number of projects). As a result, the budget execution figures, both for the administrative and the operational budget, are outstanding: 96.62% in commitments and 85.43% in payments³³.

For the Clean Hydrogen JU, under Horizon Europe, the EC contribution amounts EUR 1.2 billion budget, including RePowerEU, of which EUR 1.1698 billion are for the operational budget and EUR 30.19 million are for the JU's administrative budget. HE and HER contribution is expected to at least match these figures, with EUR 30.19 million being in-cash (financial) contribution over the period from 2021 to 2027, and the rest being in-kind

³¹ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2) 2023, page 29.

³² Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2) 2024, page 30.

³³ Annual Activity Report 2023, page 11.

contributions. At end 2023, the level of in-kind contributions amounted to EUR 851.8 million. Half of the overall operational budget of the Clean Hydrogen JU for the period from 2021 to 2031 had already been committed at this point, and the overall portfolio of projects has doubled in size (number of projects). As a result, the budget execution figures, both for the administrative and the operational budget, are outstanding: 96.62% in commitments and 85.43% in payments.

Time-to-Grant (TTG):

Across the calls for proposals launched in 2022 (with two deadlines) and 2023, the Clean Hydrogen JU invited 85 proposals to grant agreement (GA) preparation stage. On average, the applicants were informed on the evaluation results in 103 days (Time-To-Inform) well below the maximum of 153 days set by Horizon Europe, and the 85 GAs were signed with an average TTG of 231 days, which is below the maximum threshold of 245 days set by Horizon Europe.

Governance efficiency:

The governance of the Clean Hydrogen JU, as defined in the SBA, consists of a Governing Board and Executive Director, supported by two advisory bodies (the Stakeholders Group and the States Representatives Group). The Governing Board comprises representatives from each of its three Members. The EC (with seats for DG RTD, DG ENER and DG MOVE), 6 industry representatives and 1 research representative. Collectively, Governing Board members provide a good coverage of the hydrogen value chain and political interests. The States Representatives Group has representatives of the 27 Member States and of Associated Countries. The Stakeholders Group is composed of representatives of stakeholders to the hydrogen sector, selected by the Governing Board of the JU in early 2022 following a call for expression of interest, and extending in 2024 following a second call for expression of interest. The Stakeholders Group has representatives from 18 organisations.

Administrative efficiency:

The JUs have reviewed their back-office arrangements, identifying 21 potential synergies organised around four main areas: accounting, infrastructure management (ICT and facilities), procurement, and human resources management. This review was supported by an external consultancy firm to obtain an independent view and reinforce existing cooperation. The implementation of the synergies is ongoing and builds on existing collaborations established prior to the review.

The administrative expenditure represents less than 5% of the overall budget for both the FCH2 JU and the Clean Hydrogen JU. While specific data on applicant costs and administrative burdens is not available, the partnership's evolution towards greater efficiency and the positive dynamics between members highlight its success. Continued focus on improving knowledge management and leveraging synergies will further enhance the partnership's impact and cost-effectiveness. This efficiency is made more evident when considering that between the FCH 2 JU and the Clean Hydrogen JU, the hired staff increased by 7% while the managed budget was raised by 80%.

5. Coherence and synergies

Complementarity with relevant regional, national, and EU policies/programmes

The FCH 2 JU management highlighted that the Partnership has collaborated with the EC to create synergies with other JUs and partnerships, leading to the signing of several MoUs. Success was seen in cases where joint efforts were possible, such as with the Clean Aviation JU on hydrogen-related topics. However, synergies with other sectors like maritime and rail have yet to be demonstrated. Previous evaluations³⁴, supported by interviews, revealed that FCH2 projects often struggled to secure necessary co-funding from national and regional programs due to complexities, including unclear State-aid General Block Exemption rules and challenges in supporting full hydrogen R&I ecosystems with multiple funding sources.

While some synergies with other EU programs were achieved in FCH2 JU through planned joint calls, this was not the case with national and regional programs. Interviewees confirmed these issues, noting the ineffectiveness of the State Representative Group and the lack of alignment and guidance on applying exemption rules for R&I projects requiring co-funding from national and regional sources³⁵.

The FCH 2 JU addressed co-funding challenges the regional level by engaging regions through its "Regions Initiative," now "Regions Hub"³⁶. The involvement of regions is crucial as local energy needs are shaping future policies, making regions and municipalities key players in the hydrogen economy. Despite the success with regional and local authorities,

The FCH2 JU aims to maximize synergies and secure additional funding from Union, national, and regional programs, especially those supporting innovative solutions, training, education, and regional development, such as Cohesion Policy Funds and the National Recovery and Resilience Plans. The Stakeholders Group plays a key role by providing suggestions for synergies with adjacent sectors and the European Hydrogen Forum of the Clean Hydrogen Alliance. Involvement from DG RTD, DG ENER, and DG MOVE in governance ensures coherence across different sectors³⁷. However, aligning the FCH2 JU's work with external EU programs and financial instruments posed unresolved challenges due to factors beyond its control such as being managed by different EC services.

In 2023, the Clean Hydrogen JU worked on establishing a cooperation mechanism with Managing Authorities (MAs) of Member States and Regions. Subsequently, a Call for Expression of Interest was launched to select 10 regional or national MAs for tailored cooperation. Memoranda of Cooperation (MoC) are planned to be signed in Q2 2024. Additionally, Project Development Assistance (PDA) for regions, especially targeting Cohesion Countries, Outermost Regions, and Islands, continued in 2023, providing 15 regions

³⁴ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2), page 27

³⁵ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 26

³⁶ https://www.clean-hydrogen.europa.eu/get-involved/working-regions_en

³⁷ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 27

with support to create detailed hydrogen project plans. A specific version of this PDA for hydrogen valleys (H2 Valleys Facility) is the subject of a call for tender under the AWP 2024.

Synergies with other parts of Horizon Europe

Understanding coherence requires awareness of the broader hydrogen ecosystem in Europe. In 2020, the EC launched the [European Clean Hydrogen Alliance](#) (DG GROW) to support companies, SMEs, and startups, with a membership of around 1,000 companies, more than double that of the FCH 2 JU. Other financial instruments like the European Innovation Council (EIC) with its Pathfinder, Accelerator, and Transition programs, as well as the SME Instrument, support SMEs. The Pathfinder funds low TRL projects, the Accelerator connects them with investors, and the Clean Hydrogen JU speeds up technology development. Additionally, DG REGIO has funded hydrogen projects involving regions, such as hydrogen valleys³⁸.

In addition, the Clean Hydrogen JU has continued supporting Commission services as necessary, including internal feedback provided to DG CLIMA during the preparation of the Hydrogen Bank activities; participation in the discussions of the Green Hydrogen technical group of the SET-Plan and regular exchanges with colleagues in DG GROW responsible for the skills part of the Net-Zero Industry Act.

The Clean Hydrogen JU's work is recognised and utilised by international organisations such as the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), Mission Innovation, and the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) to define state-of-the-art hydrogen technologies and adjust their R&I priorities. In addition, the Clean Hydrogen JU supported DG ENER in their discussions with the Ministry of Economy, Trade and Industry (METI) of Japan, particularly on safety aspects, exchanging information on the Clean Hydrogen JU activities in this field and in particular on the Hydrogen Incidents and Accidents Database (HIAD 2.0) managed by the JRC. Finally, the Clean Hydrogen JU continued to contribute to the successful and close collaboration with EC representatives on Mission Innovation – Clean Hydrogen Mission, through the Hydrogen Valley Platform, a platform for exchanges between worldwide initiatives on hydrogen valleys.

6. EU added value

The Clean Hydrogen JU and its predecessor, the FCH 2 JU, have demonstrated substantial added value beyond what could be achieved through regional or national interventions or through collaborative research funded by calls for proposals in Horizon Europe's Pillar 2 (outside partnerships).

The FCH 2 JU significantly reduced the fragmentation that previously existed in EU support for FCH technologies, which was dispersed across several programs under FP7 and its predecessors. By providing a common platform for interaction among beneficiaries of national, regional, and European projects, the FCH2 JU effectively enhanced synergies and cohesion

³⁸ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 29

within the sector³⁹. This was increased with the establishment of the Clean Hydrogen JU, since it focuses on the whole supply chain from production to storage to distribution to end-uses.

The additional value resulting from the Clean Hydrogen JU and FCH 2 JU partnerships extends beyond what could be achieved through regional or national initiatives or through Horizon Europe's Pillar 2 collaborative research calls. By providing a unified framework, strategic vision, and fostering industry and market readiness, the Partnership has positioned the EU as a global leader in hydrogen technologies. Moreover, it has enhanced knowledge transfer, avoided duplication, supported local and regional initiatives, and contributed to the harmonisation of regulations and standards⁴⁰.

Interviewed EC representatives noted that the main value of the Partnership lies in its vision and foresight. Despite a 40% funding increase from FCH2 JU, EUR 1 billion, plus an additional EUR 200 million for hydrogen valleys, isn't enough to fund all relevant projects. The Partnership can also promote circularity by design and highlight the local benefits of Hydrogen Valleys, such as reducing energy bills for residents.

Increased alignment of research policies between the EC, CH JU, and Member States through stronger involvement of the SRG could enhance added value. This wasn't achieved in FCH2 JU because the SRG lacked the right policymakers from ministries. Strengthening the relationship between the Governing Board and SRG would ensure more feedback on the annual plan and mutual support between Member States and the EU.

Horizon Europe Research highlights that without the Partnership, Europe wouldn't be a global leader in hydrogen. The Partnership has united researchers and industry, shifting from ideas to products, and preparing the industry for production and deployment. Hydrogen is now essential for industry decarbonization and EU industrial development. Without the Partnership, Europe wouldn't have achieved its current global position⁴¹. The Partnership has also increased awareness in Central and Eastern Europe (CEE), enabling Cohesion countries to start hydrogen projects. In 2020, it supported 11 project development assistance initiatives, including two from Bulgaria, one from Poland, and one from Slovenia. In September 2022, CH JU launched a second wave focused exclusively on Cohesion countries⁴².

7. Relevance

The objectives of the FCH 2 JU and its successor, the Clean Hydrogen JU, have remained highly relevant in addressing the challenges and needs identified by the EU Framework Programmes.

³⁹ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 38

⁴⁰ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 38

⁴¹ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 38

⁴² Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 39

The FCH 2 JU's objectives aligned with the Lisbon Strategy and the launch of the Joint Technology Initiatives (JTI) and the European Institute for Technology and Innovation (EIT), aiming to integrate higher education, research, and innovation across the EU. It sought to shape public procurement, regulation, and standardization to drive market demand for innovative products, contributing to a European patent system. These principles continue to influence the JU's activities.

The FCH 2 JU supported climate change objectives, improved energy security, and established Europe as a technology leader. Its successor, CH JU, aligns with the EU Hydrogen Strategy and the EU Green Deal, with stakeholders affirming the relevance of their objectives to Europe's major challenges. The focus on transport within CH JU is expected to decrease due to the EU's emphasis on energy security, particularly influenced by the war in Ukraine, and the lower TRL levels in transport compared to energy⁴³.

The Strategic Research and Innovation Agenda (SRIA) of the Clean Hydrogen JU was adopted on February 25, 2022, by the Governing Board. It outlines key priorities, essential technologies, and innovations needed to achieve the joint undertaking's objectives. Research and innovation actions are implemented through annual calls for proposals, based on collaboration between major stakeholders, including HE, HER, and the EC. The SRIA's priorities are organized into three main pillars: 1) Renewable Hydrogen Production, 2) Hydrogen Storage and Distribution and 3) Hydrogen End Uses (Transport Applications and Clean Heat and Power).

In addition to these pillars, mass deployment requires support and coordination through four horizontal and cross-cutting activities. The development of the SRIA has been flexible and co-created, allowing for the inclusion of Strategic Research Challenges (SRC) to form long-term research consortia focused on TRL3 innovations. Approximately EUR 30 million is allocated to three low-TRL research projects in Calls 2022 and 2023, representing 3% of the overall budget. The SRIA mandates that at least 10% of the total JU budget be dedicated to low TRL activities. Although market evolution is rapid, technology development is slower, and adjustments can be made through the AWP. This flexibility will lead to two amendments to the SRIA in 2024: one for the research pillars, already completed by summertime, and another for the KPIs until the end of the year⁴⁴.

8. Directionality

All evidence indicates that both FCH2 JU and CH JU are fully aligned with EU policies and priority areas, making significant contributions toward them. There is one common JU KPI, KPI-3, that measures directionality in terms of overall investments mobilized for EU priorities.

⁴³ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 25

⁴⁴ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 26

This indicator reveals that 100% of the total investment (300.5 million + IKOP + IKAA for 2022) has been directed toward the Green Deal and Europe's 2030 climate goals⁴⁵.

Contribution to European competitiveness, cost reductions and decrease on Europe's dependencies on CRMs⁴⁶:

- o In low-temperature electrolysis, there are a number of demonstration projects, validating electrolyser solutions for a range of environments and applications. The JU is still playing a leading role in the development of PEMEL technologies, contributing significantly towards improvements such as efficiency.
- o Regarding high-temperature electrolysis, the increase in capacity to the MW scale helps establishing SOEL as a competitor for the large-scale production of clean hydrogen from renewable energy sources. There is clear progress regarding the durability, to the extent that the targets are made more ambitious.
- o For CRMs, noticeable improvements, obtained with innovative fuel cell manufacturing methods, can be detected for many KPIs linked with performance, such as efficiency and recycling from scraps and wastes.

9. International positioning

Both the literature review and stakeholder consultations indicate that FCH2 JU and CH JU have significantly enhanced the EU's global presence in hydrogen production. Hydrogen valleys are further increasing the partnership's visibility, exemplified by a report presented at the Clean Energy Ministerial and 7th Mission Innovation in Pittsburgh, USA. Research and industry representatives confirm this trend.

Two HE Common JU KPIs measure international visibility: KPI-4 tracks the involvement of international actors, with 276 participants for FCH2 JU and 167 for CH JU in 2022. KPI-11 evaluates the partnership's visibility in policy and industry cycles. In 2022, CH JU organized 11 international events, 7 webinars, produced 4 publications, and supported 3 hydrogen-related platforms to promote its work and raise public awareness of hydrogen technologies, including exchanges with Australian and US hydrogen stakeholders⁴⁷.

Business and research stakeholders acknowledge the EU's leadership role facilitated by FCH2 JU and Clean Hydrogen JU in the global hydrogen landscape. The Partnerships have been the organisers of the Programme Review Days and the co-organiser of the [European Hydrogen Week](#), while also sustaining a number of information platforms aiming to disseminate knowledge concerning the deployment of hydrogen technologies in Europe (and beyond), such as the [European Hydrogen Observatory](#) and the [European Hydrogen Refuelling Stations Availability System](#), making them a central reference point for information at a global level.

⁴⁵ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 40

⁴⁶ Programme Review Report 2023

⁴⁷ Partnership Evaluation Report: Clean Hydrogen Joint Undertaking and its predecessor Fuel Cells and Hydrogen 2 Joint Undertaking 2024, page 41

The international cooperation facilitated by FCH2 JU and Clean Hydrogen JU, evidenced through occasional engagement with international actors, strategic events, and visibility in global fora, has effectively positioned the Partnership as a leader in hydrogen technology on the international stage.

10. Phasing-out preparedness

According to the Single Basic Act⁴⁸, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

In December 2023, CH JU's Governing Board adopted a preliminary phasing out plan. It included administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework Programme. The adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

In detail, the measures foreseen for the phasing-out of the Clean Hydrogen JU from the Framework Programme funding include ceasing new tenders for four-year contracts after 2027, with ongoing grants continuing until 2034. A gradual reduction in project officers is anticipated from 2032 onwards, with operational assets like the TRUST data platform and European Hydrogen Observatory also being evaluated for their future. Risks identified include staff attrition managing grants post-2031 and preserving institutional knowledge and intellectual property. Also, the plan specifies that it should be assured that the knowledge developed with JU funding – i.e. Union financial contribution will not be prevented from benefitting European taxpayers and ensure a just transition for all.

The drafting of the updated phasing out plan is currently ongoing, and it is planned to be adopted in 2025. It should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

⁴⁸ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.



Brussels, 30.4.2025
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PART 7/21

COMMISSION STAFF WORKING DOCUMENT
EVALUATION

**Interim Evaluation of the Horizon Europe Framework Programme for Research and
Innovation (2021 - 2024)**

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 15: Evaluation of Europe’s Rail JU

Annex to the Commission’s interim evaluation of Horizon Europe

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Europe's Rail (EU-Rail) JU was set up in November 2021 under the Horizon Europe programme for the period ending on 31 December 2031. The EU-Rail JU replaced and succeeded the Shift2Rail (S2R) JU that was set up in June 2014 under the Horizon 2020 programme for the period until 31 December 2024.

1. Effectiveness

The design and implementation of Europe's Rail Joint Undertaking (EU-Rail) under Horizon Europe, and of its predecessor Shift2Rail (S2R) under Horizon 2020, was structured around the general objectives of developing rail solutions and services for clean, competitive, safe, smart, and resilient transport and mobility. These general objectives will contribute to the EU policies of the European Green Deal, the Digital Decade, the Sustainable and Smart Mobility strategy and the Industrial strategy. These general objectives were translated into specific and operational objectives.

EU-Rail and S2R have fundamentally changed the landscape of European rail research and innovation, achieving a coordinated partnership between the supply and operating industry and the EU delivering European solutions transforming the European rail system, benefiting passengers and freight customers in Europe and strengthening European industry competitiveness. This is a notable achievement given that rail is a long-established network industry, which is fragmented structurally (between operators and infrastructure providers) and geographically. Historically, each European railway developed standards and technologies independently of its neighbours.

The JU provides a vital and unique structure in which all these issues can be addressed cooperatively by the EU rail sector and its suppliers working together in a coordinated fashion. This enables finding European approaches and solutions, and ensuring seamless rail transport across Europe, in place of expensive bespoke national solutions.

Assessing the effectiveness of S2R and EU-Rail against their objectives and the objectives of Horizon 2020 and Horizon Europe, and of the long term scientific, societal, economic and technological impacts is summarised below, first for S2R, and then for EU-Rail.

Effectiveness of S2R (2014-2021)

The objectives of S2R defined in its basic act were to modernise the European rail system by developing, integrating, demonstrating and validating innovative technologies and solutions for rail, and consolidating rail research programmes across Europe.

With the work of S2R, the EU was for the first time able to gather the sector together and increase the technological readiness level (TRL) of the innovation needed to create a Single European Area common across EU countries.

Under S2R, 695 prototype testing activities were carried out across the programme up to 2023¹, with an average TRL reaching 5 out of 6, i.e. technology validated or demonstrated in relevant environment. Many technologies reached higher TRLs and those are well disseminated in the EU-Rail catalogue of solutions for market uptake. Moreover, it is reported that, with further private development, 72 new products, processes and methods have been launched into the market².

¹ See EU-Rail Annual Activity report 2023, scoreboard of Horizon 2020 KPIs: https://rail-research.europa.eu/wp-content/uploads/2024/06/Annex_GB-Decision_10_24_CAAR_2023-signed.pdf.

² See EU-Rail Annual Activity report 2023, scoreboard of Horizon 2020 KPIs.

For estimating the effects of the S2R innovations on the KPIs Life Cycle Costs (LCC), Reliability & Punctuality and Capacity, three individual sub-models³ have been developed for passenger transport (High Speed, Regional and Metro) and for freight transport.

Each sub model generates in the first step a baseline scenario describing a defined representative scenario for the European railway system. In the second step, the effects of the S2R innovations are analysed within the IPs by their so-called Technical Demonstrators (TDs) in terms of the expected impacts on the three Key Performance Indicators (KPIs). Each impact is applied and the overall effect on each KPI calculated. The target is the maximum achievable improvement as a priority for the respective KPI. Hereby, calculating a scenario for a future railway system in which the roll out of all S2R innovations is completed. In the following, specifics for the three high-level KPIs are described and then specifics for each IP which are relevant for the understanding of the results are given.

The LCC model, calculates the effects of the developed S2R technical innovations on the total cost of the railway system. For the passenger transport scenarios, the measuring unit chosen is EUR/passenger-km and for the freight transport scenarios respectively EUR/ton-km. To account for the different lengths of life cycles of the assessed components of the railway system, an assessment period of 30 years and a discount rate of 3% have been chosen. The developed LCC model does not only capture direct cost effects of individual components but also system effects.

The calculation of the capacity KPI is a multiplication of the three aspects: track capacity, train capacity and coupling ability. The track capacity calculates the number of trains per time and corridor. For passenger transport scenarios, the track capacity is calculated for a peak hour, whereas for freight transport, it is calculated per day. The train capacity captures the increase of passengers per train or respectively tons per train. Coupling ability, hence the coupling of different units of different manufacturers, classes and series is the third factor.

The punctuality model calculates the number of delay minutes caused by a specific failure as well as the frequency of its occurrence. The delay threshold chosen to include trains into the delay statistic is different for each SPD. The delay minutes are then all added up to the sum of delay minutes within the network.

Based on the models described above, it can be said that the programme generally reached the targets (where the innovations for the programme are implemented on the rail network, with variation depending on the use case and rail segments – high speed, mainline/regional, urban, freight – application) including⁴:

- a 20-41% reduction in life cycle costs (LCC),
- a 58-96% increase in capacity, and
- a 39-57% improvement in reliability and punctuality.

More specifically, for the aforementioned use cases and rail segments, the application of all the technologies and solutions successfully developed by S2R⁵ will lead to the following results:

³ For freight, the model is further split into three sub-scenarios (i.e., single wagon train, block train and combined transport train) to better capture the operational differences. Hence, there are in total six scenarios (these are also referred to as System Platform Demonstrator, in short SPD, in the context of Shift2Rail) with an individual model for each of the three defined KPI LCC, Punctuality and Capacity which sums up to a total of 18 sub-models which have continuously been improved, developed and fed with data from the TDs to monitor the target achievement of the various Shift2Rail projects. As far as possible similar modelling approaches and algorithms have been used for all of them.

⁴ More information on the methodology calculation can be found in the Deliverable 4.7 of this project: https://projects.shift2rail.org/s2r_ipcc_n.aspx?p=IMPACT-2.

⁵ To note that on the increasing the attractiveness and demand side, large parts of positive effects especially for the passenger transport are not adequately measurable through LCC, capacity and punctuality. The effects of the works in

	High Speed	Regional	Urban	Freight
LCC	-20%	-29%	-16%	-41%
Reliability and punctuality	+ 39%	+ 55%	N/A ⁶	+ 57%
Capacity	+58%	+90%	+21%	+96%

On the vehicle side, the main drivers for those improvements are:

- functional open coupling of different train classes, developed by S2R and aimed at reducing the number of required spare trains;
- development of traction system with reduced energy losses;
- several innovations reducing the train weight that allow an increase in standing passengers in peak hours; and
- increased reliability of the new traction system and new Train Control Management System solutions.

An example of implementation is the Electro Mechanic Brake (together with optimised adhesion through sanding system and software to adapt the wheel-slide protection and the optimised use of adhesion in traction and braking) and Silicon Carbide (dual system tramway AC traction system, metro/suburban rail AC traction system, regional train full traction subsystem, high-speed train (HST) traction system integrated in train or independent rotating wheels) solutions. This has been developed to TRL 7 and shown very promising results, with significant energy consumption reduction.

The main drivers for those improvements on the signalling side are the improved architectural elements, the new technology onto train (e.g. localisation and train integrity), and the newly moving block operation instead of fixed blocks, which increases capacity by more than 30%.

Also on the signalling side, a major achievement was the development of the technology and specifications for Automated Train Operations (ATO). Based on several rounds of testing and validation, the specifications are now included in the Control Command and Signalling Technical Specification for Interoperability (CCS TSI)⁷ as part of an additional function to ETCS. The new CCS TSI entered into force in 2023, concluding years of work and allowing Railway Undertakings and Infrastructure Managers to start deploying ATO based on a commonly agreed, tested, and interoperable set of specifications. ATO is deployed in Luxembourg and in S-Bahn Hamburg, delivering significant increases of capacity. Several EU Member States have already indicated their plans of ATO deployment in the medium term⁸.

On the infrastructure side, the main drivers for those improvements are:

- reduced maintenance costs due to new S2R solutions for improved inspection methods, proactive maintenance and better planning of maintenance activities;

S2R on new IT solutions for passengers are included in a separate attractiveness model. Therefore, the increase of demand is not considered in the results for the passenger scenarios. For the freight scenario, a demand increase could already be considered and therefore also its positive effect on the contribution margin.

⁶ In the Metro rail passenger scenario, it was detected that providing a value for Reliability & Punctuality is not suitable. As the frequency of the trains is as high as every three to five minutes, the punctuality of any individual train is not the decisive factor but the time interval between two consecutive trains. As there is no data available of any metro system with a considerable frequency issue, the Reliability & Punctuality key performance indicator is not applicable.

⁷ Commission Implementing Regulation (EU) 2023/1695 on the technical specification for interoperability relating to the control-command and signalling, OJ L 222, 8.9.2023, p. 380-560 ELI: http://data.europa.eu/eli/reg_impl/2023/1695/OJ.

⁸ On the basis of the analysis of 12 available ERTMS national implementation plans, the Commission is aware of two Member States intending to install ATO country-wide and three intending to install ATO on certain lines.

- reduced capital costs by lowering production costs via automated manufacturing techniques and virtual testing; and
- reduced operational disturbances by using less invasive inspection methods, shorter times for fault clearing, and initial integration with Traffic Management Systems (continued in EU-Rail).

An example is the asset management solution developed in IN2SMART2⁹ for Italian Urban Metro operator in Milan for track circuit monitoring and Wheels' status monitoring for preventive maintenance with Decision Support System. In term of Impact, comparing the new plan with the fixed preventive one, it was possible to compute that on average 40% of corrective activities could be performed in advance, with a direct benefit in terms of costs, and this is now being implemented in situ.

S2R projects have also made substantial scientific impact that can be illustrated by the following examples:

- 259 SMEs have introduced innovations¹⁰;
- 664 (by the end of 2023)¹¹ publications in peer-reviewed high-impact journals in JU based on the funded projects under the S2R programme.

The Bibliometric research output of S2R from 2014 to 2021 revealed several strengths.

- 36% of S2R publications were international co-publications, and according to the Partnership Evaluation study¹² the share of S2R publications mentioned by policy-related documents is 5 times higher than the expected level, compared to 2 times for the Societal Challenge 4 baseline¹³.
- Higher average authorship from Regional Innovation Scheme (RIS) country researchers (43%) compared to the Societal Challenge 4 (35%) and the EU-27 average (35%).
- A stronger emphasis on interdisciplinary publications (1.4) than Societal Challenge 4 (1.1), with the EU-27 average standing at 1.3.
- The S2R share of publications that are academic-private co-publications is 21%, which is above the Societal Challenge 4 level of 17%.

The following weaknesses regarding research outputs were identified in the Partnership Evaluation study.

- Citation impact indicators (CDI) for S2R publications (16) were below the figures found in the Societal Challenge 4 baseline (21). This means that S2R publications were cited less than their Societal Challenge 4 equivalents. However, S2R CDI remained above the EU-27 average of 10.
- S2R publications were available under an Open Access (OA) modality in 53% of cases, against 62% in other Societal Challenge 4 publications or the EU-27 average of 44%.

Effectiveness of Europe's Rail (from 2021 onwards)

For EU-Rail, the currently running JU, the general objectives are linked to the building of the Single European Railway Area, the transition to integrate European rail system into the wider mobility system and the creation of a strong European rail industry.

The specific objectives of EU-Rail are to provide solutions for:

- an integrated European railway network,
- a sustainable and resilient rail system,
- a unified operational concept and a functional, safe, and secure system architecture,

⁹ [IN2SMART2](#)

¹⁰ See EU-Rail Annual Activity report 2023, scoreboard of Horizon 2020 KPIs.

¹¹ See EU-Rail Annual Activity Report 2023.

¹² Partnership Evaluation Report: Europe's Rail Joint Undertaking <https://op.europa.eu/en/publication-detail/-/publication/e6cc1f91-6421-11ef-a8ba-01aa75ed71a1/language-en>.

¹³ Baseline provided by the overall level within Societal challenge 4 (see Partnership Evaluation Report p. 23).

- a competitive green rail freight,
- demonstration projects across EU,
- innovation for contribute to a strong and globally competitive European rail industry, building synergies with other EU policies, programmes, initiatives, instruments, or funds.

EU-Rail has built on the success of, and lessons learned from S2R.

EU-Rail's Innovation Pillar is tasked to deliver operational and technological solutions that contribute to a more efficient, flexible, and demand-led, yet safe and environmentally sustainable European railway system. In order to achieve more impactful results, flagship areas are organised within the Innovation Pillar that provides the demonstration ground for long-term scientific, societal, economic, and technological impacts of the partnerships. For each of these areas the following Flagship Projects have been successfully established since the end of 2022 and are now well into implementation.

- **Flagship Project 1 (FP1)** is working to improve the network management planning and control in a multimodal environment. The project facilitates the implementation of a railway digital twin environment. Increased resilience of a connected 'real time' rail network is at the core of the project, looking at the integration of Traffic Management Systems (TMS) and processes, including cross-border traffic management, as well as improving resilience and efficiency of disruption management at European level. Linking TMS to ATO/C-DAS for optimised operations is researched with a focus on automated decisions and decision support for traffic management optimisation. Initial demonstrations were made available for a Decision Support System in 2024. The project outputs include the integration of rail traffic within multimodal door-to-door mobility and services for inclusive rail-based mobility and anticipating demand, leading to improved resource utilisation.

à FP1 delivers a flexible, efficient, resilient, and high-capacity European rail network, contributing to the Single European Rail Area (SERA).

- **Flagship Project 2** is working to achieve digital and automated rail operations up to fully autonomous train operations. It works to improve and reduce the cost of localisation of the train. Eight demonstrators are being prepared to be delivered by 2025. Cooperation is ongoing with EUSPA and ESA to provide the necessary augmentation system according to jointly agreed railway requirements. Specifications of fully automated trains ATO GoA 3-4 will be delivered in 2032. In 2024, first demonstrators have proven the concept of remote-controlled trams and locomotive, for most efficient shunting operations. Railways need to improve their communication system. Alongside the support for the testing and validation of FRMCS¹⁴, EU-Rail delivers key building blocks for the Gigabit train¹⁵. Additionally, it develops a proof-of-concepts for virtual coupling, self-driving wagons, autonomous path allocation, and validation and certification. Lastly, it focuses on ensuring the cybersecurity system viability of the use of those innovative digital solutions.

à FP2 delivers a competitive rail system, with cost-effective, safe and breakthrough digital solutions that enhance operational efficiency and capacity.

- **Flagship Project 3** is working to ensure holistic and integrated asset management for rail infrastructure and rolling stock. It minimises asset life-cycle costs and extend life cycles while meeting safety targets and improving reliability, availability and capacity of the railway system. It is achieved by developing multi-purpose, full life cycle, Intelligent Asset Management Systems (IAMS), based on Shift2Rail Technical Demonstrators. A major focus points is the integration of asset condition information into the traffic management system, enabling optimisation of train routing decisions and improving the overall life cycle of monitored assets, in full coordination with FP1. FP3 develops also improved design and manufacturing, and automation of maintenance. There are about 80 use case demonstrators expected to reach TRL 6 and above by 2026.

¹⁴ Future Railway Mobile Communication System, based on 5G technology it replaces the current system - GSM-R.

¹⁵ 'The Gigabit Train' is the concept of a train achieving wireless connectivity of 1Gbps of capacity to passengers.

à FP3 contribute to reducing infrastructure and rolling stock life-cycle costs and improving the reliability and efficiency of rail assets management.

- **Flagship Project 4** is working to develop sustainable and resilient rail systems. Its R&I outputs are further minimising the overall energy and resource consumption and low environmental impact. The project investigates the alternatives to diesel engines for rolling stock, focusing on high performance battery powered regional trains (reaching autonomy of 200km) and hydrogen hybrid locomotive. The project also looks at passenger comfort and wellbeing solutions, on optimisation of brakes, motors and gearboxes, Heating Ventilation and Air Conditioning (HVAC) systems using green refrigerants, including contaminant removal, as well as aerodynamic optimisation. It also works to improve the attractiveness of train interiors: improvement of access, lighting, thermal and acoustic comfort and adapting rolling stock interiors to increase the capacity of the rolling stock. There are 38 demonstrators expected to reach TRL 6 and above by 2026.

à FP4 supports the European Green Deal by promoting environmentally-friendly rail solutions, reducing greenhouse gas emissions, and enhancing the sustainability of rail applying circular economy principles in the rail sector.

- **Flagship Project 5** is working to establish rail freight as the backbone of a low-emission, resilient European logistics chain. Strong emphasis is placed on rail freight and intermodal transport services to deliver green freight, with the Digital Automated Coupler (DAC) as a key technical enabler, fully integrated in the logistics value chain and utilising the potential of automation and digitalisation. A fully digital freight train with DAC, including energy and data supply, hybrid couplers and automated brake tests has been developed. The first commercial demo train with DAC is operational in Sweden.

à FP5 enhances rail freight attractiveness and competitiveness, increasing the greening of European logistic, with seamless and integrated freight operations.

- **Flagship Project 6** is working to revitalise capillary lines and regional rail services. The project ensures long term viability of regional railways by decreasing the total cost of ownership, such as the cost per kilometre, both in terms of Operational Expenditure (OPEX) and Capital Expenditure (CAPEX), while offering a high quality of service and operational safety to staff and end users. It includes R&I activities on booking and ticketing solutions, passenger information system for regional services in an integrated mobility service, to become an attractive and preferred choice of transport mode. The project also covers operations for regional lines that are not functionally or operationally connected with mainlines. Application for cost efficient traffic management systems and Control Command and Signalling for regional lines are part of the project activities¹⁶.

à FP6 lays the groundwork for next-generation rail regional systems, ensuring the rail sector remains competitive and capable of addressing evolving transportation demands

In addition, EU-Rail has promoted exploratory R&I with running projects such as Pods4Rail¹⁷ for the development of an autonomously driving vehicle (Pod) which comprises an electric only drive unit (Carrier) and a transport containers (Transport Unit) to be used as seamlessly and cost-effective as possible on different infrastructures such as rail and road, improving multimodal transport solutions, or RAIL4CITIES¹⁸ focusing on creating green and socially inclusive railway stations, contributing to urban sustainability. EU-Rail also supports with other projects a network of PhDs and the development of hyperloop technologies, among others disruptive research.

These projects are collectively driving economic growth and sustainability across Europe by promoting innovative technologies, optimising energy use, reducing infrastructure costs, and boosting performance through digitalisation and automation.

¹⁶ See EU value added section for information on FP6 harmonisation impact.

¹⁷ [Homepage 01 - Pods4Rail](#)

¹⁸ [Home - RAIL4CITIES](#)

The Partnership Evaluation study¹⁹ indicated that a lesson learned from S2R is that the implementation of new approaches and solutions within the rail system is not only about technology, but also about the introduction in diverse operational environments and rail systems to realise SERA. One of the challenges remains providing cost-effective methods for infrastructure development, understanding that high costs can hinder such investments in different EU Member States and associated countries.

This lesson has been addressed in EU-Rail by developing an overall system approach i.e. coordinating the improvements to maximise system benefit rather than focusing on single solutions. This changed approach is delivered through the System Pillar, which develops future concepts of operations and the underpinning system architecture. A particular focus is on reducing lifecycle cost and adopting modular and flexible design to allow easier and more efficient evolution, providing confidence in investments.

The System Pillar works on a Railway System architecture and Operational Design (task 1), and on developing operational concept(s) and system architecture for Control-Command and Signalling (CCS) (task 2), for Capacity Management System (CMS) and Traffic Management System (TMS) (task 3), and for automation and digitalisation of freight (task 4).

The System Pillar provides an integrated plan (standardisation and TSI input plan - STIP)²⁰ for and delivers the specification and standards to the European Commission and the rail sector. This is critical for the implementation of European solutions - bridging the gap between research and innovation and the translation into specifications and standards – as industry relies on these documents to develop solutions.

Specifications will be published throughout the life of Europe's Rail. A first example is the EULYNX Baseline 4 specifications which are related to trackside assets and transversal functions. They increase market access to non-traditional suppliers, and the draft cybersecurity specifications are essential for the future security of the European rail system.

A further element to improve the effectiveness of the JU is the creation of the Deployment Group that targets strengthening the sector's capability to contribute to sustainability and accelerating the market introduction of rail innovations, especially the key innovations developed by EU-Rail. The Deployment Group provides a platform for the sector to coordinate on all essential deployment activities beyond research and innovation and specification or standard development (for example political commitment, funding support, and migration planning). Its first activities are focused on FRMCS, the next generation communication system that uses 5G technology to replace the GSM-R technology which will reach its end of life (telecom suppliers' support) in 2030.

Based on the above, we conclude that the objectives of both S2R and EU-Rail have been or are being met.

The positive results at microeconomic levels (Key Performance Indicators mentioned above) and the positive impact in terms of common deployment of technologies, are expected to translate into positive economic and societal impacts of the overall improved approach to rail R&I²¹. The impact assessment study for Institutionalised European Partnerships²² under Horizon Europe indicates that the application of the R&I output from EU-Rail would be able to significantly divert more traffic to rail from other, less environmentally friendly, modes. The expected reduction is between 2.5 and 4 million tonnes in 2031. This impact could be expected to increase if the competitiveness of rail

¹⁹ <https://op.europa.eu/en/publication-detail/-/publication/e6cc1f91-6421-11ef-a8ba-01aa75ed71a1/language-en>

²⁰ See also below section EU Value Added.

²¹ Due to the long-life cycle of railway assets (i.e. 30-100 years), the timeline for the introduction of innovations is beyond the timeline of this evaluation. Hence, the best possible approximation of the effect of the partnerships are the most recent estimates.

²² <https://op.europa.eu/en/publication-detail/-/publication/8e98b39a-8154-11eb-9ac9-01aa75ed71a1>

services continued to improve beyond the period of Horizon Europe, therefore, making a substantial contribution to reaching the Green Deal objectives²³.

The Foresight report conducted by Ernst & Young on the output of the transformative projects of the JU²⁴ estimated the following impacts by 2050.

Our estimates show that, compared to 2017, by 2050 rail transport can achieve the following impacts:

	Impact area	Measure	Moderate scenario	Maximum scenario
	Climate change	Avoided CO2 emissions	> 6.300 MtCO2	> 8.400 MtCO2
	Jobs	Direct & indirect jobs	4,8 million	6,4 million
	Economic growth	Gross value added	> €350 billion	> €470 billion
	Passengers' evolution	Traffic (% modal share)	> 1.800 billion pkm (20%)	> 2.200 billion pkm (25%)
	Rail freight	Traffic (% modal share)	> 1.500 billion ton-km (45%)	> 2.600 billion ton-km (76%)
	Industrial competitiveness / Export	Export levels of turnkey solutions		

Additional details related to the evolution of impacts in 2030, 2040 and 2050 together with scenarios applied are provided in section 4.



A noteworthy example of the translation of scientific and technical impacts of S2R and EU-Rail into long-term strategic investments for Europe is the Digital Automated Coupler (DAC), a technology that will transform and revitalise rail freight. The JU created the European DAC Delivery programme (EDDP) that builds on outcomes of S2R's freight related R&I activities. It brings together the rail sector beyond the JU membership to bridge the research work with innovation, including migration planning, towards the deployment of a European DAC solution, built on open and transparent specifications. This enables new operations and services that will contribute meeting the expectations of the Commission's Sustainable and Smart Mobility strategy. To date more than 300 experts and more than 80 companies and organisation across Europe and beyond are involved in the EDDP. The following has so far been achieved:

- DAC target operational procedures for the first DAC use cases
- EU-Rail Flagship Project 5²⁵ (FP5-TRANS4 m-R, 2022-2026) is ongoing and aims at:
 - o developing the DAC specification for 'mechanical/pneumatical', 'energy' and 'communication';
 - o demonstrating Digital Freight Trains in 2025 with DAC Type 4 & 5 incl. Energy and Data Supply, Hybrid Coupler, and automated brake test (at TRL 7/8);
 - o developing robust and feasible migration scenarios, a premiere in Europe.

Further, a call for expression of interest was launched in January 2024 for rail stakeholders to be part of the implementation of 100 pioneering trains running DAC in commercial operation across Europe. The call was already answered by about 50 companies reflecting a wide part of the rail sector.

²³ Impact assessment report - SWD(2021)37, report 10/19: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11910-European-Partnership-for-transforming-Europes-rail-system-Horizon-Europe-programme-en>.

²⁴ https://rail-research.europa.eu/wp-content/uploads/2020/07/S2R_FOD_Final-Report.pdf

²⁵ <https://projects.rail-research.europa.eu/eurail-fp5/>

The System Pillar addresses the common integration of the DAC into the broader EU-Rail system, the principles of data exchange for DAC, and the coordination of the specifications, standards, and operational rules.

2. Additionality

Financial and in-kind contributions from members in line with the Funding Regulation

	EU cash	Private members' cash	Private members' IKOP	Private members' IKAA	Total
H2020 (S2R) Target	450 000 000	13 500 000	336 500 000	120 000 000	920 000 000
H2020 (S2R) Execution	450 000 000	13 500 000	582 200 000		1 045 700 000
HE (EU-Rail)	600 000 000	24 000 000	576 000 000		1 200 000 000

2023 was a closing year for the activities under the **S2R programme**. By now, 99% of it has been completed from an operational perspective and 100% in the financial project execution. Within this, finances are in line with the expectations. The exceeding achievement rate of 118% at S2R programme level is due to contributions from private members – representing the total contribution of the private members: cash, IKOP and IKAA, which exceeded the target of EUR 470 million by 27%.

The implementation of the **EU-Rail programme** on R&I is essentially carried out through calls for proposals – four calls launched until now, which will be supplemented by further calls for proposals and calls for tenders until 2031.

Currently, the cumulative EU's contribution is 31% of the maximum 600 million target projected in the SBA and the private contributions 24% of the minimum 600 million target from the SBA. This is in line with expectations. Differences in contributions are expected, particularly at the beginning, as the EU takes on the pre-financing activities. The remaining contributions from the EU and the private members should be provided until the end of the programme.

From the launch of EU-Rail and until the end of 2023, contributions of 70 million EUR in IKAA have been made, which represents a solid basis to meet the SBA target.

3. Transparency and openness

Compared to S2R, membership in EU-Rail has increased substantially. The S2R Founding Regulation had listed only 8 founding members other than the EU, of which only 2 infrastructure managers, and the rest from the supply industry. Thanks also to the successful results and positive perception by the sector, the SBA lists for EU-Rail an increased membership by more than 3 times compared with S2R, with 25 founding members other than the EU, while the EU contribution only increased 1.3 times compared to S2R, largely equivalent to the inflation rate applied over the last 10 years. Ten of the EU-Rail founding members are operators and infrastructure managers, 2 are research centres and the rest come from the supply industry. This membership widened the stakeholders' base of EU-Rail, both geographically and concerning their role in the implementation of the Single European Rail Area. In S2R, this widening was only possible to obtain with lower committed members in terms of contribution, which participated as associated members. EU-Rail launched the call for associated

members²⁶ targeted at EU stakeholders having key capabilities/capacities and competencies in the new/enlarged R&I areas described in the update of the multiannual work programme.

Further, the calls for proposals launched by EU-Rail were open, while under S2R there were some calls that were only open to members and some that were open to non-Members. To be noted that both for S2R and EU-Rail many more stakeholders beyond the membership are involved in projects and in implementing the programmes.

The EU-Rail project portfolio comprises today 6 Flagship Projects with 452 participants in the first call for proposals launched March 2022. Against HE's Cluster 5, the portfolio has a much higher participation of private companies (67% in the partnership vs 44% in Cluster 5), indicating a particularly high involvement of the rail industry i.e. train operators, infrastructure managers or technology providers. In the JU's second call for proposal for exploratory research launched in 2022, 7 new projects were selected for funding, with 53% of the beneficiaries being universities or research centres, indicating the higher involvement of rail academic researchers in exploratory calls.

EU-Rail launched another call for proposals in 2023 that included a joint topic with SESAR JU and it was the first time that a joint call across JUs was launched. Further, the call included exploratory research topics. Overall, it resulted in 7 new projects currently in the Grant Agreement preparation phase with an estimated 27% of the EU funding for SMEs.

Overall, in the four calls for proposals launched by EU-Rail since 2022, 746 beneficiaries from 28 different countries are involved in the EU-Rail projects, benefit from Horizon Europe funding and work towards delivering on the EU-Rail programme and achieving the EU's transport policy goals. Ninety-three beneficiaries are SMEs and their average success rate based on total SMEs participation across those four calls is significant, i.e. 76%, indicating the programme high accessibility to SMEs. However, the commitment of EU-Rail members to reduce the funding rate to 60% can be a challenge to some SMEs and should be addressed within each consortium.

Concerning S2R, the operational activities ended in 2023 and 477 beneficiaries from 29 different countries across Europe participated.

S2R had 8 private founding members and 19 associated members, while EU-Rail comprises 25 private founding members listed in Annex II to the SBA. In 2024, the JU launched an open call for expression of interest in view of selecting associated members, with deadline on 4 November 2024. As mentioned above, the call is targeted at EU stakeholders having key capabilities/capacities and competencies in the new/enlarged R&I areas described in the update of the multiannual work programme.

At project level, EU-Rail and S2R have established an innovation ecosystem for the European rail sector in which interactions are simplified, and collaboration is efficient. EU-Rail emphasises transparency and makes essential efforts to disseminate and communicate activities throughout the sector. For example, documents are made publicly available, which increases transparency and the JU's visibility. In addition to the regular Information Days on the calls for proposals, stakeholder engagement is actively promoted and links with other sectors are established by organising events, such as the 'Rail Transport Day' organised in 2023 together with the European Commission. These efforts produce results. In 2022, EU-Rail welcomed 99 newcomers in its activities, including nine from outside the EU. In 2023, 51 newcomers were integrated.

Moreover, the EU-Rail Governing Board of EU-Rail meets once a year in a general assembly and all participants to the research and innovation activities of EU-Rail are invited to attend. The operational part of the General Assembly is open. Therefore, that part of the meetings is also open to the entities not yet involved in the implementation of the programme.

²⁶[call-for-expression-of-interest-with-a-view-to-selecting-eu-rail-associated-members](#)

The System Pillar Steering Group of EU-Rail includes representatives of the rail and mobility sector and of relevant organisations: the European Union Agency for Railways and of the European Rail Research Advisory Council (ERRAC). This ensures the sectorial input beyond the current EU-Rail membership.

In addition, EU-Rail has two stakeholders' groups open beyond the EU-Rail membership but also beyond the entities interested in performing R&I: the Deployment Group and the European DAC delivery programme²⁷. Both groups are open to enlarge membership based on defined criteria and mechanisms to ensure appropriate thematic focus and representativeness.

The EU-Rail multiannual work programme (MAWP) has been developed involving all partners and is adapted according to the technological developments, user needs and EU policies. One example is the adoption by the Governing Board on 21 June 2024 of the revised MAWP, to include the gaps identified during the implementation of the EU-RAIL Flagship Projects. Moreover, this revision addresses additional R&I elements of relevance to the JU objectives as well as aspects where new EU-RAIL members could bring additional value, in particular as regards artificial intelligence, cybersecurity, the next EU-RAIL communication system, climate adaptation and regional solutions. In its activities, EU-Rail actively seeks input from advisory bodies and stakeholders to ensure effectiveness in the pursuit of its objectives.

The principal mechanism to achieve an effective consultation of all relevant stakeholders are through the States' Representatives Group (SRG), System Pillar Steering Group, Deployment Group, and Scientific Steering Group (SSG).

The SSG provides the Governing Board and the Executive Director with advice and recommendations on the implementation of the EU-Rail programmes and on scientific issues. It is composed of twelve members working within different types of research organisations from eight different EU countries.

The SRG reviews information and provides its opinion on the programme progress, the strategic research and innovation agenda and links with other initiatives. Its main tasks include engaging with SMEs, start-ups, higher education institutions, research organisations and coordinating measures to promote newcomers. It is composed of 58 members from all EU Member States and 14 participants from five associated countries.

The System Pillar Steering Group (SP STG) supports the identification of priorities around the overall vision of the SERA System Architecture and operational concepts for the future of the rail system.

The Deployment Group gives advice to the Governing Board on the market uptake of rail innovations developed by EU-Rail. It supports a coordinated and consistent deployment of innovative solutions and therefore completes EU-Rail's contribution to the entire innovation cycle in rail via integrated R&I programmes. In addition, for the identification of its exploratory research topics, EU-Rail regularly consults the SRG, SSG but also the European Technological Platform for Rail Research (ERRAC) and takes into account any input provided by the sector stakeholders to the JU.

The General Assembly also stimulates the reflection on the overall direction of the activities of EU-Rail while conducting an open and transparent discussion on the progress in implementing the Master plan.

4. Efficiency

The table below reports, for the period 2014-2023, Shift2Rail and Europe's Rail's **total operational costs** (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), the **certified IKAA** (In-Kind

²⁷ EDDP – see Section on effectiveness.

Contributions to Additional Activities) and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU). See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Operational and administrative expenditures Shift2Rail and Europe's Rail (2014-2023) (source: CORDA)

The table includes data for Europe's Rail and Shift2Rail Joint Undertakings. OC : Operational Costs; IKAA : Certified IKAA; RC : Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	-	88,120,148	61,747,093	73,675,414	117,084,681	81,819,445	13,841,961	354,304,534	13,058,734	803,652,010
IKAA	-	-	48,422,572	65,997,423	39,960,347	34,819,699	20,766,217	16,442,300	31,658,025	112,643,410	370,709,992
RC	267,595	2,239,601	3,300,000	1,775,296	3,223,678	2,803,733	3,022,479	1,232,595	4,977,000	3,206,920	26,048,897

EU-Rail and S2R have been cost effective and operationally efficient regarding the timely implementation of the budget designated, as expressed by the partnership evaluation report²⁸. S2R proved to be successful in setting annual budget proposals and monitoring their execution, regarding implementing the commitments and payments against the total budget.

During the S2R programme the grant agreements for all 101 projects were signed by 2021, all major technical activities ended in 2023. The programme is still undergoing its phase-out and is expected to be closed in 2025, with the execution of all remaining payments and in full compliance with the Founding Regulation.

The implementation rate of the EU-Rail operational budget in 2023 was 100% for commitment appropriations (99.9% in 2022) and 85% for payment appropriations (79% in 2022).

According to the SBA, the JUs are expected to operate back-office arrangements by concluding service level agreements, subject to the need to guarantee an equivalent level of protection of the EU's financial interest when entrusting budgetary implementation tasks to joint undertakings. The SBA also underlines that these synergies among JUs should be implemented where screening of resources has proved to be efficient and cost-effective, while respecting the autonomy and the responsibility of each Authorising Officer. In this respect, EU-Rail took the lead on the back-office arrangements on accounting services, concluding service level agreements with the other JUs on 16 December 2022 and taking over the accounting services previously provided by DG BUDG. Those back office arrangements are fully operational and are delivering the intended services, including the preparation of the annual accounts for 10 JUs. The feedback from the other JUs confirms the ability of EU-Rail to run an effective and efficient service.

EU-Rail continues the S2R efforts to minimise the duration of the granting process to ensure rapid implementation of R&I activities and the transparency and simplicity of the grant preparation process. For calls under S2R, the average time between contacting the successful applicants and signing the grant agreement (TTS) was 94 days. The average time between the call deadline and the signing of the grants for all calls was 191 days. The operational efficiency of EU-Rail was also assessed positively in the Partnership evaluation report²⁹. Accordingly, the process from proposal submission to project initiation could be rated as highly efficient, which was particularly noticeable in the outstanding speed of the overall process. A tight schedule was maintained to finalise quickly the grant agreements from the 2022 calls, so that the projects could start by the end of 2022. Based on the data extracted from HE Dashboard (stand 1 July 2024), for all signed grants the Time-to-Grant (TTG) was 194 days, which is well below the TTG target of 245 days.

²⁸ Partnership Evaluation report: Europe's Rail Joint Undertaking, pp. 18 and 20.

²⁹ Partnership Evaluation report: Europe's Rail Joint Undertaking, page 20.

EU-Rail addresses the administrative burden on applicants and beneficiaries arising from the complex process of funding allocation and specifically from the interaction within the JU. It strives for a far-reaching reduction while at the same time considering formal requirements. As a pioneer, S2R also introduced the lump sum approach in 2018 under the pilot scheme, before its large-scale implementation under HE, simplifying expenditure control and the administrative approach, to the benefit of a more stringent and effective control on the operational side.

This considerably simplified the funding process at an early stage in terms of administrative steps to be taken and improved transparency in expenditure control. Therefore, EU-Rail significantly reduced the administrative burden for beneficiaries in terms of project reporting.

It can already be concluded that the shift from the cost control to the results control brings positive outputs. The JU can focus oversight on content of the R&I project, hence more able to provide input for policy purposes in full collaboration with the Commission. However, this approach does not save resources on the JU side, as the decreased financial administrative burden is fully compensated by an increased workload on monitoring the projects progress and results, to ensure that the conformity assessment for payment is based on a successful conclusion of the work package tasks, milestones and deliverables, and not anymore on a control of declared costs (i.e. assessment based on spending) and general validation of outputs. At the same time, no more *ex post* financial audits are possible, which could lead to resource problems for the JU in case lump sum projects are selected for post-review by audit services, given that the JU has no resources allocated to such activities.

5. Coherence and synergies

EU-Rail is focusing its activities on ensuring coherence and complementarity with relevant national and European investment programmes, such as Connecting Europe Facility (CEF), European structural and investment funds (ESIF), and the Recovery and Resilience Facility (RRF), 15% of the latter will be invested in national railway systems. To this end, the JU seeks dialogue with local, regional and national stakeholders in order to coordinate and complement the research and innovation activities carried out, with the SRG once again playing a key role.

S2R and EU-RAIL activities are at lower TRLs than deployment. Therefore, deployment of solutions and technologies developed in the partnership can then, once at a given level of maturity, and if eligible, be supported by other EU policies and programmes. This is the case for example for DAC deployment, where there is a consideration to support an initial deployment based on the work developed in S2R and EU-Rail.

For regional and national programmes on rail research, the coherence at EU level of the overall partnership programme is managed in several ways:

- Through the State Representative Group, Member States gain full visibility of the EU-Rail programme and also feedback on any related activities at Member States to support coherence in the programme.
- Through participation in cooperative activities as done in 2023 with Spanish Presidency of the Council by organising a joint ‘Satellite for Rail’ conference in collaboration with the European Union Agency for Railways and the European Union Agency for the Space programme, supported by the Spanish Transport Ministry, or with the Swedish Presidency of the Council where EU-Rail organised a joint event with the Commission, with the title ‘Rail Transport Day’.
- Memoranda of understanding have been signed with European regions and Member States, JUs, European and international organisations, such as with RNE, UIC, CEN/CENELEC, ETSI.
- Coordinated activities at EU level with national / sectorial R&I actions on the Digital Automated Couplers with the European DAC Delivery programme, enabled by EU-Rail.

- Rail system architecture coordinated in the System Pillar with national and sectorial input notably around signalling activities.
- Coordination with the Digital PRIME working group composed of rail infrastructure managers and also with Rail Net Europe on the implementation of digital solutions by infrastructure managers, especially infrastructure capacity planning and traffic management.
- The Deployment Group will serve to coordinate the JU and rail key innovations with the investment plans and funding at various level from EU to local level extending the European DAC Delivery programme benefits to other rail innovations.

Further, the R&I activities implemented within the EU Rail programme could be linked with those of the EU Agency for the Space programme (EUSPA), ensuring that the European GNSS is fully adopted within the European Rail Traffic Management System (ERTMS). Therefore, Europeans will benefit from reduced railway operational costs, improved safety on regional and low-density lines and accurate passenger information services. In 2024, EU-Rail implemented its cooperation with EUSPA and the European Space Agency (ESA) in a specific project implementing EGNOS for rail, under the strategic leadership of the Commission and in coordination with the European Union Agency for Railways (ERA).

Synergies and cooperation at programme level are key for the European rail sector to compete with other transport modes, while also keeping its global leading role and increasing its strategic sovereignty by integrating innovations from other industries. EU-Rail is therefore actively seeking synergies with other European partnerships and has already started coordination activities with several other JUs.

Following the definition of the first synergy topic calls- in 2023, 2024 is the year in which the first joint project between EU-Rail and SESAR 3 will be implemented in traffic management, improving door-to-door mobility, potentially involving other modes of transport. EU-Rail will administratively manage EUR 3 million from SESAR 3 JU based on the synergy call topic cooperation agreement.

A joint topic call for the testing and operational validation of the next EU rail communication system was also only agreed 2024 with the Smart Network Services JU (SNS JU). EU-Rail will administratively manage 1 million EUR from SNS JU based on the synergy call topic cooperation agreement. EU-Rail working on the next, 5G based, communication system is an addition to the programme, and this demonstrates the confidence provided in EU-Rail by the Commission and the sector in handling such strategic activity and key innovation, building on activities previously performed within different organisations, outside the EU governance.

In addition, the JU is also liaising with EU missions, such as the Mission for Climate-Neutral and Smart Cities, by the means of the Contribution Agreement with the Commission for a total of 0.7 million EUR, which was concluded in 2022 to finance the implementation of the ‘Pilot project – IRS Smart Cities project: new railway station concept for green and socially inclusive smart cities’³⁰.

Collaboration also takes place with other mobility initiatives through various Horizon Europe clusters, focusing on topics such as multi-modal transportation, vehicle automation, decarbonisation, and alternative fuels. Synergies have been achieved with:

- **Cluster 4 ‘Digital, Industry and Space’:** Considering the key challenges related to the digital transformation of rail, this cluster collaboration has also been critical. Artificial intelligence, cyber-security and high-performance computing are cross sectoral issues that require deep coordination especially for the development of use cases and the application of European standards. In addition, European space policy appears to be of key relevance, considering the ambition to introduce more and more satellite-based solutions for localisation or data

³⁰ <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-er-ju-2022-explr-01>

transmission. Here also synergies with EUSPA (and ESA) and SNS will be continued building upon the past experience;

- **Cluster 5 ‘Climate, Energy and Mobility’:** EU-Rail has reached out to other mobility JUs with the aim to build, where possible, consistent projects and demonstrators for climate neutral mobility solutions. This may also address shared areas of intervention such as multi-modal transport, automation in vehicles and other assets, decarbonisation, use of alternative fuels, etc. In particular, specific coordination with the European Partnership SESAR 3, Clean Hydrogen, as well as with the Batteries co-programmed partnership (BATT4EU) is ongoing.

6. EU added value

EU-Rail and S2R are now essential elements of the European rail landscape. Previously, research and innovation activities were not coordinated, leading to lack of comprehensive market ready solutions and significant duplications and fragmentation of research funding as well as poor uptake of the R&I results and delivery on the EU policy goals. This, however, has changed, and the JU structure is accepted as the focal point for European R&I.

Because the rail sector is a complex network industry, deep coordination and alignment of public and private R&I funding, including the integration of different actors, are essential. To ensure that technological advances benefit the rail industry and its users (passenger and freight), a partnership scheme like EU-Rail addresses the problems of slow deployment and limited market uptake of innovative solutions.

The added value of the partnership is also driven by its ability to address:

- fragmentation of different regional and national systems, networks and technical operating standards;
- fragmentation among rail subsystems. Complex interactions between subsystems (infrastructure, rolling stock and signalling equipment) and actors (manufacturers, railway undertakings and infrastructure managers) limit the potential development of specific elements of the system and the implementation of breakthrough solutions impacting on the system as a whole;
- fragmentation along the innovation life cycle. Past uncoordinated EU research activities generated by European R&I projects have led to very poor market uptake of innovative rail solutions, resulting in limited direct leverage of EU funding;
- the ‘bottom-up’ approach of collaborative research projects on rail has resulted in an uncoordinated programming approach and poor alignment with EU policy goals.

The EU-Rail programme, as compared to interventions carried out at regional or national levels only, brings multiple advantages by providing:

- a long-term strategy for rail-related R&I, with research and development activity aligned with European policy objectives for the rail sector, see for example the Standardisation and TSI Input plan that is aligned and supports the delivery of the TSIs and standardisation requests³¹;
- a higher level of overall R&I invested, not least because of a commitment of financial and in-kind resources from rail industry organisations who are better able to engage under a legally binding framework governing the allocation of resources. It accelerates innovation and attracts private investments;
- effective management of a pipeline of activities covering basic research, development and demonstration, with an appropriate allocation of resources to projects at different TRLs;

³¹ See also the Effectiveness section.

- an EU-wide scope is ensured, to address jointly market needs and ensure interoperability of the rail system and the needed operational harmonisation, which require coordination beyond the national and regional level;
- targeted support for research at TRLs 1 to 3 with possibility to translate the outputs from such research into intellectual property for exploitation both within Europe and in global markets;
- coordination of rail R&I to avoid parallel developments by individual stakeholders (the EU here acts as a catalyst to efficiently deliver rail research), to stimulate cooperation beyond national borders (linking university, research institutes, railway companies and suppliers) and to involve relevant partners from outside of the railway sector;
- standardised EU solutions, brought together by the actors in EU-Rail innovations, so that services for passengers and freight customers are improved and costs decrease for the entire EU network.
- higher Technology Readiness Levels (TRLs) compared to those achievable through solely national initiatives and with capacity to develop, and coordinate large-scale research and innovation activities at the European and national level with a high likelihood of successful implementation, leading to the implementation of the Single European Railway Area;
- synergies and cooperation with other relevant European, national, and regional programmes so that activities can be pursued efficiently.

7. Relevance

The objectives of S2R and EU-Rail are still relevant as they address both the objectives of the respective Framework programmes and EU policies (see point 1 Effectiveness).

S2R aimed at stimulating and better coordinating EU research and innovation investments in the rail sector with a view to accelerating and facilitating the transition towards a more integrated, efficient, sustainable and attractive EU railway market, in line with the business needs of the rail sector and with the general objective of achieving a Single European Railway Area (SERA). In particular, S2R has contributed to specific objectives defined in the 2011 Transport White Paper and in the Fourth Railway package, including the improved efficiency of the rail sector for the benefit of the public purse. It also contributed with R&I to expand the capacity of the rail network, to enable rail competing effectively and taking a significantly greater share of passenger and freight transport. Part of the R&I also addressed the improvement in the quality of rail services by responding to the needs of rail passengers and freight forwarders, as well as contributed to the removal of technical obstacles holding back the sector in terms of interoperability. It also worked on the reduction of negative externalities linked to railway transport such as noise and vibrations.

Those objectives are still relevant and have been taken over by EU-Rail which have its global objectives aligned with:

- EU priorities (European Green Deal, Fit for 55, Sustainable and Smart Mobility strategy, Digital Decade, Industrial strategy);
- UN's Sustainable Development Goals;
- Cluster 5 (Climate, Energy, and Mobility) of Horizon Europe.

Specifically, EU-Rail is contributing to achieving the Single European Rail Area (SERA), ensuring a fast transition to more attractive, user-friendly, competitive, affordable, easy to maintain, efficient and sustainable European rail system, integrated into the wider mobility system, as well as supporting the development of a strong and globally competitive European rail industry.

The rail system is a key element of the sustainable option for European mobility. For this, EU-Rail is delivering a high-capacity integrated European railway network by eliminating barriers to interoperability and providing solutions for full integration, covering traffic management, vehicles, infrastructure and services, aiming to achieve faster uptake and deployment of projects and innovations. It exploits the huge potential for digitalisation and automation to reduce rail's costs,

increase its capacity and enhance its flexibility and reliability, based upon a functional system architecture shared by the sector, in coordination with the European Union Agency for Railways.

A transformation of the rail system is enabled by digitalisation. Coordination at EU level is needed (and happening in EU-Rail) to seize digital opportunities and achieve the ambitious EU policy and sector goals.

The partnership addresses political, demographic, technological and market challenges linked to the needs of passengers and freight customers. These shifts, along with disruptive events like the COVID-19 pandemic, require a flexible instrument for R&I like EU-Rail to adapt the course of the sector and EU research. One example of this is the new focus on standardisation of contaminant such as viruses, removal from the trains heating, ventilation, and air conditioning systems (HVAC).

Rail must also be able to accommodate increased demand and become more resilient against the impacts of climate change. New infrastructure will be necessary in certain areas, but the digitalisation and automation of operations, under the systemic approach that can only be provided today by the EU-Rail framework, will create the vast bulk of future increased traffic leveraging existing infrastructure and helping to address traffic disruptions caused by climate crisis related phenomena.

The European rail supply industry is world leading. However, today it is facing many challenges at global level. Innovative solutions, conceived, designed, and developed jointly in EU-Rail for creating new solutions to be deployed at European level (following also the recommendations of the EU-Rail Deployment Group) will strengthen the competitiveness of the European rail supply industry. Furthermore, to be more competitive and support future increased usage, rail must deliver services at reduced cost compared to today, including tackling all the elements of its life cycle, and improve its interaction with other transport modes. EU-Rail has proven to be key in creating synergies unexploited before.

Rail must also move to one European network more unified that delivers SERA – and be more flexible to introduce and scale up new technological and operational solutions to deliver new and improved client-oriented services. For this reason, part of the R&I of EU-Rail is dedicated towards enabling European traffic management (today it is managed at regional or at best at national level) and it is harmonising the technical interfaces among innovative systems and fostering rail operational rules harmonisation at EU level.

8. Directionality

EU-Rail aims to create a more competitive, sustainable, and integrated European rail system. It focuses on R&I to address global challenges, including climate change and economic competitiveness. Therefore, it is integral to the European Green Deal, targeting a reduction in greenhouse gas emissions, to promote rail as a sustainable transport mode, and enhancing its efficiency and attractiveness.

Fostering advanced technologies, including digitalisation, automation, and improvement in safety and efficiency, EU delivers better rail services to the citizens, ensuring rail transport contributes increasingly to achieve climate neutrality by 2050. The transport resilience needs to be hedged against disruptive events, like a pandemic or geopolitical tensions. Russia's war of aggression on Ukraine continues to have a huge impact on the transport infrastructure by affecting supply chains and limiting European citizens mobility. Considering that Europe seeks alternatives to Russian energy supply, the rail transport's role in the efficient movement of goods and people becomes even more critical to ensure connectivity and security, pushing for the need of a resilient and autonomous European rail system. For this reason, it appears fundamental to improve rail networks and the ability of rail to provide a quality standard service across Europe and beyond, something that EU-Rail has demonstrated to support in a coordinated way with its partnership framework of high TRL R&I. Investing in rail research and development, EU-Rail strengthens the EU's position in the global rail

market. It drives economic growth by creating jobs, stimulating investment in infrastructures and technologies, and boosting the industry's overall competitiveness and the EU economy.

In 2023, the overall investments mobilised by EU-Rail towards EU priorities accounted for 561 million EUR linked both to the Green Deal and the 'Europe fit for the digital age' strategy. For those investments EU-Rail contributed with 243.9 million EUR of EU funds (and additional 42 million EUR are in Grant Agreement Preparation phase in 2024), demonstrating the partnership ability to deliver under the provided directionality.

9. International positioning

EU-Rail has significantly boosted the international visibility of EU in the rail R&I domain.

A strategic focus on communication activities has been pursued, in line with Commission guidance, which has led to continuously promoting the programme, and yielding a significant increase in the recognition of R&I activities, mission, and vision. Project results and ongoing activities are widely disseminated through the website, online resources, presentations at internal and external stakeholder gatherings, and coverage in press and social media platforms.

The success of its efforts is illustrated by a substantial number of press articles referencing the JU's activities have been published in international journals and media outlets over the past years. As of 2023, the dissemination and outreach activities other than peer-reviewed publications (e.g. press releases, flyers, social media) reached 2 866 292 people. In 2023, EU-Rail published 10 newsletters, 6 press releases, 5 publications, organised 4 events, and participated in 62 industry events. The JU's website was visited by 144 645 unique visitors in 2023, which is a significant increase compared to 2022. Most visitors (84%) were based in Europe, followed by Asia (9%) and North America (5%). The readership of the JU newsletter has increased to 2 105 in 2023.

EU-Rail has improved its international positioning through event participation and organisation, summing up to nearly 80 events, solidifying its position as a key player within the global rail and transport community. The main international events where EU-Rail plays a key role are the Connecting Europe Days, the Transport Research Arena, InnoTrans, and the International Transport Forum summit. Furthermore, it actively contributed to the European Start-up Award for Mobility, held by the Chair of the European Parliament's Transport Committee.

At projects level, in 2023 international actors actively contributing to the EU-Rail R&I Programme included 28 entities from associated countries and non-EU countries participating in projects. More specifically, 8 from Norway, 9 from Switzerland, 8 from the UK, 1 from Ukraine, 1 from Serbia and 1 from Türkiye, representing 1 public organisation (4%), 12 higher or secondary education establishment (43%), 6 research organisations (21%), 7 private for profit organisations (25%) and 2 other organisations (7%).

In 2024, EU-Rail continues the collaboration with associations representing the sector's key stakeholders, and non-EU country programmes. For example, EU-Rail has cooperation with several key international partners, such as the Federal Railroad Administration (FRA), the American Public Transportation Association (APTA), the Federal Transit Administration (FTA) in the US, the Canadian Urban Transit Research and Innovation Consortium (CUTRIC), Gulf countries, India, and it will establish a collaboration with Australia in the near future.

The collaboration with the EU neighbouring countries, in particular Western Balkans and the Transport Community has been reactivated in 2023, the latter has now an observer role in the States Representatives Group (SRG).

10. Phasing-out preparedness

The general planning is summarised as follows:

Task	Lead	2026	2027	2028	2029	2030	2031	Beyond 2031
Commission proposal for a new Framework Programme for Research and Innovation	EC	X						
Decision on EU-RAIL phasing-out	EC		X					
Legacy decision	EC		X					
Human Resources planning/adjustment	EU-RAIL	X	X	X	X			
Budget planning/adjustment	EU-RAIL	X	X	X	X	X	X	
Annual accounts	EU-RAIL	X	X	X	X	X	X	
Logistics and IT	EU-RAIL	X	X	X	X	X	X	
Monitoring of contractual obligations, incl. project closure and follow-up	EU-RAIL	X	X	X	X	X	X	
Monitoring of financial contributions	EU-RAIL	X	X	X	X	X	X	
KPIs monitoring	EU-RAIL	X	X	X	X	X	X	
Transfer to legacy management entity							X	X

Source: Phasing-out plan³²

According to the Single Basic Act³³, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funding available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

³² https://rail-research.europa.eu/wp-content/uploads/2023/12/GB-Decision_14_2023_Annex_EU-Rail-phasing-out-plan.pdf

³³ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.

In December 2023, Europe's Rail's Governing Board adopted a preliminary phasing out plan.³⁴ It included administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework Programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

In November 2024, the Governing Board adopted an updated version of the phasing out plan³⁵, which includes concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

In detail, according to the latest version of the document, in the event of a phasing out of the funding from Horizon Europe, EU-Rail will continue to fulfil its financial and reporting obligations in line with the JU's financial rules. The Programme Office will therefore continue to prepare the JU's annual accounts, and monitor the financial contributions from partners and the assets of the organisation until 31/12/2031. The final accounts of EU-Rail – due by June 2032 together with the 2031 Annual Activity report -Report – will have to be prepared in the context of the legacy management.

Post-2031, in case of no renewal of the JU under the new programme, building up on its achievements and further innovating with new policy objectives, all the remaining obligations will be transferred to the relevant Commission departments. These years are planned to be executed with (EU budget) payment appropriations from the implementation and closure of existing administrative and operational expenditures of procurement contracts and grant agreements.

The phasing-out plan of the JU should be designed in a strategic manner and as a 'bridging strategy' to the next framework programme. In case of EU-Rail, this is relevant for the achievement of the Single European Railway Area (SERA), to a fast transition to a more attractive, user-friendly, competitive, affordable, efficient and sustainable European rail system, and to the development of a strong and globally competitive European rail industry, with an integrated system approach, research, development and demonstrations of innovative technologies and operational solutions (enabled by digitalisationdigitalization and automation) for future deployment, and to deliver on the EU's policy objectives.

Lastly, it is important to underline that the phasing out plan must be intended as a living document. In this perspective, Europe's Rail is committed to updating the plan, further complementing the information and the strategic reflection included in the document while taking into account any relevant future developments.

³⁴ https://rail-research.europa.eu/wp-content/uploads/2023/12/GB-Decision_14_2023_Annex_EU-Rail-phasing-out-plan.pdf

³⁵ https://rail-research.europa.eu/wp-content/uploads/2024/12/Annex_GB-Decision-18-24_Rev_Phase_out_plan.pdf

Annex: Acronyms

ATO	Automatic Train Operation
C-DAS	Connected Driver Advisory System
DAC	Digital Automatic Coupler
DG	Directorate-General
ERA	European Union Agency for Railways
ERRAC	European Railway Research Advisory Council
ERTMS	European Rail Traffic Management System
ESA	European Space Agency
EU-Rail JU	Europe's Rail Joint Undertaking
EUSPA	European Union Agency for the Space Programme
FP	Flagship Project
GoA	Grade of Automation
HE	Horizon Europe
IKAA	In-kind contribution for additional activities
IKOP	In-kind contribution for operational activities
IP	Innovation pillar (EU-Rail)
IP	Innovation programme (S2R)
JU	Joint Undertaking
KPI	Key Performance Indicators
LCC	Life Cycle Costs
MAWP	Multiannual working plan
R&I	Research and innovation
S2R	Shift2Rail
SBA	Single Basic Act
SERA	Single European Railway Area
SME	Small and medium-sized enterprises
SRG	States Representatives' Group
SSG	Scientific Steering Group
TRL	Technology readiness levels



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PART 8/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 16: Evaluation of EuroHPC JU

Annex to the Commission's interim evaluation of Horizon Europe

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This is the evaluation for **the European High Performance Computing joint undertaking (EuroHPC)**, which covers both the previous (2014-2020) and the current multiannual financial framework (MFF) (2021-2027). The EuroHPC was established in 2018 by Regulation (EU) [2018/1488](#), and by Regulation (EU) [2021/1173](#) (that builds and repeals the previous Regulation (EU) [2018/1488](#)), to operate under the current MFF. It was recently amended by the Council Regulation (EU) [2024/1732](#) of 17 June 2024. An interim evaluation support study of the EuroHPC has informed this report¹.

1. Effectiveness

The interim evaluation support study of the EuroHPC (the study) states that 'to date, the EuroHPC has had an immense impact on the development of the European sovereign HPC ecosystem at the R&I, infrastructure, and socio-economic levels and helped to strengthen its global positioning. All the procured EuroHPC systems in operation up to July 2023 have been very successful in terms of the appearance in the TOP500 list of supercomputers, demonstrating a high level of global competitiveness of these systems. In addition to the procurement and R&I, the contribution to technological advancement and community building has been expected².' and 'The activities have been in line with the FP objectives and seem to have met the JU's objectives according to its defined strategic roadmap³'.

EuroHPC⁴ has successfully mobilised substantial joint investments with critical mass by the European Commission and Member States to support ambitious goals, which aim to establish the EU as a world power in supercomputing⁵ and support EU's digital strategy and sovereignty⁶.

The study identified⁷ that 'Under Horizon 2020 and Horizon Europe, EuroHPC JU has been particularly effective in establishing integrated world-class, demand-oriented hyper-connected supercomputing and data infrastructure⁸ in the Union and providing European researchers, industry, and the public sector access to its supercomputers'. Since its in 2017, EuroHPC has

¹ European Commission: Directorate-General for Research and Innovation, Shirinzadeh, S., Viscido, S., Endo, C., Lotito, A. et al., Horizon Europe and the digital & industrial transition – Interim evaluation support study – Phase 2 – Horizon Europe – Institutionalised partnership report – EuroHPC joint undertaking, Viscido, S.(editor), Lotito, A.(editor), Boekholt, P.(editor) and Lebbardt, F.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/561873>.

² (Chapter 4.4. Effectiveness of the ongoing Partnership Impact Assessment).

³ (Chapter 4.4. Effectiveness of the ongoing Partnership Impact Assessment), page 29.

⁴ The EuroHPC's mission is to develop, deploy, extend and maintain in the EU a world-leading federated, secure and hyper-connected supercomputing, quantum computing, service and data infrastructure ecosystem. Its purpose is to support the development and uptake of demand-oriented and user-driven innovative and competitive supercomputing systems based on a supply chain that will ensure components, technologies and knowledge limiting the risk of disruptions and the development of a wide range of applications optimised for these systems; and, to widen the use of that supercomputing infrastructure to a large number of public and private users, and support the twin transition and the development of key skills for European science and industry.

⁵ [Our supercomputers - EuroHPC JU \(europa.eu\)](#)

⁶ [High Performance Computing | Shaping Europe's digital future \(europa.eu\)](#)

⁷ (Chapter 4.4. Effectiveness of the ongoing Partnership Impact Assessment).

⁸ Integrated as all the systems are integrally part of the common infrastructure, world-class and state-of-the-art as it features leading-class computing capabilities with latest available hardware and software, demand-oriented as systems respond to user demands, hyperconnected as they enjoy high-speed bandwidth.

seen the multiplication of its total computing power by a factor of almost 16⁹. In addition, the increase of its share in the global supercomputing capacity has also risen from 12% to 20.8%¹⁰ today in the top 500 world supercomputers. Today, three EuroHPC systems rank¹¹ in the top 10 world supercomputers, and EuroHPC makes its computing resources available to a wide range of scientific, industrial and public users all across the EU.

The procurement of these systems has also supported the digital strategic autonomy objectives and in particular in High Performance Computing (HPC) and Quantum Computing, in line with the EU's objective to make the best use of public procurement as a tool to stimulate innovation, support European industry and ensure the security supply chains in critical technology sectors. A European approach (upheld by a judgement of the European General Court)¹² has been a key aspect of the EuroHPC procurement strategy¹³, setting a precedent and standard for future procurements, focusing on the inclusion of the 'EU added value' criterion and the security and diversity of the supply chain.

On technologies, the interim evaluation study identified¹⁴ that 'most of the JU's support to R&I activities is still ongoing only a few years after the JU established its legal autonomy from the EC, and therefore, it is still too early for evaluation of the impact of the funded projects'. However, EuroHPC is already actively contributing to the EU's strategic digital sovereignty and autonomy with R&I Calls and a specific example of outstanding result: the Rhea microprocessor, coming from the **European Processor Initiative (EPI)**¹⁵, is powering the first exascale¹⁶ supercomputer in Europe (JUPITER)¹⁷ that has already been procured and in the process of installation, and the results of the DEEP¹⁸ series of projects (H2020/HE) have provided the modular software technology to be used in JUPITER.

EuroHPC has also delivered on supporting the development of technologies and applications to strengthen the European High Performance Computing supply chain and promoting their integration in supercomputing systems that address many scientific, societal, environmental and industrial needs. EuroHPC supercomputers power hundreds¹⁹ of scientific and industrial

⁹ Ratio of the total computing power (in Petaflops) in the European Union between 2017 and 2024—excluding the UK-, source Top 500 systems top500.org/lists/.

¹⁰ [Lists | TOP500](#), adding the total computing power of all EU Members in years 2017 vs 2024.

¹¹ **Lumi** in Finland, **Leonardo** in Italy and **MareNostrum 5** in Spain. 5 more EuroHPC petascale supercomputers are ranked in the world top 500 systems: Meluxina (LUX), Karolina (CZ), Discoverer (BG), Vega (SLO) and Deucalion (PT).

¹² Judgment of the General Court of 19 October 2022 – Lenovo Global Technology Belgium v Joint Undertaking EuroHPC [CURIA - Documents \(europa.eu\)](#).

¹³ As prominently featured in the first call for tenders under HPC SMART 2019/1084 [EU Funding & Tenders Portal \(europa.eu\)](#).

¹⁴ From the Executive summary on Effectiveness in the external support study.

¹⁵ [Home - European Processor Initiative \(european-processor-initiative.eu\)](#)

¹⁶ Exascale performance is the capability to perform more than 10 to the power of 18 floating point calculations per second, a computing power equivalent to around 3 million laptops. Only a very few number of supercomputers in the world work at this scale.

¹⁷ [EPI_Jupiter_November.pdf \(european-processor-initiative.eu\)](#)

¹⁸ [Projects – DEEP-Projects](#)

¹⁹ As an approximate number, NVIDIA (the GPU vendor with a 98% of the HPC accelerators market) estimated at the end of 2020 in 1800 the number of HPC applications running in the most powerful world supercomputers ([EuroHPC Enters AI Era in Supercomputing | NVIDIA Blogs](#)).

applications that impact and improve the daily lives of European citizens, such as weather forecasting and climate change, drug discovery, renewable energies, cybersecurity, and crisis prevention and management²⁰. For example, EuroHPC supercomputers support the EU Destination Earth initiative²¹ that aims to develop a highly accurate digital twin of the Earth on a global scale, making it possible to monitor, simulate and predict the interaction between natural phenomena and human activities. Another example is the Human Brain project²² that has established the technical foundation for a new model of ICT-based brain research, driving integration between data and knowledge from different disciplines. This has inspired a whole new interdisciplinary approach in supercomputing-based research that is leading for example to the European Virtual Human Twins Initiative²³, an EU framework supporting the emergence and adoption of the next generation of solutions in healthcare including personalised medicine, targeted prevention, tailored clinical pathways, and to supporting healthcare professionals in virtual environments.

In this context, 15 Centres of Excellence²⁴ have been established to maintain European World leadership in key HPC applications addressing global challenges such as personalised medicine, materials and medicines, and energy. All these elements contribute to achieving the EU's objectives and policies, and plays a role in tackling global challenges, including the Sustainable Development Goals and the Paris Agreement on Climate Change.

The study points²⁵ out that ‘...the JU’s activities in increasing expertise in application development and HPC competencies by means of HPC Applications Centres of Excellences (CoEs) and National HPC Competence Centres (NCCs) are also valuable for technology uptake, competence building and community establishment.’ The EuroHPC is delivering in widening the use of supercomputing services and the development of key skills that the European science and industry need. This is happening through the establishment of 33 National HPC Competence Centres in the participating states²⁶ to broaden the use of HPC, providing HPC services to industry (and in particular SMEs) to facilitate and promote the transition to wider adoption of HPC. Before EuroHPC, there was no single-entry point (and in most of the Member States, there was no entry point at all) for local actors, in particular for SMEs to receive in their own language information, support, and facilitation to HPC resources. The goal to establish the NCCs as the central points of contact towards the broad landscape of HPC has been achieved within the EuroHPC ecosystem, with the target groups

²⁰ Source: Section 3.1 and Annex III of 18.9.2020 SWD(2020) 179 final - COMMISSION STAFF WORKING DOCUMENT ‘Equipping Europe for world-class High Performance Computing in the next decade’ - Accompanying the document ‘Proposal for a Council Regulation on Establishing the European High Performance Computing Joint Undertaking’ COM(2020) 569 final.

²¹ [Destination Earth | Shaping Europe’s digital future \(europa.eu\)](#)

²² [Human Brain Project](#)

²³ [European Virtual Human Twins Initiative | Shaping Europe’s digital future \(europa.eu\)](#) - [Virtual Human Twins: Launch of the European Virtual Human Twins Initiative | Shaping Europe’s digital future \(europa.eu\)](#).

²⁴ [EU HPC Centres of Excellence \(hpccoe.eu\)](#)

²⁵ From the executive summary on effectiveness in the external support study.

²⁶ [EuroCC - EuroHPC JU \(europa.eu\)](#)

perceiving the NCCs as competent and experienced contacts towards different HPC actors in their countries and across Europe²⁷.

EuroHPC supports a wide range of digital skills, professional training and education activities to increase the skills and knowledge of the European workforce, such as the European Master in HPC²⁸, the EuroHPC Virtual Training Academy²⁹, or the EuroHPC Training Platform and support to the International HPC Summer School³⁰. In addition, all HPC Centres of Excellence perform training activities in the computational research disciplines in their respective area. EuroHPC supercomputers have advanced AI capacities to cope with the new demands of AI-powered applications that emerged recently, in particular Generative AI (GenAI) foundation models. Two factors support the contribution of EuroHPC to boost European leadership in trustworthy AI, in particular start-ups. Firstly, the new amended EuroHPC Regulation³¹, adopted in July 2024, which supports the announcement of European Commission President von der Leyen in 2023 and the Commission's aim of putting '**generative AI made in Europe**' on the map, and specifically reflected in the call establishing the EuroHPC **AI Factories**³². Secondly, the opening of existing EuroHPC supercomputers³³ to innovative European AI startups with specific access calls³⁴ to train their trustworthy AI models and therefore strengthening the AI ecosystem to prepare for the future AI Factories.

What is the assessment of the **long-term** scientific, societal, economic and technological impacts of this partnership for the period under evaluation (in Horizon 2020 and in Horizon Europe)? **3 pages**

The study identifies³⁵ that 'it is, however, expected that these (R&I) activities will improve Europe's scientific excellence in the HPC area and result in HPC hardware and software, which, in the long term, could contribute to a more robust European supply chain and enhanced technology autonomy.' The activities already launched by EuroHPC will have a lasting long-term impact on the scientific, societal, economic and technology aspects, with an integrated view that closes the chain from R&D to the delivery and operation of HPC systems and contributes to both the improvement of Europe's scientific excellence in the HPC area (hardware, software and applications), the European critical technology autonomy and the robustness of the European supply chain.

The mid and long-term goal is to integrate the competitive technology (hardware and software) that has been developed in the EU into future EuroHPC supercomputers, and in particular technology resulting from the EuroHPC R&I calls.

²⁷ [Reporting – EuroCC ACCESS \(eurocc-access.eu\)](#) Deliverables D4.2 and D5.5 of CASTIEL.

²⁸ [Home - EUMaster4HPC Master website](#)

²⁹ [EuroHPC Virtual Training Academy - EuroHPC JU \(europa.eu\)](#)

³⁰ [EuroHPC Training Platform and support to the International HPC Summer School \(europa.eu\)](#)

³¹ [The 'AI Factories' Amendment to the EuroHPC JU Regulation Enters Into Force - EuroHPC JU \(europa.eu\)](#)

³² [EU boosts European AI developers with the AI Factories call for proposals | Shaping Europe's digital future \(europa.eu\)](#)

³³ [Commission opens access to EU supercomputers to speed up AI \(europa.eu\)](#)

³⁴ [Access calls for AI training EuroHPC JU Access Call for AI and Data-Intensive Applications - EuroHPC JU \(europa.eu\)](#).

³⁵ From the executive summary on effectiveness in the external support study.

EuroHPC's R&I activities support a highly competitive and innovative supercomputing and data ecosystem contributing to the scientific and digital leadership of the EU, capable of autonomously producing computing technologies and architectures and their integration on leading computing systems, and advanced applications optimised for these systems. EuroHPC is actively contributing to the EU's strategic digital sovereignty and autonomy. It is doing this through the creation of a full European and autonomous HPC technology ecosystem, which is vital to remedying the current situation of total dependency on US high end processors. The main European R&I initiatives for HPC-suitable processors are supported by EuroHPC so far are the following: the **European Processor Initiative (EPI)**³⁶, and the **DARE Framework Programme Agreement for RISC-V**³⁷, supporting the design in Europe of high-end processors based on the open RISC-V standard, which will provide the first independent source of high-end processors (including AI specific accelerators), mitigating our current total dependency on US.

The EPI and DARE initiatives will have a mid- and long-term impact on sovereignty. The most immediate impact is in the first supercomputer in Europe (JUPITER)³⁸ to reach the frontier of the most powerful supercomputers of the world, the exascale computing³⁹. The selected integrator of JUPITER is an EU vendor (ATOS/EVIDEN) and one of its critical computing partitions will be powered by a high-end processor (RHEA) resulting from the European Processor Initiative (EPI) and developed by a European company (Sipearl). It is expected that this trend will be increased in the second European exascale (**Alice Recoque**)⁴⁰ already in the pipeline for procurement. Regarding DARE, it will provide general purpose and accelerator processors (including specific accelerators for AI) and integrate them in future European supercomputers, with technology based on open RISC-V, **guaranteeing that the IP generated is fully European and ensuring technological independence from third countries licensing and restriction schemes**. These technologies will not only have an impact on high end computing, as the innovative chiplet designs are expected to have a direct impact on processors used for other sectors and applications such as data servers, cloud technologies, automotive, and more, and DARE complements the efforts on RISC-V developments carried by the Chips JU⁴¹ (e.g. Tristan⁴² and Isolde⁴³ projects).

In addition, EuroHPC continues to improve the existing world-class supercomputing and data infrastructure, with two exascale supercomputers (installation of JUPITER⁴⁴ and the ongoing

³⁶ [Home - European Processor Initiative \(european-processor-initiative.eu\)](https://european-processor-initiative.eu)

³⁷ [Framework Partnership Agreement \(FPA\) for developing a large-scale European initiative for High Performance Computing \(HPC\) ecosystem based on RISC-V - EuroHPC JU \(europa.eu\)](https://europa.eu/press-room/en/infographic-europa/framework-partnership-agreement-fpa-for-developing-a-large-scale-european-initiative-for-high-performance-computing-hpc-ecosystem-based-on-risc-v-eurohpc-ju)

³⁸ [Procurement contract for JUPITER, the first European exascale supercomputer, is signed - EuroHPC JU \(europa.eu\)](https://europa.eu/press-room/en/infographic-europa/procurement-contract-for-jupiter-the-first-european-exascale-supercomputer-is-signed-eurohpc-ju)

³⁹ 10 to the power of 18 floating point operations per second, a computing power equivalent to nearly 3 million laptops.

⁴⁰ [Signature of the Hosting Agreement for the Second European Exascale Supercomputer, Alice Recoque - EuroHPC JU \(europa.eu\)](https://europa.eu/press-room/en/infographic-europa/signature-of-the-hosting-agreement-for-the-second-european-exascale-supercomputer-alice-recoque-eurohpc-ju)

⁴¹ [Home · Chips Ju \(europa.eu\)](https://chips-ju.eu)

⁴² [TRISTAN – Expand, mature and industrialize the European RISC-V ecosystem \(tristan-project.eu\)](https://tristan-project.eu)

⁴³ [ISOLDE | \(isolde-project.eu\)](https://isolde-project.eu)

⁴⁴ [European Exascale Supercomputer JUPITER Sets New Energy Efficiency Standards with #1 Ranking in GREEN500 - EuroHPC JU \(europa.eu\)](https://europa.eu/press-room/en/infographic-europa/european-exascale-supercomputer-jupiter-sets-new-energy-efficiency-standards-with-1-ranking-in-green500-eurohpc-ju)

procurement for Alice Recoque)⁴⁵, and the ongoing Calls for AI Factories, industrial-class systems and eight quantum systems⁴⁶. The EuroHPC infrastructure will increase dramatically the overall computing capacity available in Europe in combination with AI capabilities, powering HPC/AI applications that already shape our societies. However, it **will even have a bigger fundamental impact on our daily lives**, leveraging applications across virtually all branches of science, industry and activity sectors that combine **supercomputing, big data and AI and represent key drivers of technological innovation and economic growth in the global data economy**.

- Personalised medicine, including implementation of digitalised clinical trials for medicines and devices, medical training, surgical intervention planning, medical virtual environments, organ simulations (e.g. Alya Red for the heart)⁴⁷ or human ‘digital twins’ for healthcare technologies and treatments adapted to individuals such as the Virtual Human Twins initiative supported by the Commission⁴⁸.
- Drug discovery design and testing, identifying effective drugs in a matter of days instead of months or years using supercomputing platform for simulation. For example, understanding and predicting proteins structures is one of the most complex problems with enormous scientific and commercial impact. HPC with AI and Big Data drastically reduce the time to simulate self-assembly and protein interactions processes, which can be used to predict and design safe new protein structures with desired properties. This is illustrated by the European Exscalate⁴⁹ platform, the most powerful and cost-efficient intelligent supercomputing platform in the world for drug repurposing and vaccine development.
- Advanced engineering processes and industrial competitiveness, simulating larger and finer details of systems (e.g. full aircraft simulation) used e.g. by Airbus⁵⁰, reduce the design and optimisation timeframes, and integrate complex data management and analytics workflows.
- Materials applications to simulate and describe the underlying properties of matter needed to optimise the design of new materials and energy technologies⁵¹. For example, QUANTUM Espresso for quantum materials modelling that pave the way for cleaner batteries, fusion energy, high performance photovoltaic materials, or optimising turbines for electricity production.

⁴⁵ [New Call to Procure the European Exascale Supercomputer, Alice Recoque - EuroHPC JU \(europa.eu\)](#)

⁴⁶ [One step closer to European quantum computing: The EuroHPC JU signs hosting agreements for six quantum computers - EuroHPC JU \(europa.eu\)](#) + two upcoming systems: [New EuroHPC Quantum Computer to Be Hosted in the Netherlands - EuroHPC JU \(europa.eu\)](#) and [New EuroHPC Quantum Computer to Be Hosted in Luxembourg - EuroHPC JU \(europa.eu\)](#).

⁴⁷ [Alya Red: A computational heart | BSC-CNS](#)

⁴⁸ [Virtual Human Twins: Launch of the European Virtual Human Twins Initiative | Shaping Europe's digital future \(europa.eu\)](#)

⁴⁹ [Exscalate | AI Drug Discovery Platform](#), with a processing capacity of testing the binding of 16.5 billion molecules on a protein per hour using a chemical library of 2 trillion organic molecules.

⁵⁰ [Microsoft PowerPoint - PRACEdays15_E.Chaput.pdf.pptx \(prace-ri.eu\)](#)

⁵¹ [Codes | MaX \(max-centre.eu\)](#)

- On climate, the EU Destination Earth initiative⁵² supported by the Commission reinforces the capabilities of private and public actors to take decisions reducing the impact of human activities in the planet's ecosystem.
- Industrial competitiveness and SMEs, enabling companies to become more innovative and productive and to discover new business opportunities. A number of key applications are supported by the Excellerat Centre of Excellence, aiming at a low carbon, more environmentally friendly and socially responsible product development and manufacturing as well as the mobility and energy sector⁵³. Cases where SMEs have successfully leveraged HPC technologies include optimising industrial CO₂ capture and utilisation, a digital twin for inhaled drug delivery in human airways and increasing forecasting reliability in manufacturing. The FF4EuroHPC⁵⁴ initiative helps facilitate access to all HPC-related technologies for SMEs and, as demonstrated by its success stories⁵⁵, has contributed to increase the innovation potential of European industry.

EuroHPC contributes this way to place the EU as a main world actor in AI. EuroHPC, through the AI Factories initiative that has been launched in 2024⁵⁶, is expected to also have a key long-term impact across the board in scientific, societal, economic and technological aspects. Supercomputing is the motor that powers the ongoing 'renaissance' of AI, in particular Generative AI (GenAI) foundation models⁵⁷. The impact of Generative AI is affecting the way to do science and reverberates across industries from the streamlining of production processes to the revolutionising of marketing strategies. Generative AI drives scientific and technological innovation, enhances productivity, and helps business gain a competitive edge.

2. Additionality

The EuroHPC JU mobilises various financial resources. In addition to the contribution by participating countries and private partners, the EU's contribution is made through different funding programmes (H2020 and Connecting Europe Facility (CEF) -1 for 2018-2020, HE, CEF-2 and Digital Europe programme (DEP) for 2021-2027).

For EuroHPC, and according to Regulation 2018/1488, for the previous multiannual financial framework (MFF) the total Commission's contribution was up to 525 million EUR, of which 425 million EUR came from H2020 (with 241 million EUR for procurement and associated operational costs), and 100 million EUR from CEF (procurement and operational costs). The participating states made contributions commensurate to that of the EU, reaching 538 million EUR (incl. 10 million EUR for operational costs). For the current MFF and according to

⁵² [Destination Earth \(destination-earth.eu\)](https://destination-earth.eu)

⁵³ [Excellerat \(hpccoe.eu\)](https://hpccoe.eu)

⁵⁴ [Fortissimo Plus \(ffplus-project.eu\)](https://ffplus-project.eu)

⁵⁵ [Success stories \(ff4eurohpc.eu\)](https://ff4eurohpc.eu)

⁵⁶ [EU boosts European AI developers \(europa.eu\)](https://europa.eu) and [The EuroHPC Joint Undertaking Launches AI Factories Calls to Boost European Leadership in Trustworthy AI - EuroHPC JU \(europa.eu\)](https://europa.eu).

⁵⁷ [Commission opens access to EU supercomputers to speed up artificial intelligence development | Shaping Europe's digital future \(europa.eu\)](https://europa.eu)

Regulation 2021/1173, the total EC contribution for the years from 2021 to 2023 is up to 1.362 million EUR, distributed between the Digital Europe programme (897 billion EUR), Horizon Europe (365 million EUR) and the Connecting Europe Facility 2 (CEF-2) (100 million EUR),

Until to the end of 2023, estimated in-kind financial contributions from participating states amount to 52 million EUR (rounded) under H2020/CEF1, while from private members they amount up to 18.5 million EUR (rounded).

The JU also contributes to the creation and expansion of the R&I network through the programmes initiated by the JU such as HPC Centres of Excellence (CoEs) and HPC National Competence Centres (NCCs). The JU organises communication and project activities and ensures that JU's private members have access to a wide range of stakeholders from research, industry, and public bodies in HPC, as well as related topics, data, and quantum technologies.

The partnership leverage factor for mobilising private resources is low because in EuroHPC the Digital Europe Programme funding for the acquisition of public infrastructures (which represents a big percentage of the EuroHPC budget) has been taken into account to calculate this factor.

The EuroHPC also provides a way to combine private funding with DEP for the acquisition of industrial-grade systems, but these represent a very small percentage of investments compared to the public infrastructure funded by national and EU funding.

3. Transparency and openness

The study identifies⁵⁸ that 'EuroHPC JU has measures to attract new infrastructure users and project participants. Private members play an important role due to their activities and broad membership consisting of academic and industry entities. CoEs and NCCs are other effective tools for networking and attracting newcomers from research and industry.' Transparency and openness take place at different levels⁵⁹.

At the level of public members, all EU Member States and non-EU countries associated to Horizon Europe or the Digital Europe programme can apply to become members of the JU in the conditions set up in the EuroHPC Regulation. Currently the public participants are the EU (represented by the Commission) and 35 participating states⁶⁰.

The EuroHPC has shown its capacity to open to new communities with the introduction of the quantum-related objectives in the Regulation (EU) 2021/1173. A new private partner joined the JU representing the quantum community, the European Quantum Industry Consortium

⁵⁸ From the Executive summary on Transparency and Openness in the external support study.

⁵⁹ Chapter 4.9 Transparency and Openness in the external support study.

⁶⁰ Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Türkiye and United Kingdom.

(QUIC)⁶¹, and new quantum stakeholders have successfully joined the activities and bodies of the JU.

EuroHPC is open to new private members established in the EU Member States. The current private members include the European Technology Platform for High-Performance Computing (ETP4HPC)⁶², the Big Data Value Association (BDVA)⁶³, and the European Quantum Industry Consortium (QUIC)⁶⁴. They cover most of the relevant stakeholders in their respective domains addressing important technologies directly related or tightly correlated with the European HPC ecosystem such as supercomputing, big data and quantum technologies. These private members are open to new partners active in related technology areas according to their membership policies.

EuroHPC calls are open and not restricted to project partners that are members of any of the private members.

Regarding the use and access to EuroHPC supercomputers⁶⁵, researchers from academia, research institutes, public authorities, and industry can apply for access to computing time on EuroHPC supercomputers, if they meet the eligibility requirements indicated by the Access Policy⁶⁶. In this sense, EuroHPC is an open and transparent instrument that supports all participants in Horizon Europe activities that can benefit from HPC capabilities.

Specific support for industry, and in particular European SMEs and startups, is one of the key goals of EuroHPC. The JU has mechanisms to increase SMEs participation such as specific calls⁶⁷ supporting competitiveness and innovation potential of SMEs, with specific initiatives such as FF4EuroHPC⁶⁸ to facilitate access to all HPC-related technologies for SMEs and special access to the supercomputers without fees for innovation activities and other tailored mechanisms to facilitate SME use of the HPC infrastructure⁶⁹.

Although there has been a slight decrease⁷⁰ in the share of SMEs participation in HE compared in H2020 (10.2% vs 14.3% respectively), the total Commission's contribution, the share of this contribution and the average Commission's contribution to SMEs have increased (2.4 million EUR to 10.9 million EUR, 7.0% to 7.7% and 187.1k EUR to 185.7k EUR respectively), and the share of SMEs participation in the EuroHPC calls has been higher than that of large companies from 2020 to 2022.

⁶¹ [Homepage - QuIC \(euroquic.org\)](https://euroquic.org)

⁶² [Home | etp4hpc](https://etp4hpc.eu)

⁶³ [Big Data Value Association - Accelerating data-driven innovation in Europe ↗ \(bdva.eu\)](https://bdva.eu)

⁶⁴ [Homepage - QuIC \(euroquic.org\)](https://euroquic.org)

⁶⁵ [Access Policy and FAQ - EuroHPC JU \(europa.eu\)](https://europa.eu/eurohpc/access-policy)

⁶⁶ [30614065-6dd6-4206-8065-fc97948e5e2c_en \(europa.eu\)](https://europa.eu/eurohpc/30614065-6dd6-4206-8065-fc97948e5e2c_en) - Access Policy of the EuroHPC JU supercomputers.

⁶⁷ [Supporting competitiveness and innovation potential of SMEs - EuroHPC JU \(europa.eu\)](https://europa.eu/eurohpc/supporting-competitiveness-and-innovation-potential-of-smes)

⁶⁸ [Fortissimo Plus \(ffplus-project.eu\)](https://ffplus-project.eu)

⁶⁹ EuroHPC Access policy, Chapter 3.1.2 [30614065-6dd6-4206-8065-fc97948e5e2c_en \(europa.eu\)](https://europa.eu/eurohpc/30614065-6dd6-4206-8065-fc97948e5e2c_en).

⁷⁰ Table 7 on Section 4.9.3 in the external support study.

EuroHPC JU private members are open and very active to increase SME participation and offer various membership statuses for reasonable fees with additional discounts for SMEs, namely EPT4HPC⁷¹, BDVA⁷² and the European Quantum Industry Consortium (QUIC)⁷³.

The partnership can be expanded by a decision of the Governing Board that assesses the applications of new public or private members. The Board needs to take into account the relevance and the potential added value of the applicant in terms of achieving the mission and objectives of the JU as set out in the EuroHPC Regulation.

At project level, the calls for R&I are open, and not restricted to project partners that are members of any of the private members. Projects and framework programme agreements supported by EuroHPC are open to changes in membership according to the grant agreement rules.

The private members associations are open to new members according to their respective statutes.

Most beneficiaries of EuroHPC calls have already participated under H2020⁷⁴, but the JU aims to expand and enlarge the communities and has specific measures to attract new potential participants to future R&I Calls and to new infrastructure users.

- o The annual EuroHPC open event (EuroHPC Summits)⁷⁵ gathers the HPC community at large (technology providers, academics/researchers, users, etc.) in which the ongoing and future calls are publicised.
- o The three private members also play an important and active role to attract new participants to EuroHPC. Private members have a broad representation of academic and industry organisations and have open information events to present project results and inform of new EuroHPC activities.
- o HPC Centres of Excellence (CoEs) and National Contact Points of HPC (NCCs) are also powerful tools to enable networking and attract newcomers from research and industry. CoEs have an active role in expanding and reaching out to new partners in their respective scientific areas, in particular those without HPC expertise. The NCCs is an initiative designed for empowering national and local communities in HPC, in particular SMEs, that can enjoy of a local first contact and entry point in their own country. Also, the EuroHPC has added new beneficiaries in particular in the quantum fields.

The process for consulting relevant stakeholders is described in the EuroHPC Regulation, with two bodies (the Research and Innovation Advisory Group (RIAG⁷⁶) and the Infrastructure Advisory Group (INFRAG⁷⁷)) that provide advice to the Governing Board to

⁷¹ [Our members – ETP4HPC](#)

⁷² [Become a BDVA member - BDV Big Data Value Association](#)

⁷³ [Membership - QuIC \(euroquic.org\)](#)

⁷⁴ Section 4.9.1 in the external support study.

⁷⁵ [EuroHPC Summit 2024- Antwerp](#) -.

⁷⁶ [Research & Innovation Advisory Group \(RIAG\) - EuroHPC JU \(europa.eu\)](#)

⁷⁷ [Infrastructure Advisory Group \(INFRAG\) - EuroHPC JU \(europa.eu\)](#)

draft the EuroHPC multiannual strategic programme identifying the R&I priorities and the planning of the infrastructures acquisition, and user needs.

Both RIAG and INFRAG organise public consultations open to all public and private stakeholders interested in HPC and quantum computing and also involves the private members (in particular regarding their strategic research agendas).

The EuroHPC Summit events⁷⁸ are open and feature a wide range of specific information sessions, workshops and plenary discussions etc. in which participants can talk directly with the members of all the JU bodies⁷⁹.

The largest EuroHPC flagship R&D initiatives (EPI and DARE) were preceded by several preparatory open workshops and consultations with the interested stakeholders providing bottom-up input.

Participating states are also actively involved in identifying priorities⁸⁰ as they provide financial support to the EuroHPC activities.

The EuroHPC Castiel and EuroCC⁸¹ initiatives also involve stakeholders and raise the awareness of the HPC Centres of Excellence and National Centres of Competence activities, such as outreach activities to create links between EU and non-EU countries not currently in the partnership, measures to strengthen participation (particularly SMEs), target visits to less-represented stakeholder, public consultations, open dialogues, city panels, webinars to engage end-users, regular open brokerage/networking events etc.

Many projects are still ongoing and the JU still needs to evaluate the dissemination output and publication results. There are however measures for informing on the R&I activities' results such as annual conferences and project reviews, and in particular, at the annual EuroHPC Summits.

On the points to improve, the webpage of the EuroHPC JU could benefit from a better design and functions, including a user-friendly interface to present past results and retrieve/collect/analyse data from the EuroHPC projects and initiatives.

4. Efficiency

The table below includes the total **operational costs** (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities) and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU) for the period 2014-2023. EuroHPC

⁷⁸ [EuroHPC Summit 2024- Antwerp](#) -.

⁷⁹ the EuroHPC Executive Director and staff, Governing Board, and the EuroHPC JU Advisory Groups INFRAG and RIAG, plus the Participating States and the Commission.

⁸⁰ The EuroHPC Executive Director organises with the Governing Board chair a series of preparatory workshops previous to the discussion and voting of the workprogrammes.

⁸¹ [The Projects – EuroCC ACCESS \(eurocc-access.eu\)](#)

does not have IKAA. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Operational and administrative expenditures of EuroHPC JU (source: CORDA)

The table includes data for EuroHPC Joint Undertaking. OC : Operational Costs; IKAA : Certified IKAA; RC : Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	-	-	-	-	10,378,125	165,022,968	105,771,724	76,822,758	16,995,687	374,991,262
IKAA	-	-	-	-	-	-	-	-	-	-	-
RC	-	-	-	-	-	376,560	3,110,859	3,080,263	3,041,309	4,274,899	13,883,890

The study states⁸² that ‘The R&D funding under the Horizon Europe seems to be very efficient. The average time to inform the evaluation results, to sign and to grant in HE was shorter than in H2020. The call budget is adequate in terms of its alignment with stakeholder needs, as indicated by the high success rate for high quality proposals (higher in Horizon Europe than in Horizon 2020).’

However, here there is room for improvement, as in some strategic technologic initiatives (e.g. DARE) a short time to grant is critical and the EuroHPC should reduce the current average times to inform the evaluation results (TTI). In particular, the time to grant (TTG) much below the reported 250.7 days, which is clearly very high in a very fast-moving field of HPC technologies. In this sense, the co-funding scheme with EU Member States introduces long delays as in many cases partners must go through time-consuming national administrative procedures which negatively affect the start of projects.

5. Coherence and synergies

EuroHPC is a unique mechanism as it combines the funding of Horizon Europe, Digital Europe programme and the Connecting Europe Facility to support the EuroHPC’s seven pillars of activity. These pillars of activity cover a wide range of activities supporting the whole HPC ecosystem, including technological R&D (in all the steps from research to integration in pilots and demonstrators), the procurement of infrastructures and the provision of a wide range of user services, application development and dissemination, take-up, training, user support, etc. It is obvious that EuroHPC offers a single umbrella at EU level for such a variety of activities. Therefore, the synergy of the different programmes is fully exploited.

EuroHPC also fosters in its Regulation the complementarity of these programmes with other policies and programmes by promoting synergies with the European Regional Development Fund (ERDF), the European Social Fund+ (ESF+), the European Maritime, Fisheries and Aquaculture Fund (EMFAF) and the European Agricultural Fund for Rural Development (EAFRD), as well as the Recovery and Resilience Facility (RRF).

⁸² Section 4.3.1 under the Chapter 4 ‘Efficiency’.

EuroHPC provides a legal framework for participating states that are EU Member States to use the financial contributions under the programmes co-financed by ERDF, ESF+, EMFAF and EAFRD to acquire HPC and quantum computing and data infrastructures and their interconnection. The use of those financial contributions in the JU activities is essential in achieving the EuroHPC's objectives. It also benefits both the EU's objectives as well as those from its Member States, providing them with world-class infrastructures using a wide range of additional funds. Regarding the RRF, several EU Member States mentioned, in their national plan, their intention to use RRF to acquire this infrastructure, as stated in the Commission's notice Guidance on the recovery and resilience plan⁸³: 'Member States have used the RRF strategically to advance their reform and investment agendas, in line with common EU priorities, and tackle both long-standing and new challenges...'. However, a lack of clarity and legal reliability from the Commission about the use of RRF as co-funding in EuroHPC by several Member States (IT, HE, ES, and other countries) before the publication of this guidance on the recovery and resilience plan, caused uncertainty that lasted for almost two years. It was very difficult to align this instrument with JU actions and meet the RRF implementation deadlines. This is a clear case of room for improvement.

A better matching and alignment of the activities proposed by EuroHPC with the Commission priorities remains another point for improvement. The process to develop and discuss the different work programme topics and future orientations by the Governing Board is still not well defined and needs to be improved with a better upstream dialogue with Commission departments and avoid time delays in approving and launching initiatives.

EuroHPC activities are aligned with other major initiatives such as the Chips JU. The EuroHPC Framework Programme Agreement (DARE) for developing a large-scale European initiative for HPC ecosystem based on RISC-V was called specifically⁸⁴ to be aligned and complement the activities to be carried out by the KDT/Chips JU⁸⁵ and to leverage and contribute to the common work to establish a rich RISC-V ecosystem in Europe, with DARE concentrating on the high-end processors. Whereas, the KDT/Chips JU develops vertical sectors with less demanding processors and address the horizontal foundational activities underpinning the development of the full RISC-V ecosystem in Europe.

A major outcome of the EuroHPC European project initiative (EPI) is the design of the general-purpose microprocessor powering the JUPITER supercomputer by the SiPearl company. SiPearl received⁸⁶ 17.5 million EUR from EIC (2.5 million EUR grant and up to 15 million EUR in equity investments subscribed by EIC Fund) to support the development and scale-up of the SiPearl future-generation microprocessor.

EuroHPC is in the process of awarding the Federation Call⁸⁷ to ensure the interconnection of the federated, secure supercomputing, and quantum computing service and data infrastructures with the common European data spaces, including the European Open Science

⁸³ [Commission Notice – Guidance on recovery and resilience plans \(europa.eu\)](#)

⁸⁴ [Decision 35_2022 launch call for establishing FPA \(RISC V\) .pdf \(europa.eu\)](#)

⁸⁵ [Home · Chips Ju \(europa.eu\)](#)

⁸⁶ [SiPearl: 1st investment by EIC Fund - SiPearl](#)

⁸⁷ [EuroHPC Federation Platform - EuroHPC JU \(europa.eu\)](#)

A better structured dialogue with the Chips JU and the Commission in order to better align the objectives of the different initiatives supported by the two partnerships remains an area for improvement.

The EuroHPC has been the instrument at EU level to coordinate and leverage national programmes in HPC. Before EuroHPC, there were 27 different supercomputing programmes in Europe and no European supercomputers. With the creation of EuroHPC, the EU has gained a prominent position as a world power in supercomputing with European systems that can be accessed by academic, industrial or public users no matter where they are in Europe, and the Member States policies have a guiding European initiative that helps to plan their own HPC policies and strategies.

The EuroHPC’s financial structure enables participating states to acquire or participate in the acquisition of very large supercomputers by pooling of EU and national resources and the provision of the required infrastructure all over Europe. This is not possible for EU Member States to do alone. This applies to both EU Member States with limited budget and with stronger financial resources for HPC. EuroHPC allows for the acquisition of world-class systems that otherwise they would not been able to afford on their own, with the possibility of leveraging the funds from different participating states to buy a more powerful system that is used for national priorities. In this sense, EuroHPC may be considered as a leverage solution providing an optimal EU added value.

⁹⁰ ‘Financing the future of supercomputing: How to increase the investments in high performance computing in Europe’, EIB 2017, <https://www.eib.org/en/publications/financing-the-future-of-supercomputing> and SWD(2018) 6 final - Impact assessment accompanying the ‘Proposal for a Council Regulation on establishing

overall with Japan, and in terms of number of systems but not in the total computing power⁹¹ with respect to the US, as shown in the following table⁹².

	2017			2024		
	Top500 Systems	Top500 Pflops	Ratio of computing	Top500 Systems	Top500 Pflops	Ratio of computing
EU	71	163.12	-	130	2600.68	-
US	143	391.61	2.40	171	6968.77	2.68
CN	202	524.58	3.22	80	627.66	0.24
JP	35	136.44	0.84	29	888.12	0.34

Under H2020 and HE, the EuroHPC JU has been the major tool above the mainstream FP to pursue the EU's strategies and objectives in HPC, coordinating all related financial, legal and R&I aspects. In particular, the JU has provided added value in establishing procurement mechanisms, providing access to HPC systems for stakeholders, and addressing their needs through various tools such as CoEs and NCCs. This is particularly important for the technology development of high-end processors carried out by the EuroHPC Framework Programme Agreements (FPA) such as the European Processor Initiative (EPI) and DARE. The amount of critical financial and know-how resources required do not exist in a single EU Member State, and the ambitiousness of the objectives cannot be achieved by uncoordinated calls.

The JU also contributes to the creation and expansion of the R&I network through the programmes initiated by the JU such as Centres of Excellence (CoEs) and National HPC Competence Centres (NCCs). In particular, Centres of Excellence gather European communities working in different computational research areas, building critical mass in the long term, maximising the use and sharing of R&I results, reducing duplication of efforts (e.g. generalising the use of optimal workflows for HPC simulations, sharing of programming environments and data sets, etc.) and creating synergies and convergence among the otherwise unconnected users of R&I projects. Centres of Excellence is a major innovation in the R&I landscape for research using the high-end computing and data resources. National Centres of Competence provide a single-entry point for HPC stakeholders at national level, while leveraging their networking and sharing of best practices, resources, etc., multiplying the effect that national activities could have on HPC.

In addition, one of the most important EuroHPC JU initiatives are the AI Factories launched in 2024⁹³, which support and complement the national AI ecosystems and contribute to the

the EuroHPC Joint Undertaking', 5 Annex 2017

[SWD_2018_0305_FIN.ENG.xhtml.2_EN_impact_assessment_part1_v4.docx \(europa.eu\)](#).

⁹¹ The ratio of computing is obtained by dividing the total Pflops available in other countries by the Pflops available in the Union.

⁹² [Lists | TOP500](#); the row EU indicates Member States in 2017 and EuroHPC + Member States in 2024.

⁹³ [EU boosts European AI developers \(europa.eu\)](#) and [The EuroHPC Joint Undertaking Launches AI Factories Calls to Boost European Leadership in Trustworthy AI - EuroHPC JU \(europa.eu\)](#).

implementation of both the AI and Data European and national AI strategies of the hosting country/countries of AI Factories.

7. Relevance

The strategic and operational objectives of the EuroHPC JU are well aligned with the H2020 and HE Framework objectives as they aim to strengthen the EU's global position in HPC field and increase its industrial competitiveness. The need to deploy in the EU a world-class HPC and quantum infrastructure with the best supercomputers in the world, as well as the development of an autonomous European HPC technology ecosystem that reduces the critical risk of dependence on foreign HPC supply chains (mainly from the USA and China) are still very relevant. EuroHPC is a key instrument for Europe to reduce the risk of being deprived of strategic technological know-how and access to state-of-the-art supercomputing and quantum infrastructures for scientific and industrial innovation and competitiveness.

The EuroHPC objectives also support the processing of data and information in the EU, which are particularly relevant for AI technologies. Without the EuroHPC infrastructure, European scientists and industry would be seeking access to top machines located outside the EU to process their data. This creates problems for data protection, including personal and sensitive data (e.g. commercial data or trade secrets), and the ownership of data, in particular for sensitive applications such as health.

EuroHPC has been swiftly adapting its objectives according to the market and policy needs since its creation in 2017. The objectives of the original Council Regulation of 2017 were amended in the new Regulation of 2021 and in the most recent amendment adopted by Council in June 2024. The shift in the JU mission and goals is observed in different aspects in line with the progress of the partnership activities and the EU's political priorities.

- Regulation [2018/1488](#) focuses on the establishment of a single instrument to integrate the three main pillars of the HPC ecosystem: world-class infrastructures, technological development supporting EU's digital sovereignty, and excellence in key HPC applications.
- Regulation (EU) [2021/1173](#) broadened the pillars of activities with increased funds and ambitions. For example, the incorporation of quantum technologies to complement HPC and the need to federate, interconnect with high-speed connectivity and provide new secure services in the hybrid HPC/Quantum infrastructure, establishing a one-stop shop access point for any supercomputing or data service managed by the JU, or the interconnection with the EU's common European data spaces.
- The amendment to Council Regulation (EU) [2024/1732](#) of 17 June 2024 reflected the need in providing European stakeholders with the best computing resources to exploit the new opportunities in science and industry offered by AI. This latest amendment focuses on boosting the systems' AI capabilities acquired by EuroHPC and in particular the support of EuroHPC to the European AI strategy by establishing AI Factories for trustworthy and ethical AI, and an AI-oriented

supercomputing service infrastructure to further develop the research and innovation capabilities, competences and skills of the AI ecosystem.

The JU's calls for proposals and procurements also followed the changing needs of the technological and infrastructure needs, by further amending the Multiannual Strategic plan in 2023.

8. Directionality

The JU's strategic vision is clearly linked to the different impact dimensions of the FP (global positioning, industrial competitiveness, sustainability goals, and human-centred development), thus demonstrating high directionality. To achieve the vision, the EuroHPC has adopted several pillars of action under the HE, and various actors are involved in the pillars of action. In terms of the progress in delivering the results, the JU has been particularly successful in using the financial and legal mechanisms available for procurements to equip Europe with several world-class supercomputers. Three pre-exascale systems ranked in the top world 10 and five mid-range supercomputers in the top 500 systems, with two more top-of-the-range exascale and five mid-range supercomputers in the pipeline, which have been either procured directly by the JU or in cooperation with the national hosting entities.

In particular, the EuroHPC has been using the competitive dialogue procedure for the procurements of the pre-exascale (Lumi, Leonardo and Mare Nostrum 5) and exascale (JUPITER and Alice Recoque) systems due to the high complexity and demanding requirements of these supercomputers. EuroHPC, EU Member States and their hosting entities, and technology vendors work together to fine tune extremely complex HPC specifications so that the EuroHPC could get the latest state-of-the-art technology available in a fast-changing technological environment at best value for money, while ensuring competition and a fair playing field. This has resulted (as compared with a simple open procedure) in successful procedures with better prices and technology thanks to the iterative and competitive nature of this procurement arrangement.

HPC is already having a fundamental impact on our daily lives, powering hundreds of applications across virtually all branches of science, industry and activity sectors. EuroHPC supercomputers support critical HPC applications that are at the core of major advances and innovations in the digital age where to out-compute is to out-compete. The combination of HPC, big data and AI is already today a key driver of technological innovation and economic growth in the global data economy. HPC is an essential tool to address major scientific and societal challenges, reducing significantly design and production cycles, minimising costs, increasing resource efficiency, and shortening and optimising decision processes for industries, and a key tool for national security and defence, e.g. in developing complex encryption technologies, tracking and responding to cyberattacks, deploying efficient forensics, or in nuclear simulations.

9. International positioning

The EuroHPC JU aims to boost Europe's global position on HPC. Therefore, the focus of the JU activities is mainly on Europe and the EU Member States and the other participating states. The regulation supports in an activity pillar the international cooperation in supercomputing to solve global scientific and societal challenges in line with the EU's external policy objectives and international commitments, international collaboration while promoting competitiveness of the European High Performance Computing supply and user ecosystem.

So far, EuroHPC has focused on international cooperation activities to support and implement the EU Digital Partnerships with like-minded countries like Japan or the Republic of Korea. With Japan, EuroHPC already supports an action in the priority HPC application domains identified in the partnership such as biomedical, material science, seismic/tsunami and/or weather and climate modelling. A similar collaboration with India, this time supporting geopolitical objectives and more specifically the EU-India cooperation agreement in HPC⁹⁴, has been established with a call⁹⁵ to cooperate in HPC applications of common interest and create solutions/use-cases jointly in the mutual areas of interest using HPC (Bioinformatics, Climate Change and natural Hazards). The agreement intends to promote R&I in HPC, facilitate collaboration and knowledge exchange between Indian and European HPC communities, and advance scientific, industrial, and innovation capabilities through HPC.

At the global level, EuroHPC has already approved a call to support the European stakeholders' active participation in two major initiatives mainly with US and Japan, the Trillion Parameter Consortium (TPC)⁹⁶. The initiatives aim to create huge foundation models accelerating the development and use of Generative AI for world science and engineering, and the International Post-Exascale Project (InPex)⁹⁷ to address at global level the huge challenges associated to post-exascale supercomputing.

10. Phasing-out preparedness

According to Article 10.2.(c) and Annex III of the Council Regulation 2021/695 on Horizon Europe, Joint Undertakings should adopt 'exist-strategies and measures' for phasing out of the Horizon Europe Programme.

Therefore, all Joint Undertakings shall adopt a plan for the phasing-out of the partnership from Horizon Europe funding. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

⁹⁴ <https://digital-strategy.ec.europa.eu/en/news/india-and-eu-sign-intent-cooperation-agreement-high-performance-computing-and-quantum-technologies>

⁹⁵ [New Call Supporting EU-India Cooperation - EuroHPC JU \(europa.eu\)](#)

⁹⁶ [TPC European Kick-Off Workshop - Trillion Parameter Consortium \(TPC\)](#)

⁹⁷ [Home - InPEx Science](#)

For EuroHPC, the drafting of the phasing out plan is currently ongoing and it is planned to be finalised by end 2025. It should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability, as well as administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework Programme.



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PART 9/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

**Interim Evaluation of the Horizon Europe Framework Programme for Research and
Innovation (2021 - 2024)**

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 17: Evaluation of Global Health EDCTP3 JU

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

According to the evaluation support study¹, the **EDCTP2 programme (2014-2026)** is on track to achieve the following objectives:

1. Accelerate development of new or improved **medical interventions** against poverty-related infectious diseases,
 2. **Strengthen cooperation** between European and sub-Saharan African countries, in particular to build the latter's **capacity** for conducting high-quality innovative clinical research,
 3. **Coordination**, alignment and integration of **European National Programmes**,
 4. Work with a **broad range of public and private partners** to maximise the impact of research, to attract additional investment, and
 5. Establish **collaborations with other EU initiatives**, particularly those related to international cooperation.
1. In the area of **medical interventions**, EDCTP delivered three new medical interventions for registration by the European Medicines Agency by the end of 2023. EDCTP2 has launched 371 clinical studies. The majority of these studies involve clinical trials and interventional studies of drugs, vaccines, broadly neutralising antibodies, diagnostics and other interventions, with 39 % of studies comprising non-interventional studies (e.g. observational, cohort, epidemiological and other studies). **Eleven medical interventions being evaluated in EDCTP2 projects have progressed in clinical development.** In addition, EDCTP2 funded projects have produced 1 335 scientific peer-reviewed publications.
 2. For **collaboration and capacity development**, EDCTP2 has awarded 215 fellowship grants which support a total of 362 fellows from 39 African countries. EDCTP2 also funded 299 capacity building projects with 2 881 short-term trainings organised within projects and 53 270 persons trained. Overall, the EDCTP programme has been mentioned as 'a successful initiative which has developed capacities and supported local leadership in many African countries' by the Supplementary report on implementing World Health Assembly resolution 75.8 (December 2022).
 3. With the objective of **European coordination**, EDCTP2 leveraged contributions in cash and kind from the European participating states of EUR 1.2 billion by the end of 2023, exceeding the EU target of EUR 683 million related to the matching of funds provided by the European Commission.
 4. For external partnerships, EDCTP2 increased **international cooperation** with public and private partners: By the end of 2023, the total number of institutions involved in EDCTP2 projects is 538, including 309 sub-Saharan African institutions, 210 European institutions, and 12 institutions from other (third) countries.

¹ The study supporting the evaluation of the Global Health EDCTP3 joint undertaking: <https://data.europa.eu/doi/10.2777/555121>, and the Second European and Developing Countries Clinical Trials Partnership Programme (EDCTP2) updated second interim evaluation: <https://data.europa.eu/doi/10.2777/017474>

5. With the objective of **collaboration with other EU initiatives**, EDCTP2 increased interaction with other EU initiatives by securing co-funding from Sida, USAID, Gavi, The Global Fund, UNITAID, AECID and Médecins Sans Frontières.²

The Global Health EDCTP3 JU (GH EDCTP3) started its programmes in 2022 and has established a **monitoring framework to measure progress** and key impact pathways that correspond to Horizon Europe's objectives. Regulation of Horizon Europe indicators are complemented by those specific to the JU's objectives. Indicators will be reported at country level annually³ and inform the monitoring and periodic reviews in accordance with Article 171 and Horizon Europe Regulation⁴.

The **long timelines for the development of medical interventions** mean that impact of GH EDCTP3 grants will only be documented in the years to come. GH EDCTP3 therefore draws on the successes and scientific achievements of EDCTP2. At this stage, most of GH EDCTP3 **objectives have some activities undertaken between 2021-2024**, including the relevant calls and projects launched.⁵

Long-term impact from clinical research under this partnership include:

1. Medical interventions:

- [The world's second malaria vaccine \(R21\)](#) was developed through clinical studies supported by EDCTP. As a result, the vaccine received the recommendation for global use by the World Health Organisation in 2023. 608 000 people died from malaria globally in 2022, mainly children.
- A clinical trial supported by the EDCTP developed a simpler, safer and cost-effective [treatment for cryptococcal meningitis](#) which is a disease particularly affecting patients with HIV/AIDS. As a result of this study, the WHO revised its guidelines for the treatment of cryptococcal meningitis in people living with HIV.
- The DREAMM study supported by EDCTP and published in [The Lancet HIV](#) in October 2023 identified interventions that halved mortality of people living with HIV with suspected HIV-related infection of the central nervous system. It demonstrated how effective pragmatic implementation strategies can substantially reduce deaths from HIV-related infections in resource-poor settings in Africa.
- The CHAPAS-4 study supported by EDCTP [found](#) newer antiretroviral combinations that were superior to existing treatments of HIV/AIDS which improves the treatment of HIV in children.
- A clinical trial in Côte d'Ivoire and Kenya that was supported by the EDCTP developed a new paediatric treatment for schistosomiasis that tailored to young children who are bearing the brunt of this disease. [The European Medicines Agency recommended this treatment for](#)

² Second European and Developing Countries Clinical Trials Partnership Programme (EDCTP2) updated second interim evaluation: <https://data.europa.eu/doi/10.2777/017474>

³ GH EDCTP3 (2022). Strategic Research and Innovation Agenda. p. 25.

⁴ Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014. ST/12156/2021/INIT. OJ L 427, 30.11.2021, pp. 17-119.

⁵ Partnership for the Global Health EDCTP3 joint undertaking – Evaluation support study on Horizon Europe's contribution to a resilient Europe, 2024, <https://data.europa.eu/doi/10.2777/555121>

[children](#) in 2023 and as a result, the WHO added the treatment to its list of pre-qualified medicines.

- An EDCTP-supported clinical trial in Malawi and Uganda developed a first oral treatment for sleeping sickness, which is a rare but extremely lethal form of sleeping sickness found in Eastern and Southern Africa. The [European Medicines Agency adopted a positive scientific opinion](#) which will inform the WHO for an update on its treatment guidelines for sleeping sickness.
- Two studies provided important information on two vaccine candidates which were eventually deemed not to be effective and further development stopped. The PrEPVacc study [stopped its experimental vaccine regimens](#) early as the interim analysis showed that these would not be efficacious in preventing HIV infection. The [final analysis](#) showed that the vaccines failed to protect against infection. The POR TB consortium reported that a Tuberculosis candidate [vaccine had failed to protect against TB recurrence](#). The results were communicated directly and transparently. These results will inform decisions about the development of future vaccines against these important diseases.

2. Cooperation and capacity building

In collaboration with the African Union, the Africa Centers for Disease Control, the WHO, and 70 countries, the EDCTP supported the build-up and strengthening of clinical trial ecosystem and infrastructure.

Four [Networks of Excellence](#) were established in Western, Eastern, Central, and Southern Africa respectively that covered 63 institutions across 21 countries in sub-Saharan Africa that improved clinical research capacity in areas such as good clinical and laboratory practice, data management, trial monitoring and financial and project management. These networks can attract future clinical trials to the respective region and become self-sustaining.

Through its fellowship programme EDCTP2 has supported 362 African researchers at different career stages, helping to maintain a pipeline of scientific talent in the region. Several of the epidemiologists that guided African governments during the Covid Pandemic had received earlier training from EDCTP. In 2022, the [World Health Organisation described the EDCTP programme](#) as “a successful initiative which has developed capacities and supported local leadership in many African countries”.

EDCTP grants have so far funded 2 811 short term trainings with a total of 53 270 participants trained. In addition, EDCTP2 is supporting 992 students pursuing Bachelor's, Master's and PhD degrees and 64 post-doctoral researchers. Gender balance across the different trainee levels is comparable, including at the PhD level (48% women; 52% men).

According to the evaluation support study and the second interim evaluation, the expansion of the EDCTP Association to 15 countries in Europe and 29 in Africa has increased the international collaboration for clinical trial-related research and the visibility of the partnership in sub-Saharan Africa (SSA). In several countries, the EDCTP is the main funding opportunity for SSA countries to undertake global health research and innovation. Moreover, the World Health Organisation (WHO) recognised the exemplary role of this partnership in the ongoing global discussion on clinical research capacity.

In 2024, an emergency call with a budget of EUR 12 million to address an Mpox outbreak in the DR Congo was launched by the Global Health EDCTP3 with 5 of the 9 projects starting before a public health emergency was declared by the WHO. EUR 7.1 million of this call budget were leveraged from countries in the EDCTP Association, positioning the GH EDCTP3 as an effective instrument for emergency calls including integrating other funders.

3 & 4. European coordination and international collaboration

The AU-EU Innovation Agenda was adopted by EU and AU research ministers in July 2023 and serves as strategic framework to foster collaboration between the European Union and the African Union. A roadmap has been agreed to implement the Innovation Agenda on shared priorities until 2030. Public Health has been agreed as a priority area for translating research and innovation into health products, services, and jobs in Africa. This includes agreeing joint research agendas, promoting tech-transfer and capacity building, and prevention of future health threats. The EDCTP is listed as an important enabler for the implementation of the health strand of the agenda.

The additional activities that the EDCTP requires from its member countries in Europe and Africa have produced important leverage in financial terms (EU contributions of EUR 683 million leveraged EUR 1.2 billion for additional activities by participating countries from 2014-2023). It also allowed the coordination of the 228 additional activities and vetting by the EDCTP and the Commission for alignment and coherence.

5. Collaboration with other EU initiatives

In response to the pandemic, the EU with its Member States has established a [Team Europe Initiatives to support local production of pharmaceuticals](#) (MAV+) and strengthen public health institutes, digital health, and One Health in the long term. The EDCTP has been an important enabler of these initiatives by providing products suitable for local production, building the scientific and regulatory capacity, and making the link to industry.

2. Additionality

	Expected/planned “members” ⁶ minimum contributions, as per founding legal act and legal decisions (2014-2026)			Actual “members” contributions, (2014-2023)		
	EU ⁷ contribution , in million EUR	Total contributions by partners, in million EUR (of which only cash)	Expected direct leverage factor (of which only cash) ⁸	EU contribution , in million EUR	Total contributions by partners, in million EUR (of which only cash)	Direct leverage factor (of which only cash)
EDCTP2	683	683 (0)	1 (0)	604	835 (169)	1.38 (0.28)
GH EDCTP3	910	950 (0)	1.05 (0)	103	171 (18)	1.66 (0.18)

⁶ An Art. 185 initiative does not have ‘members’ in the sense of a Joint Undertaking. The European Union, represented by the European Commission, contributes to an initiative jointly carried out by EU Member States.

⁷ Up to EUR 800 million foreseen according to the EU 2021/2085 Council Regulation, Art. 102. GB Dec 18/2024 defines that the EDCTP Association increases their commitment by EUR 110.122 million and that Commission will match these additional contributions:

https://globalhealth-edctp3.eu/sites/default/files/2024-07/GH-EDCTP3-GB_18_2024-WP2024_AMEND1_0.pdf

⁸ Financial contributions from the participating states were required for EDCTP2 (see Art. 5 of DECISION No 556/2014/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 May 2014 on the participation of the Union in a second European and Developing Countries Clinical Trials Partnership Programme (EDCTP2) jointly undertaken by several Member States). However, no minimum amount was listed, thus even a contribution of a symbolic Euro would have satisfied the legal requirement. In the event, participating states contributed EUR 179 million in cash. According to the EU 2021/2085 Council Regulation, Art. 103 (2) the contributions from the members other than the Union “may consist of financial contributions” but these are not required.

The EDCTP2 programme received an EU contribution of EUR 683 million from Horizon 2020. The EU Member States of the EDCTP Association declared an actual total contribution of EUR 1 209 803 286 as of 31 December 2023, of which EUR 13 418 060 were in cash. The programme received cash contributions of EUR 13.8 million from third parties (e.g. Coalition for Epidemic Preparedness Innovation (CEPI); Botnar Foundation, Novartis).

The GH EDCTP3 programme, according to the legal basis, was initially supposed to receive an EU contribution of up to EUR 800 million under the Multiannual Financial Framework (MFF) for 2021-2027, to be matched by contributions from the EDCTP Association of at least EUR 439.9 million and contributions from contributing partners of up to EUR 400 million. With the association of the UK to Horizon Europe as of 2024, the contribution from the EDCTP Association has been increased to EUR 550 million. The EU contribution is increased accordingly to EUR 910 million under the MFF for 2021-2027.

So far, the EDCTP Association has committed EUR 540 million of in-kind contribution to additional activities, contributing partners have committed EUR 33 million of financial contributions. The total EU contribution committed so far is EUR 445 million.

The EDCTP3 interim evaluation noted that larger foundations, such as the Gates Foundation, can emphasise their priorities, while having a system that is strategically more accommodating to a diverse range of third parties. This can have the advantage of addressing prevalent inequalities, regarding language, gender, and regional disparities. Discussions with other potential contributing partners are currently still ongoing and are led by the Global Health EDCTP3 JU.

Following its predecessors, the Global Health EDCTP3 JU facilitates the creation and expansion of R&I networks that bring together relevant and competent actors from across Europe, thus contributing to the realisation of the ERA and its expansion.

The EDCTP2 programme exceeded its expected leverage by 78% (resulting in additional EUR 1.78 leveraged from other funders for each EUR of EU support, relative to an expected additional EUR 1) and the GH EDCTP3 programme is on course to exceed the expected leverage by 21% (additional EUR 1.21 leveraged for every EUR of EU contribution, relative to an expected additional EUR 1).

With the 2024 work programme, the EDCTP Association is voluntarily contributing an additional EUR 15 million in cash. But contributions from European and African countries are largely in-kind, investing in the clinical research directly from their national programmes in a coordinated way. The contributions from partners other than the African and European countries are low so far. Through the work programme 2025 and later years, a significant boost of this type of contribution should be expected.

3. Transparency and openness

Both EDCTP2 and GH EDCTP3 have been **successful at attracting newcomers**. The share of participation and of EU funding going to organisations previously not funded by the EU is shown in the table.

The **SME participation/EU funding going to SMEs is low** (also see table below). It compares unfavourably with SME participation across the Health Cluster, Pillar II of Horizon Europe (12.2% of funding going to SMEs). The Work Programme 2024 included more call topics with particular appeal to SMEs such as diagnostics and digital health applications, with a view to address the shortfall.

Newcomer and SME participation and funding

		Newcomers		SMEs	
		Number/amount	%	Number/amount	%
EDCTP2	Participations	723	41.9	70	4
	Unique participants	328	61.1		
	Funding	EUR 343.1 million	42.2	EUR 28.2 million	3.5
GH EDCTP3	Participations	94	25.2	10	2.7
	Unique participants	76	34.9	8	3.7
	Funding	EUR 36.7 million	23.5	EUR 2.91 million	1.9

The interim evaluation support study on a Resilient Europe found that the restriction of EDCTP3 funding to EU Member States, Horizon Europe Associated Countries, or constituent states of the EDCTP Association is a factor that limits the participation of relevant stakeholders from African countries as financial coordinators. The report acknowledges the mitigation measures undertaken, namely, to require the identification of a scientific coordinator from Africa where the project is by a European entity.⁹ The BMR survey responses outline that GH EDCTP3 undertakes a variety of measures to involve different types of stakeholders and countries.¹⁰

The GH EDCTP3 is a Joint Undertaking of the EU and the EDCTP Association. All those countries are eligible for funding from the programme that are members of the EU, associated to Horizon Europe, or members of the EDCTP Association. The EDCTP Association was set up in 2014 to manage the predecessor EDCTP2 programme. It was created to bring together countries in Europe and Sub-Sahara Africa and had initially 13 European and 8 African countries as members. Since then, the membership has been expanded particularly in Africa. As of October 2024, there are now 15 European and 29 Sub-Sahara African member countries. The expansion of its membership in Europe is slower than anticipated. This may be due to the fact that researchers from EU Member States are able to participate in the programme irrespective of membership in the Association.

The interim evaluation report flags a regressive development, limiting African co-leadership and ownership under GH EDCTP3, in comparison to EDCTP2. According to the partnership's legal framework, project coordinators can only come from EU and associated countries, as well as countries with whom a bilateral Science and Technology Agreement has been signed. It excludes project coordinators from Sub-Saharan African countries, with the exception of South Africa. In terms of openness, this is perceived as a step backwards by many stakeholders, as Projects financed under EDCTP2 had previously been coordinated and financially managed by research institutes in other African countries as well. Mitigation efforts have been instituted, such as requiring projects to determine a scientific project lead in addition to the financial coordination role and attributing the scientific lead to African collaborators. Going forward, it

⁹ PPMI Resilient Europe study interim evaluation GH EDCTP3, page 20

¹⁰ PPMI Resilient Europe study interim evaluation GH EDCTP3, page 16

would be useful to consider how the legal and assurance framework could be adapted to return to a truly equal partnership approach for project coordination between African and European counterparts.

For GH EDCTP3 the legal basis now allows for formal involvement of so-called contributing partners that may be other countries or other funders from the public, private, or philanthropic sector. These contributions can be agreed in cash or in kind for each call for proposals. So far, such contributions have been made by not-for profit foundations and pharmaceutical companies (work programmes 2022 and 2024). Additional contributing partnership arrangements are expected for the 2025 work programme.

The bi-annual EDCTP Forum is the platform to interact with stakeholders. The 10th EDCTP Forum in Paris on the occasion of the 20th anniversary of the programme gathered 1,118 delegates from 64 countries. These forums have allowed gathering strategic input for the EDCTP2 programme. They were instrumental in developing the strategic research agenda for GH EDCTP3¹¹ and the Paris event was an occasion to give input for the further development of the programme established as a Joint Undertaking after the initial two years of operation.

EDCTP2 had a Scientific Advisory Committee (SAC) to provide formal input on the programming and the performance of the partnership. The chair of the SAC provides regular updates at the General Assembly meetings. Agendas and summaries and actions are published online.¹² GH EDCTP3 has a Scientific Committee and a Stakeholder Forum. The chair of the Scientific Committee prepares a report about the work of the group, which is published online¹³. The efficiency of the consultation is evidenced by the rapid consultation on priorities for the emergency call on Mpox, where GH EDCTP3 published the first call for proposals of any major funding organisation and projects started two weeks before the WHO declared the public health emergency. The European Commission side in the partnership has an interservice group at working level and decisions are taken collegially amongst the Senior Managers from the services represented in the Governing Board. The EDCTP Association also has formal procedures for establishing its position in the Governing Board and for providing input to the operation of the programme. Important issues are put to a formal vote of the members of the EDCTP Association at their General Assembly.

4. Efficiency

The overall costs of the EDCTP for the period of 2014-2023 are EUR 1.72 billion and includes operational costs of EUR 858 million, EUR 39.27 million running costs, and EUR 819.6 million In-Kind Contributions to Additional Activities (IKAA) by the countries of the EDCTP Association. This translates into a ratio for the running costs of 4.4% of overall operational and running costs, demonstrating operational efficiency.

The table below includes the total **operational costs** (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by

¹¹ The transparent process for developing the SRIA is described on page 13 of the SRIA, accessible at: <https://globalhealth-edctp3.eu/sites/default/files/2023-05/EDCTP3%20SRIA.pdf>

¹² <https://www.edctp.org/about-us/scientific-advisory-committee/>

¹³ Third meeting: [Scientific Committee - Meeting Report of Third Meeting \(05/2023\) | Global Health - EDCTP3](#)
Second meeting: [Scientific Committee - Meeting Report of Second Meeting \(08/2022\) | Global Health - EDCTP3](#)

non-JU members to project activities; Contribution from Member States and international organizations to project activities), **IKAA** (In-Kind Contributions to Additional Activities; IKAA expected to be certified between 2025 and 2027; **PSIAs** already accepted for EDCTP2) and **running costs** (contributions from the EU and from sources other than the EU) for the period 2014 to 2023.

Operational and administrative expenditures of the JUs (source: CORDA database)

The table includes data for Global Health EDCTP2 and Global Health EDCTP3

OC: Operational Costs; **IKAA & PSIAs**: Expected to be certified IKAA and Accepted PSIAs; **RC**: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	14,400,000	93,558,381	141,324,722	151,192,602	124,160,048	112,916,807	110,208,569	-	3,691,250	106,882,823	858,335,204
IKAA & PSIAs	218,281,049	80,576,067	168,550,461	89,602,053	49,203,084	38,121,025	22,445,279	-	-	152,821,896	819,600,914
RC	-	1,946,562	4,885,683	4,916,325	4,712,898	4,749,352	4,192,955	4,534,264	4,268,917	5,058,383	39,265,339

The second interim evaluation of the EDCTP2 programme concluded that the partnership is generally cost-effective.

According to the EDCTP2 Annual Progress Report 2023, the time between call closure and signing of the grant agreement (time-to-grant) was 11.42 months on average for all projects and 5 months during the emergency created by COVID. The applicants received an invitation to grant agreement preparation in 4.63 months on average (time-to-inform) while 6.79 months on average passed till they concluded grant agreement preparation with EDCTP (time-to-sign). As described in the second interim EDCTP2 evaluation, the delays are primarily caused by the lack of resources for legal support within EDCTP2 compared to the EC's Participant Identification Code system. Additionally, legal support takes substantial time for member organisations from sub-Saharan Africa. Despite the relatively long time-to-grant (in comparison to Horizon Europe's benchmark of 8 months for time-to-grant), there are examples where lessons learned from launching past calls have benefited the next calls. However, the COVID-19 pandemic has caused further delays as many institutions were closed due to lockdown, as has the time dedicated to ethics assessments. Examples include projects that were funded during the 2018 Ebola outbreak and the process used to activate the mechanism in response to the COVID-19 pandemic. This resulted in a significant reduction of time-to-grant, which is now 5.42 months.

The external interim evaluation report stressed the efforts of the Programme Office to ensure efficient administrative spending¹⁴. The European Commission ensured the proper functioning of the JU before it became financially autonomous in November 2023¹⁵. These in-kind EU contributions to the running costs have not been separately accounted for and are not included in the assessment of this evaluation. All JUs agreed so-called common back-office arrangements for HR, IT, accounting and procurement.

The set-up of the new JU was more resource intensive than had been anticipated. It was marked by challenges and delays, influenced by insufficient resources available to allow the organisation to be created from scratch. Setting up a new Joint Undertaking is challenging for the operational service tasked with the work but more resources could be devoted by the Commission. While there is evidence of the efficiency and dedication of the lead staff that set

¹⁴ European Partnership for the Global Health EDCTP3 joint undertaking – Evaluation support study on Horizon Europe's contribution to a resilient Europe, 2024, p.10

¹⁵ Article 173 (1) of the (EU) 2021/2085 Council Regulation

up the organisation, the senior management recruitment was slow, particularly the recruitment procedure for the Executive Director took more than 15 months¹⁶. The Commission requirements for this procedure could be reviewed as it includes many consecutive assessments and high-level interviews (pre-selection panel, selection panel interviews, assessment centre, interview with the lead Commissioner, Commission decision on the shortlist, and then the interviews and selection by the Governing Board) that each add only marginal benefit to an overly complex process. Other delays were caused by external factors, such as the lack of clarity on the conditions for UK participation shortly after they withdrew from the EU.

The TTI and TTG are as indicated in the table:

JU name	Signed Grants	Average Time-to-inform (TTI)	Average Time-to-signature (TTS)	Average Time-to-grant (TTG) Target: 245	% below TTG target (less than 245 days Time-to-grant)
EDCTP2	439	136	212	347	15%
Global Health EDCTP3 JU	70	108	146	257	49%

As of July 2024, the time-to-grant (TTG) indicator target for Horizon Europe has not been met for around 60% of GH EDCTP 3 grants. The JU's performance may have been negatively affected by the fact that it was still in the set-up phase with staff being recruited and not a sufficient number of staff available for managing the high workload. Delays on the path to grant signature, experienced end 2022/early 2023, were mainly due to external factors, namely a lack of legal clarity to what extent UK participants were eligible for EU funding following their withdrawal from the EU. There have been considerable improvements throughout 2024, as demonstrated in the emergency call for Mpox. The time-to-grant is already a considerable improvement to the predecessor programme EDCTP2.

No evidence on the average costs for applicants is available. For the Global Health EDCTP3, 174 eligible proposals were submitted until end of 2023, resulting in 65 projects. This translates into a success rate of 37% for all applicants. The programme also uses two-stage application procedures to the extent possible. For the 2024 work programme all topics, except the emergency call under Mpox (need for a quick process made two-stage procedure impossible), were opened in a two-stage call procedure. This approach should limit the cost for applicants since the majority of non-successful applicants need to prepare only outline proposals. Even for a two-stage call process care must be taken that one does not have too high oversubscription. With about 50% of outline proposals invited to the second stage, a good success rate also for topics open under a two-stage call process was achieved so far¹⁷. This data suggests that the call for proposals were targeted well, following appropriate and relevant consultations with stakeholders and amongst the founding partners.

¹⁶ Publication of the vacancy on 7 June 2022, closing date 18 July 2022 (COM/2022/20082, OJ, C 221A, 7.6.2022, p. 14–19) decision by the GB on 18 September 2023; The selected candidate was fortunately willing and able to start as Executive Director on 16 November 2023, such preventing an even longer delay.

¹⁷ No topics open for two-stage calls under the 2022 work programme, two topics under the 2023 work programme and 6 topics under the 2024 work programme

GH EDCTP3 carried out info days, which achieved high participations, further reducing the effort of applicants. For the 2024 calls info days in EN, FR and PT were organised, thus covering the main languages in sub-Saharan Africa¹⁸. Furthermore, the EDCTP Association runs the EDCTP Africa office - with funding from the GH EDCTP3 programme. One of the tasks of the Africa office is to support applicants closer to where they are located. Staff from the office present at numerous events in sub-Saharan Africa and are also contributing to the info days organised by the Secretariat.

5. Coherence and synergies

The task of ensuring internal coherence of EDCTP2 falls in the first instance on the EDCTP Secretariat and the oversight by the EDCTP Association on the one hand the formal approval of the work programmes by the European Commission.¹⁹ The Scientific Advisory Committee composed of highly regarded international scientists and clinical researchers provided input on programming and review of ongoing projects.

To contribute to achieving internal coherence of its activities, the EDCTP2 programme created four so-called Networks of Excellence²⁰. Each of the networks brings together neighbouring African countries (Central Africa, East Africa, West Africa, South Africa) as well as several European countries. The networks served to create capacity and to support research in chosen areas (such as the poverty-related diseases HIV/AIDS, Malaria and TB for the Central Africa network CANTAM²¹).

In the programming for EDCTP2 care was taken to align the activities with funding from the Horizon 2020 programme, such as the funding of the large UNITE4TB network supported by the Innovative Medicines Initiative IMI2.²²

The external evaluation of EDCTP2²³ concluded that internally **EDCTP2's coherence is most evident from synergies and complementarities between the centrally managed activities and the Participating States Initiated Activities (PSIAs)** notably from the EU Member States. EDCTP2 encourages synergies and closer collaboration of countries involved through PSIAs which form a substantial part of in-kind contributions. PSIAs and centrally managed activities **could be further strategically integrated** to ensure that the extent of synergies and complementarities are increased. However, it was also noted that EDCTP2 is already actively investing efforts in this area and will continue to do so under Horizon Europe, as well while transitioning towards GH EDCTP3.

EDCTP2 maintains a high level of coherence with other partnerships supported by the EU and its Member States. The partnership maintains a strategic focus on building collaboration with industry, like-minded organisations, product development partnerships (PDPs), research funders and development cooperation agencies, including other partnerships under Horizon Europe. EDCTP2 under Horizon Europe continues to coordinate its activities among itself and other relevant European partnerships, such as Gavi, the Global Fund, and GloPID-R, among

¹⁸ Recordings of the info day events are accessible via the GH EDCTP3 website at: <https://globalhealth-edctp3.eu/past-events>

¹⁹ Including a formal interservice consultation within the European Commission

²⁰ <https://www.edctp.org/our-work/edctp-regional-networks-of-excellence/>

²¹ <https://cantam.org/>

²² <https://www.imi.europa.eu/projects-results/project-factsheets/unite4tb>

²³ European Partnership for the Global Health EDCTP3 joint undertaking – Evaluation support study on Horizon Europe's contribution to a resilient Europe, 2024

others. As also noted in the Biennial Monitoring Report 2022 on Partnerships in Horizon Europe, EDCTP has successfully partnered with the World Health Organization (WHO), has become an active member of the ESSENCE on Health Research platform, and member-observer of the Global Research Collaboration for Infectious Disease Preparedness GloPID-R network.

GH EDCTP3 aims to increase **external coherence** and interactions with other EU initiatives and partnerships, including those linked to development assistance, enabling the programme and development partnerships to achieve synergies and greater impact than they would by working independently²⁴. To date, GH EDCTP3's activities have contributed to the EU's Global Health Strategy, in which it is explicitly mentioned²⁵. The JU has established a Stakeholder Group as per the requirements of the Regulation, as a measure to avoid gaps, help foster collaborations within the health sector, and to discover links with adjacent activities. In addition, GH EDCTP3 has established a regular dialogue between the Secretariat and Commission services (RTD, INTPA, SANTE, HERA, GROW) to identify synergies and establish a coordination mechanism with the Team Europe Initiatives on Manufacturing, Digital Health, Health Security and Support to National Public Health Institutes in Sub-Saharan Africa.

Concerning **global health stakeholders**, GH EDCTP3 has launched a collaboration with the Gates Foundation. The collaboration will involve cooperation in advancing genomic epidemiology for surveillance and control of poverty-related and emerging/re-emerging infections in sub-Saharan Africa. This builds on the need for stronger global health security and pathogen genomics sequencing; leveraging investments and innovations developed in response to COVID-19 for other pressing global health needs; strengthening locally led R&D ecosystems for global health; and improving equity and access to health innovations in the short, medium and long term²⁶. Stable and long-term funding from the EU makes GH EDCTP3 an attractive partner to global health actors, such as the Gates Foundation. The EDCTP programme also worked with the Gates Foundation, covering topics such as capacity building for clinical trials, clinical research activities, and similar.

The partnership is coherent with **the wider EU policy framework and global priorities**, notably the EU [Global Health Strategy](#), where it is highlighted as a key action to reduce the burden of infectious diseases in sub-Saharan Africa, also addressing the rising threat of antimicrobial resistance and climate-crisis-related infectious disease challenges. **The scope of EDCTP2's activities (late-stage clinical trials, neglected tropical diseases, focus on low-resource settings) had been addressed only to a small extent through other Horizon 2020 actions**, notably the Health Cluster²⁷. The EDCTP2 is therefore identified as a strong complement to the Horizon Programme.

GH EDCTP3 applies coherence and synergies with other European programmes and initiatives under Horizon Europe, such as the European partnerships of Innovative Health Initiative (IHI), DG HERA (Health Emergency Response Authority), European Medicine

²⁴ The Global Health EDCTP3 Joint Undertaking (2022). Strategic Research and Innovation Agenda. p. 8.

²⁵ https://health.ec.europa.eu/system/files/2023-10/international_ghs-report-2022_en.pdf, pages 23 and 31

²⁶ European Commission (2022). The European Commission and the Bill & Melinda Gates Foundation progress research cooperation to combat infectious diseases in Africa.

²⁷ European Commission (2021). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT. Accompanying the document. Proposal for a COUNCIL REGULATION establishing the Joint Undertakings under Horizon Europe EU-Africa Global Health Partnership {COM(2021) 87 final} - {SEC(2021) 100 final} - {SWD(2021) 38 final}.

Agency (EMA), One Health AMR, Animal Health and Welfare, Transformation of Health Care Systems, and Fostering an ERA for Health Research²⁸.

GH EDCTP3 is the main tool to implement the Public Health priority agreed under the [AU-EU Innovation Agenda](#) that was adopted by EU and AU ministers in July 2023 to strengthen EU-Africa cooperation under Horizon Europe.

GH EDCTP3 achieves a high level of internal and external coherence between the internal activities of GH EDCTP3 and other externally funded activities in the global health field. GH EDCTP3 is dedicating **efforts to anticipate the potential external synergies with Horizon Europe and other major global health actors**. GH EDCTP3 ensures **internal coherence** by reviewing the conditions of calls for proposals, aiming to establish or restrict their potential achievements, and adapting to other ongoing developments through collaboration to avoid duplications. For instance, the call “HORIZON-JU-GH-EDCTP3-2022-CALL1-01-03: Genomic epidemiology for surveillance and control of poverty-related and emerging/re-emerging infections in sub-Saharan Africa” launched in 2022 was drafted precisely from the start considering potential coherences and synergies as GH EDCTP3 aimed to establish collaboration between different consortia. This was achieved through the **creation of a joint work package** and the negotiations of a collaboration agreement through which the involved stakeholders collaborated, in accordance with the provisions of the Horizon Europe model grant agreement, Art. 7. As more monitoring data are collected, analysis of synergies with national programmes based on information received by the Member States could be performed to enhance internal coherence as well.

Other **European partnerships of relevance** for GH EDCTP3 and potential areas of synergies and complementarities include Innovative Health Initiative (IHI), One Health AMR, Animal Health: fighting infectious diseases, Large-scale innovation and transformation of health systems in a digital and ageing society, Fostering an ERA for Health research, Personalised Medicine, Key Digital Technologies, High-Performance Computing, Smart Networks and Services²⁹. Regarding **actors in Africa**, the GH EDCTP3 collaboration with Africa CDC (Centers for Disease Control) facilitates African countries in developing their research agenda in line with the African Research Agenda³⁰. All the new calls for proposals recognise the important role of climate change in health and include a horizontal component on this. The Memorandum of Understanding signed between the European Commission and the Africa CDC mentions the EDCTP as important partnership.

6. EU added value

The EDCTP addresses diseases that are particularly prevalent in resource-poor settings but are affecting EU citizens as well, either at home or when travelling (e.g. HIV, Tuberculosis, Malaria, Mpox). The EDCTP also addresses so-called neglected diseases that are either rare or are affecting poor countries or poor people, that would find it difficult to produce the demand that the private sector would require for investing in such research. And the EDCTP invests in strengthening scientific, laboratory, regulatory capacity in Africa that improves disease surveillance of pandemic prone viruses. More effective interventions against global infectious

²⁸ European Commission (2022). Performance of European Partnerships. Biennial Monitoring Report 2022 on Partnerships in Horizon Europe.

²⁹ The Global Health EDCTP3 Joint Undertaking (2022). Strategic Research and Innovation Agenda. pp. 27-28.

³⁰ Bendana, C. (13 October 2023). I advocate an African research agenda for African development. Nature.

diseases, neglected infectious diseases, stronger surveillance and pandemic preparedness in Africa are in the interest of the EU and increase the welfare of its citizens.

There is evidence that the **implementation of many projects funded by EDCTP2 would not have been possible without the contributions** from the programme: The analysis of EDCTP2's flagship initiatives by the second interim evaluation of EDCTP2 revealed that for some projects, such as ScreenTB, there was no other funding source available that would enable **clinical trials at the scale, scope, and timeframe** which was made possible through the funding provided by EDCTP2. In addition, projects on malaria vaccines such as MMVC³¹, **benefitted strongly from the collaborative nature** of EDCTP2. Additionally, there are severe issues affecting vaccine manufacturing on the continent. Collaborations with countries in Europe and beyond have allowed addressing such challenges and find ways to achieve outcomes that would otherwise not be possible at the national or regional level.

There are at least 29 African countries where EDCTP2 is the predominant source of financing for clinical studies in specific disease areas particularly affecting these countries. It can be reasonably assumed that there would not be any research otherwise on the diseases particularly affecting these countries. Examples include studies on Schistosomiasis in Ethiopia and Human African Trypanosomiasis³² in Guinea, where EDCTP2 has two clinical studies registered in each. The **programme has proved to be highly collaborative**. The added value of EDCTP2 was evident through the **development of new partnerships that extend beyond the established historical links and overcome language barriers**. These types of partnerships are characterised by collaborations uniting anglophone, francophone and lusophone countries in sub-Saharan Africa. The connections were not only broadened by the collaboration between the European and African countries but also between countries and institutions within the African region.

EDCTP2 adds value by **helping to achieve a critical mass of resources and develop or secure the necessary expertise in the areas of specific topics/diseases**. The importance of coordinated and coherent EU action around achieving a critical mass of organisations, countries and investments is particularly evident given the current fragmentation of research in the area of poverty-related infectious diseases in sub-Saharan Africa³³. Such efforts helped to address the **COVID-19 research and vaccine development** as well as other research and product development activities, particularly in the disease areas of **HIV, TB, and malaria**. This concerted effort to find cures or more effective treatments against persistent global killers thus generates safety and health benefits, globally and for EU society, additional to what could otherwise have been achieved at national and international level.

According to the external evaluation support study, GH EDCTP3 has brought exceptional EU added value in several areas through its initial activities between 2021-2023⁵. The EDCTP programme **has made major contributions** to the development of vaccines, diagnostics, and treatments for the most important infectious diseases affecting sub-Saharan Africa. It has also **triggered the creation or capacity improvement** of several clinical trial sites (in the Republic of Guinea, Guinea Bissau, Mozambique, Namibia, Senegal and Tanzania), as well as the

³¹ RIA2016V-1649

³² Neglected Infectious Disease.

³³ COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT. Accompanying the document. Proposal for a COUNCIL REGULATION establishing the Joint Undertakings under Horizon Europe EU-Africa Global Health Partnership {COM(2021) 87 final} - {SEC(2021) 100 final} - {SWD(2021) 38 final}.

establishment of the first African clinical trials networks in the sub-Saharan regions³⁴. GH EDCTP3 **has generated EU added value in the areas of medical interventions and capacity building**. GH EDCTP3 is **expected to generate high-quality data** on the safety and efficacy of new diagnostics, preventive tools, and treatments. This will accelerate their progression through clinical evaluation pathways and through implementation research providing policymakers with key evidence to inform their decision-making to reduce the disease burden. The objective is to ensure that all populations in sub-Saharan Africa can benefit from GH EDCTP3 activities³⁵.

GH EDCTP3 is expected to ensure that countries in sub-Saharan Africa are better able to plan, lead, and conduct the clinical studies required to counter the infectious disease threats that they face. They will be better prepared to prevent and manage outbreaks of emerging and re-emerging infections and drug-resistant infections, safeguarding national and global health security, and anticipating key health impacts of the climate crisis.

7. Relevance

In order to maintain relevance of the partnership objectives, there is an inclusive and transparent process of preparing the annual Strategic Research Agendas, that involves the scientific community, the governments of countries in Europe and Africa. There is also coordination between the **EDCTP2's activities centrally managed programmes and those supported by the European and African countries** that are counted as in-kind contributions to the programme.

EDCTP2 has been relevant to the objectives of Horizon Europe's Pillar II Cluster 1 of Health such as to promote and protect human health and well-being, to prevent diseases and decrease disease burden. Tackling infectious diseases is one of the priorities in the newest EU Global Health Strategy released in 2022³⁶. The relevant objectives of EDCTP2 have also been taken over effectively by the Global Health EDCTP3 Joint Undertaking under Horizon Europe during the transition period 2022-2026.

GH EDCTP3 objectives **consider the challenges and needs** addressed in the health area by Horizon Europe⁵: They correspond to the area of intervention of infectious diseases including poverty-related and neglected diseases and the need for medical interventions to tackle them³⁷. The Global Health EDCTP3 also **correspond to the broader objectives of the EU's Global Health Strategy**. GH EDCTP3 is mentioned as key initiative in the EU's Global Health Strategy. GH EDCTP3 is one of the action points under this guiding principle, particularly to ensure that innovative vaccines, treatments, and diagnostics for new, prevalent, or neglected infectious and non-communicable diseases, are developed and used³⁸.

To achieve a stronger global health leadership than the preceding EDCTP2 initiative, **the scope of the EDCTP3 JU has been extended** to cover response to emerging infectious disease threats, the increasing problems of antimicrobial resistance (AMR), and climate-crisis-related

³⁴ European Commission. Performance of European Partnerships. Biennial Monitoring Report 2022 on Partnerships in Horizon Europe. p. 91.

³⁵ The Global Health EDCTP3 Joint Undertaking (2022). Strategic Research and Innovation Agenda. p. 4.

³⁶ Directorate-General for Health and Food Safety & Directorate-General for International Partnerships. EU Global Health Strategy: Better Health for All in a Changing World (2022).

³⁷ European Commission (n.d.) Cluster 1: Health. https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/cluster-1-health_en

³⁸ EU Global Health Strategy. Better Health For All in a Changing World (2022). p. 10.

infectious disease challenges and the interaction with non-communicable diseases co-morbidities³⁹. It is to be noted that GH EDCTP3 is still highly focused on infectious diseases, while the global health field is more versatile and includes more than infectious diseases topics.

It is also to be noted that the geographic scope is focused on Sub-Saharan Africa, while some of the infectious diseases covered are also prevalent in resource-poor settings in other world regions, e.g. in Latin America.

At the same time, GH EDCTP3 has a finite amount of funding and not all topics in the global health field can be funded, therefore, it is important to **clearly and timely communicate to potential applicants about the topics** (and rationale for the strategic prioritisation) that GH EDCTP3 intends to fund in the future in line with its scope. Future programmes may want to consider gently broadening the technical and geographic scope with additional resources.

The second interim evaluation found that EDCTP2 mounted a **rapid and flexible response to the COVID-19 pandemic**. Additionally, the processes included capacity building and enabled institutions with less experience in these processes to submit more successful applications. As the COVID-19 pandemic negatively impacted the implementation of some of the EDCTP2 projects, EDCTP received and processed 79 amendments in 2022 for the affected projects of which 70 were extended in duration due to COVID-19-related challenges⁴⁰ and 77 amendments in 2023, of which 61 were extensions of the duration. The GH EDCTP3 also continues to be flexible in addressing the changing needs and challenges, while updating its strategic documents. In its Work Programme 2023, GH EDCTP3 included the action of funding to successfully finalise clinical trials from EDCTP2, which have been negatively impacted by the COVID-19 pandemic.

In 2024, an emergency call was set up to address the outbreak of Mpox in the DR Congo that affected neighbouring countries and showed a new genetic variant and new transmission pathways that were of concern. Within two weeks of an emergency meeting held by the government of DRC, Africa CDC, and the WHO an emergency call was launched following consultation with key stakeholders and the scientific community assembled in the governance committees of the Global Health EDCTP3. Within a further six weeks, up to nine successful research proposals were approved for funding, five of which started two weeks before the WHO declared the outbreak a public health emergency. Additional funding for the emergency call were attracted from France and the UK.

8. Directionality

With the long timelines of clinical development of new health technologies, GH EDCTP3 under Horizon Europe is expected to only develop approved interventions in the years to come. The emergency call for Mpox has positioned the EDCTP3 as an effective instrument to launch emergency calls quickly. With the projects being funded from this and the other initial calls for proposals, the chances are high that approved/widely used interventions for fighting infectious diseases will be developed.

The predecessor programme EDCTP2 has demonstrated to deliver on its mission of supporting clinical research for bringing new interventions to the citizens and patients in sub-Saharan Africa and worldwide. Perhaps the most notable success in this regard is the contribution from

³⁹ COUNCIL REGULATION (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe. p. 29.

⁴⁰ EDCTP Annual Progress Report 2022. Version 1.

EDCTP2 through several projects which led to a recommendation by the WHO in 2022 to use two Malaria vaccines in children⁴¹. Other important developments were new treatments for two neglected infectious diseases (sleeping sickness, bilharzia), and improved treatments for HIV and diseases that particularly affect HIV-patients (cryptococcal meningitis).

With its focus on fostering late-stage clinical research addressing infectious diseases in sub-Saharan Africa, It is expected that strengthening clinical research collaborations between Europe and sub-Saharan Africa will have an indirect effect on European competitiveness through promotion of clinical research and related capacities also in EU member states.

9. International positioning

According to the external evaluation⁵ and following on from the predecessor programmes, **GH EDCTP3 continues to act as a global ambassador for the European R&I system** to establish global relevance, achieve a scientific and technological reputation in the international context and serve as a hub for international cooperation.

The JU supports research in line with the objectives of WHO (WHO R&D Blueprint Global Coordination Mechanism, initiatives coordinated by WHO global disease programmes); ESSENCE on Health Research platform; Coalition for Epidemic Preparedness and Innovation (CEPI); Global Research Collaboration for Infectious Disease Preparedness GloPID-R network⁴². It further collaborates with the Gates Foundation to leverage the genomic sequencing capacity being built in Africa⁴³. GH EDCTP3 also aims to **address the complementarity and coherence with other activities** supported by the EU and EU Member States; for example, EDCTP Regional Networks of Excellence, the health systems dimension of the Global Gateway investment package, various Team Europe initiatives such as the Team Europe initiative (TEI) on Manufacturing and Access to Vaccines, and Medicines and Health Technologies (MAV+) in Africa⁴⁴.

GH EDCTP3 has **a high level of visibility, particularly among European and sub-Saharan African states** based on the previous work of EDCTP1 and EDCTP2⁴⁵. Compared to its predecessors, GH EDCTP3 involves a greater number of states that are committed to GH EDCTP3 as members of the EDCTP Association, including 15 European and currently 29 African states which increases the level of international cooperation at the partnership level. Global Health EDCTP3 exploits results from the predecessor programme and have issued calls that build on results from previous EDCTP programmes and by working in collaboration with the EDCTP Secretariat for organising events, workshops and presenting at conferences and meetings⁴⁶, where the visibility aspects can be further addressed, notably the EDCTP Forum held in Paris in 2023.

⁴¹ <https://www.who.int/initiatives/malaria-vaccine-implementation-programme>

⁴² European Commission. Performance of European Partnerships. Biennial Monitoring Report 2022 on Partnerships in Horizon Europe. p. 62

⁴³ GH EDCTP3 Annual Work Programme 2022. pp. 7-8

⁴⁴ GH EDCTP3 Work programme 2022. Global Health EDCTP3 Call topics. Page 19

⁴⁵ European Commission. Performance of European Partnerships. Biennial Monitoring Report 2022 on Partnerships in Horizon Europe. p. 62

⁴⁶ GH EDCTP3 Annual Work Programme 2022. Page 10

10. Phasing-out preparedness

According to Article 17(2)(a1) of the Single Basic Act⁴⁷, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

In detail, the plan should include administrative and operational adaptations, which should allow the JU to proceed with its activities in case of no Union funding under the next Framework Programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

Also, concerning the policy aspects, the phasing out plan should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

The Governing Board of GH EDCTP3 adopted the phasing out plan in January 2024⁴⁸. In detail the document states that the partnership with the current level of ambition is not financially sustainable without EU funding. The private member EDCTP Association could task itself with the continuation of implementation of the policy objectives of the JU, as it did implement a programme under Article 185 of the TFEU in the past. In a scenario without EU funding, the EU would not be part of this partnership and the EDCTP Association may lack resources to fund research projects on its own, unless its members decide to contribute financially for this purpose. The governance structure already exists within the association. The interim evaluation report refers from stakeholder interviews that ***“public funding will always remain a key source of contributions to the EDCTP programme, including the Global Health EDCTP3 JU as the programme deals with issues in the global health field that are not always financially attractive to the private sector”***⁴⁹

Concerning the staff, a gradual reduction to a total of 16 for 2031 compared to a peak of 34 staff from 2024 through 2027 is foreseen, with the first staff reduction in 2028.⁵⁰ A commensurate progressive reduction in running costs is planned for the years after 2027, with a lump sum for the years 2027 through 2031 provided from the EU budget⁵¹. Staff contracts are limited to the lifetime of the agency and will end at the latest on 31 December 2031.

It can be expected that a number of projects will not have been finalised by 31 December 2031, even assuming appropriate planning (less new funding available in later years), due to the timelines of programme implementation procedures and the long project duration of the type of projects funded by GH EDCTP3. The European Commission, or an agency tasked by the Commission with implementing legacy Horizon Europe grants, will then have to take over the follow-up of grants that are not finalised by the foreseen end of the partnership.

⁴⁷ Council Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe.

⁴⁸ https://globalhealth-edctp3.eu/sites/default/files/2024-02/GH-EDCTP3-GB.05.2024-Phasing_out.pdf

⁴⁹ European Partnership for the Global Health EDCTP3 joint undertaking – Evaluation support study on Horizon Europe's contribution to a resilient Europe, 2024, p.23

⁵⁰ Section 3.2.2. Pages 217-218 of COM(2021) 87 final; 2021/0048 (NLE)

⁵¹ Section 3.2.1. Page 215 of COM(2021) 87 final; 2021/0048 (NLE)

The phasing out plan adopted by the Governing Board addresses items such as phasing out of staff, contracts and activities. The nature of the activities of GH EDCTP3 will likely lead to grants still not being finalised. This is certainly to be expected if comparing with the experience of the European Commission implementing grants of a similar type of activity.

For future iterations of the phasing out plan, the EDCTP Association could be asked to provide a more detailed discussion of the possibilities for future funding activities within the scope of GH EDCTP3 in a coordinated manner. In view of the well-established office and the significant activities at the level of EU Member States, some level of coordinated funding in partnership with countries from sub-Saharan Africa should be possible.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 18: Evaluation of Innovative Health Initiative (IHI) JU

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

1.1 Achievement of the objectives

The [Innovative Health Initiative \(IHI\)](#) Joint Undertaking (JU) was established in November 2021¹ as an institutionalised public-private partnership between the European Union and European life science industries. It follows the [Innovative Medicines Initiative 2 \(IMI2\)](#), in which EFPIA, the European Federation of Pharmaceutical Industry Associations, was the sole private sector partner. IHI constitutes an expansion of the partnership to include a wider set of industry partners who contribute to medical innovation (medical technologies, imaging, diagnostics, biotechnology and companies active in the digital area), complementing pharmaceutical research and development. The new partnership was created in recognition of developments in medical research, healthcare needs and healthcare delivery that require a different and increasingly cross-sectoral approach to research and development².

The initiatives' alignment with the objectives of Horizon 2020 and Horizon Europe has been consistent, significantly contributing to Societal Challenge 1 of Horizon 2020 on 'Health, demographic change and well-being' and enhancing Europe's competitiveness in health R&D. They have been integral in addressing public health needs and responding to crises, such as the Ebola and COVID-19 outbreaks, by expediting medical innovation and by promoting cross-sectoral collaborations.

The interim evaluation of IHI and final evaluation of IMI2 provided detailed reporting on the general and specific objectives of IMI2 and IHI³ and assessed the extent to which IMI2 has achieved its objectives, broken down into specific sets of key performance indicators (KPIs)⁴. Overall, IMI2 has achieved its objectives of boosting pharmaceutical innovation in Europe and speeding up the development of innovative medicines, vaccines and medical technologies, in particular in areas with high unmet needs⁵. It has also demonstrated substantial achievements towards its KPIs, exceeding many of its targets⁶. The most significant achievements include an approved vaccine⁷ for Ebola Zaire virus disease⁸, an approved new antibiotic drug combination⁹, insights into the genetics of Alzheimer's disease¹⁰, the identification of biomarkers associated with

¹ Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe.

² Evaluation support study on Horizon Europe's contribution to a Resilient Europe – RTD/2021/SC/021, Final Report Phase 2 – Annexes, Case Study No 1: From Innovative Medicines Initiative to Innovative Health Initiative – the early experience, publication in September 2024. Activities in IMI2 (2014-2020) cover Horizon 2020, with activities in IHI covering Horizon Europe (2021-Present).

³ Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), publication in September 2024, pages 77-78.

⁴ Interim evaluation, pages 45-52.

⁵ Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2).

⁶ Interim evaluation, page 68.

⁷ https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1248

⁸ [Evaluation study](#) of the European Framework Programmes for Research and Innovation for a Resilient Europe, Case Study 11.

⁹ [“Game-changing” new drug combination will save many lives \(europa.eu\)](#)

¹⁰ [EPAD | IHI Innovative Health Initiative \(europa.eu\)](#)

diabetes development¹¹ and advances on [cancer](#), for instance on using liquid biopsies for less invasive ways of capturing tumour samples¹². Many projects have made practical contributions to the fight against COVID-19¹³.

The programme has made project outputs accessible beyond consortium partners, with 58.3% of projects making resources available to external entities¹⁴. The programme's scientific productivity and impact are evident in nearly 10 000 publications. Most IMI2 research (64%) was published in high-impact journals and the citation impact of research conducted in IMI2 projects (1.86) was almost twice as high as the world average (1.00) and 75% higher than the EU average (1.16)¹⁵.

Overall, IMI2 has demonstrated a strong track record in achieving its objectives, notably in fostering collaboration, advancing regulatory science, and producing high-impact scientific research that delivers tangible innovations for patients¹⁶. The initiative's overall performance demonstrates its effectiveness in driving medical innovation and addressing public health challenges in Europe. IMI2 has created a unique environment that fosters collaboration and innovation, bringing together diverse stakeholders to tackle complex health challenges¹⁷.

IMI2 has demonstrated its ability to adapt to emerging health needs, responding to health emergencies and addressing strategic unmet public health needs. In response to the deadly Ebola virus disease outbreak in 2014 in western Africa, IMI2 launched a multi-project Ebola+ programme with a total budget of over EUR 300 million tackling a wide range of challenges in Ebola research, including vaccine development, clinical trials, storage and transport, and diagnostics¹⁸. In 2020, IMI2 launched a fast-track call for proposal (maximum time to grant: eight months from submission of full proposal) to urgently address the COVID-19 outbreak¹⁹.

The IHI projects launched to date are expected to improve the prevention and diagnosis of cardiovascular diseases, dramatically cut animal use in standard safety studies, lead to a better understanding of mental disorders using digital health technologies and the early diagnosis of chronic liver disease, amongst others. The partnership has also launched calls for public-private, cross-sectorial projects that address key union policy priorities such as regulatory sandboxes (foreseen in pharmaceutical regulation), safeguarding innovation and intellectual property in the European Health Data Space (EHDS), and early feasibility studies to support innovation for

¹¹ [RHAPSODY | IHI Innovative Health Initiative \(europa.eu\)](#)

¹² [CANCER-ID | IHI Innovative Health Initiative \(europa.eu\)](#)

¹³ [IHI brochure – Driving the future of healthcare in Europe \(2022\)](#)

¹⁴ IMI2 KPI 6 captured the share of IMI2 projects whose resources/outputs are made accessible beyond the consortia partners (with or without a fee). These outputs can be major databases, biobanks, in-silico tools (e.g. software, algorithms), training materials and guidance that can be used by those outside the consortium. 67 projects have been reported as having developed such resources, a share of 58.3% of projects, above the 50% target (interim evaluation, page 48).

¹⁵ Interim evaluation of the IHI and its predecessor the IMI2, published in September 2024, page 49. A full [bibliometric analysis](#) was undertaken in 2023.

¹⁶ Interim evaluation of the IHI and its predecessor the IMI2, published in September 2024, pages 52, 68.

¹⁷ Interim evaluation, pages 45-52.

¹⁸ [Ebola+ | IHI Innovative Health Initiative \(europa.eu\)](#)

¹⁹ https://www.ih.europa.eu/sites/default/files/IMI2%20Call%202021%20Coronavirus%20-%20Call%20text_final.pdf

medical devices. It is too early to assess the effectiveness of IHI, but the expanded partnership is on the right track²⁰.

As IHI continues to evolve, it is essential to build on the [successes](#) and [lessons learned](#) from IMI2. By doing so, the partnerships can continue to make a significant impact on patient care and quality of life, ultimately improving public health and well-being in the EU.

1.2 Long-term scientific, societal, economic and technological impacts

IMI2 has made a significant contribution to **scientific** advancements. The initiative's model, which promotes collaborative research between public and private stakeholders, has been vital in facilitating these advancements.

IMI2 and IHI aim to foster public-private collaboration in pre-competitive research with the long-term aim of developing innovations beyond the early research phase supported by the JUs. Many of the outputs resulting from this research do not immediately translate into products and services that can be brought to market, but they form the basis of future exploitable outcomes or speed up the research process in general. This shows the need for and relevance of investment in long-term research. Yet, despite the long timelines for developing health innovations and bringing them to market (including regulatory and reimbursement steps), IMI2 has demonstrated substantial impact. This impact is demonstrated through the development of 439 substantial assets (significantly above the target of 50 set for this programme), such as new drug and diagnostic candidates, biomarkers and other research tools. These are significant milestones in the research and innovation process, applicable to many disease areas, such as dementia and diabetes²¹.

Advances in cross-cutting topics, such as big data management, patient involvement and paediatrics, have also played a crucial role in improving our understanding of diseases and guiding drug development, ultimately benefiting patients. IMI2's efficacy in achieving its scientific objectives is further evidenced by the completion of 24 regulatory procedures²², double the target set for the programme. This includes the development of tools and methodologies that have been accepted by regulatory authorities for use in R&D, such as diagnostic panels which can identify SARS-CoV-2 and other respiratory infections and contribute to the improvement of clinical guidelines and practices. This achievement illustrates the significant role the programme plays in regulatory science, speeding up patient access to novel innovations.

IMI2 has also been successful in generating new knowledge about diseases that can be used to inform drug development, with 46 different such disease classifications reported, exceeding the

²⁰ [IHI work programmes 2021-2024](#)

²¹ [Interim evaluation of the Innovative Health Initiative \(IHI\) and Final evaluation of the Innovative Medicines Initiative \(IMI2\)](#), p. 43

²² The regulatory procedures include four outputs awarded a CE-mark (certifying compliance with EU safety, health and environmental protection requirements), inclusion in six regulatory guidelines, two regulatory letters of support, 10 regulatory qualified opinions and two submissions for qualification opinion. The EHDEN project has established a harmonised data network using a common data model that has now been established as a standard.

target of 30. This has enhanced the personalisation of medical research by enabling the identification of patient sub-populations and informing targeted therapeutic strategies²³.

A significant measure of IMI's scientific productivity is reflected in its publication output. The programme produced almost 10 000 publications between 2010 and 2022, with a majority published in high-impact journals. The citation impact of research conducted in IMI2 projects was twice as high as the world average and 75% higher than the EU average, indicating the scientific relevance and influence of the research conducted under the initiative²⁴. IMI2 has facilitated extensive cross-sectoral and international collaborations, with 67% of papers produced by IMI2 projects having co-authors from different sectors, demonstrating the cross-disciplinary nature of the research. Additionally, 65% involved authors from different countries, highlighting the initiative's role in fostering international scientific cooperation.

At **societal** level, IMI2 has made significant strides in addressing unmet public health needs and health emergencies. The initiative's focus on fostering medical innovation in response to these needs has been a key factor in its societal impact, as has its flexibility in responding to health emergencies²⁵, such as the Ebola outbreak²⁶ and the COVID-19²⁷ pandemic.

IMI2 projects have provided new treatment options against multidrug-resistant bacteria, advanced basic science, and established a pan-European network of clinical sites for high-quality clinical studies for new antibiotics. The European Commission [approved marketing authorisation for EMBLAVEO®](#) in April 2024²⁸. This is a drug combination for use against serious infections caused by multidrug-resistant Gram-negative bacteria. Two of the EMBLAVEO® clinical studies were conducted with the support of [COMBACTE-CARE](#)²⁹, starting in 2015. This illustrates the need for and value of IMI2 [‘playing the long game on research funding’](#), despite [occasional criticism](#) from the research community about the lack of visible impact in the shorter-term.

The initiative has also been successful in creating collaborative networks that would not have been possible without a European partnership. In one IMI2-funded project³⁰, partners joined forces with US experts in paediatric cancer to reach a much-needed consensus on the best way forward for testing childhood cancer drugs. Another project³¹ put in place the infrastructure needed to speed up and facilitate high-quality clinical testing of new treatments for the entire paediatric population via an extensive pan-European network of paediatric clinical trial sites. These networks have facilitated cross-border and cross-sectoral collaboration, bringing together a diverse range of

²³ As an example, the LITMUS project developed a new definition of sub-populations of patients with non-alcoholic fatty liver disease (NAFLD) using histological target conditions. Being able to stratify patients with NAFLD enables non-invasive triage and reduces the need for liver biopsy in clinical practice and clinical trials.

²⁴ Annual Activity Report 2020:

https://www.ih.europa.eu/sites/default/files/IMI2_GB_DEC_2021_09_Annex%201_AAR2020.pdf.

²⁵ Evaluation study of the European framework programmes for research and innovation for a resilient Europe - Publications Office.

²⁶ [Impact on: Ebola | IHI Innovative Health Initiative \(europa.eu\)](#)

²⁷ IMI2 Call 21: https://www.ih.europa.eu/sites/default/files/IMI2%20Call%202021%20Coronavirus%20-%20Call%20text_final.pdf.

²⁸ [Health and food safety – Antimicrobial resistance: Commission authorizes a new antibiotic \(europa.eu\)](#)

²⁹ [IMI-supported treatment against multidrug-resistant bacteria approved by European Commission](#)

³⁰ <https://itccp4.com/>

³¹ [conect4children is a pan-European clinical trial network](#)

organisations to tackle complex global health challenges such as cancer or availability of new paediatric medicines³².

IMI2 has demonstrated a significant **economic** impact through its ability to mobilise substantial additional contributions from the private sector. The direct leverage factor of IMI2, increased to 1.06, indicates that for every euro contributed by the EU, the initiative succeeded in mobilising an equivalent amount from private partners, surpassing the leverage achieved under its predecessor, IMI1.

IMI2's design, which requires equal contributions from the European Commission and private partners, has been instrumental in attracting considerable investment into health research and innovation. This co-funding model has led to a total project cost of EUR 3.010 billion, with the EU contributing EUR 1.463 billion and private partners, including the EFPIA and Associated Partners, contributing a combined total of over EUR 1.547 billion. Although the participation rate of small and medium-sized enterprises (SMEs) in IMI2 projects was below the 20% target, the programme still managed to attract a significant number of SMEs, and considerably more than IMI1 (see Section 3a).

Moreover, IMI2's focus on fostering collaboration across sectors and countries has led to the establishment of extensive cross-border networks, which will have positive spillover effects for the European economy³³.

In terms of **technological** impact, IMI2 has been instrumental in fostering technological advancements and digital transformation within the health sector. IMI2 has made substantial contributions to the field of digital health, by supporting a broad range of projects that contribute to the study and development of digital health technologies and practical applications. In addition, over two dozen IMI2 projects include a digital health component that contributes to the overall aim of the projects, without necessarily being their key component. Together these constitute a significant investment of IMI2's project funding in the field of digital health³⁴.

One of the most significant technological impacts of IMI2 has been the development of new tools and processes that are now being used by industry participants. These include animal or non-animal models, standards, biomarkers, standard operating procedures, screening platforms and clinical trial platforms. For example, one IMI2 project set out to shorten the path to rare-disease diagnosis by using newborn genetic screening and digital technologies³⁵. Another is developing a collaborative platform that will link up existing European research infrastructures and speed up the discovery of new biomarkers for neurodegenerative diseases³⁶. These assets have been instrumental in advancing the pre-competitive space of medical innovation. Moreover, IMI2 has made strides in the regulatory sphere by contributing to new or improved guidelines,

³² Interim evaluation, page 52. These collaborative networks exist both within sectors (e.g. among academic organisations), between types of organisations (EFPIA companies with academic organisations) and between sectors and organisations based in different countries.

³³ Interim evaluation, page 69.

³⁴ Evaluation support study on Horizon Europe's contribution to a Resilient Europe – RTD/2021/SC/021, Final Report Phase 2 – Annexes, Case Study No 2: IMI2 and IHI: driving innovation in digital health, publication in September 2024.

³⁵ [Screen4care](#)

³⁶ [European Platform for Neurodegenerative Diseases](#)

methodologies, tools, technologies or solutions accepted by regulatory authorities for use in R&D. The initiative's technological impact extends to the creation of resources and infrastructure, such as research networks, clinical networks, biobanks and collaborative platforms that have become sustainable beyond the formal project lifetime. One IMI2 project³⁷ aims to create a sustainable, integrated pan-European collaborative paediatric network that will speed up and facilitate the running of high-quality clinical trials in children while ensuring that the voices of young patients and their families are heard.

Moreover, IMI2 and IHI projects generate valuable data, such as to help advance our understanding of Alzheimer's risk, which contributes to increased health data availability in Europe. These resources facilitate the translation of scientific knowledge into practical innovations, ensuring the longevity and accessibility of research outputs beyond the lifespan of individual projects.

The IHI was officially launched in November 2021. By October 2024 the first 16 projects had started, with additional grant agreements in preparation. The specific outputs and impacts will become more apparent as the projects progress and mature beyond this nascent stage. Given the initiative's focus on fostering multi-sectoral collaborations and funding projects aimed at translating health research and innovation into tangible benefits, technological impacts are anticipated.

2. Additionality

IMI and IHI have played crucial roles in mobilising significant public and private funding, stimulating cross-sectoral R&D, and fostering SME involvement within the health sector.

IMI2, the successor to IMI1, showed a considerable rise in contributions, with the direct leverage factor in IMI2 of 1.06 (rise by 6.23 percentage points compared to 0.977 under IMI1).

This means that for every euro contributed by the European Commission, IMI2 succeeded in mobilising an equivalent amount from private and associated partners, reflecting a balanced public-private investment and a strong case for the value of public funding in leveraging additional R&D investment³⁸. Crucially, the leverage factor for IMI2 (and IHI) is determined by the design of the partnership which stipulates equal contributions from the two partners; contributions from industry partners and associated partners are matched by the Commission. It underlines the effectiveness of public funding in leveraging extra R&D investment, but the leverage metric does not fully capture the effect of partnership going beyond purely financial terms. The partnerships bring together relevant and competent actors from across Europe and beyond, enhancing research and innovation networks and facilitating collaboration and knowledge-sharing among diverse institutions.

IMI2 and IHI have had a significant economic impact by mobilising substantial financial resources, leading to a significant direct leverage effect. While the leverage effect for IHI is not yet available, these partnerships have underpinned large-scale, cross-sectoral projects that have driven and continue to advance innovation in health research, particularly in digital health, diagnostics and drug and device development.

³⁷ [conect4children is a pan-European clinical trial network](#)

³⁸ https://www.ihi.europa.eu/sites/default/files/uploads/documents/reference-documents/EC_factsheet_imi2.pdf

3. Transparency and openness

3.1 Openness to newcomers and SMEs

IHI, and its predecessor IMI2, have demonstrated openness to new participants, expanding beyond the pharmaceutical industry to include a broader range of stakeholders in the life sciences and healthcare sectors. This expansion is reflected in the inclusion of new industry associations as founding members of IHI, which has given representatives from various sectors a voice in its governance structures.

While not explicitly designed to support SMEs, IMI2 saw an increase in SME involvement, reflecting the initiative's role in creating a supportive environment for SMEs, which are vital for innovation and job creation within the EU economy. While the number of SMEs participating in IMI2 projects increased to 256 from 166 under IMI1, the share of SMEs among project participants remained below the target of 20% when counted as participations³⁹. Efforts to attract more SMEs have included highlighting tasks suited to SMEs in call topics and providing tailored information and webinars. IHI has seen an increase in the number of SMEs, with new trade association partners like [MedTech Europe](#), [EuropaBio](#) and [COCIR](#) representing a significant number of SMEs. In line with this, the first IHI projects show strong SME involvement, with SMEs accounting for 22% of participants (69 of the total 315 participants) in the grant agreements signed as of July 2024.

Though still at an early stage, the initial IHI projects (16 signed grant agreements) show valuable progress against some of the IHI-specific KPIs⁴⁰. They demonstrate the ability to involve multiple healthcare stakeholders⁴¹ (100% of projects involve more than two types of healthcare stakeholders as project participants) and generate cross-sectoral collaboration⁴² (94% projects bring together private members and/or contributing partners or their affiliated or constituent entities from two or more technology sectors). Moreover, all IHI projects (100%) aim to develop new methodologies or improve existing ones, with some in disciplines addressing public health needs included in the list of the WHO Europe Health 2020 priority areas⁴³.

However, IMI2 has faced challenges in achieving its target for involving patient organisations and healthcare professional organisations at project level⁴⁴. Members of such groups are involved in around 63.1% of total IMI2 projects, below the 80% target. While progress has been made, these areas highlight the need for continued efforts to increase the societal impact of the initiative. IHI has established a patient pool, which will strengthen the voice of patients and informal caregivers in a range of IHI activities, for example as participants in project meetings or speakers at scientific

³⁹ Internal evaluations, pages 50, 65, 70.

⁴⁰ www.ih.europa.eu/sites/default/files/uploads/Documents/About/IHI_KPIs_2022.pdf

⁴¹ Including research higher or secondary education organisations (private or public), SMEs, large companies (for-profit legal entities), non-governmental organisations, healthcare professional organisations/healthcare providers, patient organisations and other associations, regulators or regulatory bodies, notified bodies, health technology assessment bodies, healthcare payers, charities and foundations, public authorities.

⁴² Pharmaceutical, biopharmaceutical, medical technologies, biotechnologies, other healthcare sectors.

⁴³ www.ih.europa.eu/sites/default/files/uploads/Documents/About/IHI_KPIs_WHO2020PriorityAreas.pdf

⁴⁴ Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), publication in September 2024, p. 65.

events, webinars and trainings. The pool was created in 2023 and will run until 2026, with 120 people currently in the pool.

The transition to IHI has also introduced mechanisms to involve a wider set of stakeholders in its official bodies, such as the Science and Innovation Panel (SIP). Under IMI2, the scientific advisory role was taken on by the Scientific Committee, which was smaller and composed of experts from the research community, patient representatives and regulatory bodies only.

In addition, the [IHI Ideas Incubator](#) provides an opportunity for a mechanism to provide ideas for potential IHI topics via the IHI website, following the concept of ‘co-creation’. When it comes to ideas for potential new call topics, this means that suggestions from the wider health and research community are welcome.

3.2 Mechanisms to ensure openness

IHI has implemented procedures and mechanisms to broaden its partnership base, building on the experience of its predecessor, IMI2. The transition to IHI has led to the incorporation of industries beyond pharmaceuticals into its governance structure⁴⁵. This inclusion of new industry partners⁴⁶ has provided a platform for diverse voices in decision-making processes, reflecting a deliberate effort to enhance cross-sectoral collaboration in health research and innovation.

The newly established SIP includes a wider array of stakeholders, such as healthcare professionals and regulatory body representatives, to advise on strategic priorities. In addition, an IHI website has been set up to collect ideas for call topics from a broader set of stakeholders, demonstrating a commitment to openness and inclusivity in setting research agendas.

In January 2025, IHI is planning to launch a pilot for a bottom-up, thematically open call as part of the normal cycle of the single-stage calls. It is expected that this type of call will help to draw in new participants.

3.3 Transparency

IMI demonstrated a commitment to engaging a broad range of stakeholders in identifying research priorities. The governance structure included mechanisms for stakeholder consultation, such as the States’ Representatives Group (SRG) and the Scientific Committee, which provided advice on the development of the strategic research agenda (SRA) and call topics. Additionally, IMI2 pioneered online submission of call topic ideas through a dedicated web portal, allowing for wider stakeholder input, but this has only become firmly established under IHI. The setting-up of a patient pool under IMI2, which was later carried over into IHI, further exemplified efforts to involve patients and caregivers in the programme’s activities.

⁴⁵ For instance, [MedTech Europe](#) represents a constituency of several thousand companies, mostly SMEs.

⁴⁶ Evaluation support study on Horizon Europe’s contribution to a Resilient Europe – RTD/2021/SC/021, Final Report Phase 2 – Annexes, Case Study No 1: From Innovative Medicines Initiative to Innovative Health Initiative – the early experience, published in September 2024. A wider set of industry partners was included in the expansion under IHI: medical technologies, imaging, diagnostics, biotechnology and companies active in the digital area (COCIR, EuropaBio, MedTech Europe – in addition to the original partner EFPIA / Vaccines Europe).

However, the interim evaluation of IMI2⁴⁷ suggested that the processes for developing the SRA and annual work programmes could benefit from increased transparency, as some stakeholders perceived that certain applicant consortia had better chances of success.

4. Efficiency

Table - Operational and administrative expenditures of IMI and IHI JU (2014-2023) (source: CORDA)

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	292,373,287	284,463,928	258,331,603	567,112,444	823,881,376	396,571,957	387,739,570	-	352,020,729	3,362,494,895
IKAA	-	-	-	-	-	-	-	-	129,615	-	129,615
RC	8,880,000	8,881,400	9,480,000	9,829,000	10,313,000	11,020,154	11,152,482	9,100,000	9,280,000	9,500,000	97,436,036

⁴⁷ EC (2017): The Final Evaluation of the Innovative Medicines Initiative2 Joint Undertaking (2014-2016) operating under Horizon 2020. Experts Group Report. Luxembourg: Publications Office of the European Union, p. 9.

the 90-day target⁵¹. For IHI, 16 grant agreements were signed by October 2024 with an average TTI of 68 days and TTG of 235 days. The 245-day TTG target was thus met in 88% of the cases. This performance underlines IMI2's ability to streamline its processes and manage operations effectively within the constraints of the allocated budget. In practice, though, both IMI2 and IHI manage projects that are twice as much the financial value as it would seem from looking at the EU contribution only, because of private partners' contributions to the operations of the projects (brought in mostly as in-kind and partly as financial contributions)⁵². Taking these total costs into account, this is a significant achievement of the JU regarding high operational efficiency.

IMI2 has made substantial contributions to the scientific community and wider society (see section 1.2), with the potential to drive future breakthroughs in the health and life-sciences, with far-reaching implications for public health. However, accurately quantifying these societal benefits in monetary terms presents a complex challenge. Many of the outputs of IMI2 are in the pre-competitive space, meaning they do not translate directly into marketable products or services, thereby limiting their immediate economic value. Moreover, funding for the development of health innovations typically comes from a variety of public and private sources. IMI2/IHI funding is usually just one source among many, though a crucial one, given its catalytic and cross-sectoral nature.

IHI, still in the early stages of its lifecycle, has yet to undergo a comprehensive assessment of its cost-effectiveness, which can be definitively calculated after the programme has ended⁵³.

As shown above, IMI2 was successful in generating high-value scientific outputs and in promoting extensive collaboration across various sectors and countries. This success contributed to the European Union's competitiveness in health research and innovation. Turning to IHI, it is too soon to make definitive statements about its cost-effectiveness. However, the interim IHI evaluation⁵⁴ highlights the importance of the programme's alignment with Horizon Europe and its contribution to several EU policies, such as Europe's Beating Cancer Plan and the Pharmaceutical Strategy for Europe. As IHI progresses, a comprehensive assessment of cost-effectiveness will become possible, providing a fuller picture of the initiative's value and impact.

5. Coherence and synergies

5.1 Complementarity with relevant regional, national and EU policies/programmes

IMI2 and IHI have demonstrated a significant degree of complementarity with relevant regional, national, and EU policies and programmes. This alignment is evident in its strategic orientation and the execution of its activities, which have been well integrated within the broader framework of Horizon 2020 and are poised to continue under Horizon Europe through the IHI.

⁵¹ Interim evaluation of the Innovative Health Initiative (IHI) and Final evaluation of the Innovative Medicines Initiative (IMI2), p 41.

⁵² For details on leverage factors, see Section 2.

⁵³ [Consolidated Annual Activity Report 2023](#)

⁵⁴ Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), publication in September 2024.

The 2017 interim evaluation concluded that the objectives of IMI2 were well aligned with the objectives of Horizon 2020⁵⁵: (1) to generate excellent science, (2) to create industrial leadership, and (3) to tackle societal challenges. IMI2 was also well aligned with the aims of Societal Challenges I (SC1) ‘Health, demographic change and well-being’.

This final evaluation confirmed that the programme remained well aligned with the objectives of Horizon 2020 and contributed significantly to the aims of Societal Challenges I (SC1) ‘Health, demographic change and well-being’. However, it was noted that the policy landscape in which IMI2 and IHI operate has become increasingly complex, making it difficult for individual programmes to navigate this space, increasing the risk of overlaps and redundancies.

IHI is part of Horizon Europe and aligns its strategy with the Health Cluster of Pillar II aimed at responding to global challenges and European industrial competitiveness. As a cross-sectoral institutionalised partnership (based on Article 187 of the Treaty on the Functioning of the EU) within Horizon Europe, it works towards the three objectives of fostering scientific and technological excellence, tackling Commission policy priorities, and boosting Europe’s innovativeness and competitiveness. By working on ways to speed up drug, vaccine or device development, IHI also contributes to the strategic autonomy and technological sovereignty of the EU⁵⁶.

IHI’s alignment with EU policies is further underscored by its direct contributions to initiatives such as Europe’s Beating Cancer Plan, the Pharmaceutical Strategy for Europe, and the new Industrial Strategy for Europe. The initiative already played a pivotal role in the development of the European Health Data Space and contributes to the European Green Deal⁵⁷, demonstrating its coherence with EU policy priorities. The programme’s ability to respond flexibly to health emergencies, such as the Ebola outbreak and the COVID-19 pandemic, also illustrates its complementarity with EU health policy objectives. IMI2’s capacity to mobilise substantial investment in medical innovation in response to these challenges showcases the added value of a coordinated European approach to health emergencies.

One of the roles of the IHI States Representatives Group is to identify relevant national and regional programmes. The SRG submitted annual reports for 2022 and 2023⁵⁸ and provided input on ideas for IHI projects while taking account of complementarity with existing national and regional policies.

⁵⁵ Interim Evaluation 2017, p. 80, also stated in the evaluation in reference 12.

⁵⁶ For example, the health data and evidence network created by EHDEN is used by several other IMI2 projects (e.g. OPTIMA, PIONEER, HARMONY). Projects also use the RADAR-base data platform, software and algorithms developed by RADAR-CNS to apply the approach to new disease areas and develop and test digital endpoints that are (prospectively) disease-agnostic as well as technology-agnostic (RADAR-AD, Mobilise-D).

⁵⁷ For example, two topics on the environmental impacts of healthcare have been launched and are in line with the goals of the European Green Deal.

⁵⁸ [States' Representatives Group, IHI Innovative Health Initiative](#)

5.2 Synergies with other parts of the Framework Programme

A dedicated evaluation study assessed the level of coherence between partnerships and other Horizon 2020 activities, looking at the example of IMI2⁵⁹. The findings from the case study (case study 11) and the thematic similarity assessment indicate that despite some apparent similarities, particularly with the Societal Challenge 1 projects, the IMI2 partnership was also consistent with other Horizon 2020 programme parts. Project data shows that IMI2 projects made up less than 1% of all Horizon 2020 projects, while the share of the EU contributions toward IMI2 projects was 2.1% of the total Horizon 2020 EU contributions. IMI2 projects have been over three times larger than the Societal Challenge 1 projects and over ten times larger than the average Horizon 2020 project size.⁶⁰

As concluded in the 2020 report on the bibliometric analysis of ongoing IMI2 projects⁶¹ a high level of scientific excellence was taking place in the IMI2 projects. The field-normalised citation impact of IMI2 papers was 2.05, over twice the world average (1) and much higher than the European average (1.14).

For both partnerships, synergies are created between projects and are encouraged among project participants. This is particularly evident in the field of digital health research, where there are several cases of ‘cross-pollination’ between IMI2 projects⁶². For example, the health data and evidence network created by EHDEN is used by several other IMI2 projects (e.g. OPTIMA, PIONEER, HARMONY). Projects also use the RADAR-base data platform, software and algorithms developed by RADAR-CNS to apply the approach to new disease areas and develop and test digital endpoints that are (prospectively) disease-agnostic as well as technology-agnostic (RADAR-AD, Mobilise-D).

IHI has set up a task force with the Commission and industry partners to focus on increasing its synergies with other EU programmes, partnerships and Horizon Europe missions and cover all angles and coordinate activities. Some early potential synergies have been identified and a memorandum of understanding has been signed between IHI and EIT Health. Initial contacts have also been established with the EDCPT3 and Key Digital Technologies JUs, as well as the Metrology Partnership and the Health Emergency Preparedness and Response Authority (HERA).

The IHI Office and the Commission are also building links with various regional stakeholders, for example, by linking with the co-funded partnerships on Transforming Health and Care Systems (THCS) and on Personalised Medicine, by establishing contact with the Reference Sites Collaborative Network and by organising regular exchanges with representatives of several European regions.

⁵⁹ Evaluation study of the European Framework Programmes for Research and Innovation for a Resilient Europe, Final Report Phase 1, Evaluation study feeding into the Commission’s *ex post* evaluation of Horizon 2020, page 34.

⁶⁰ Evaluation study of the European Framework Programmes for Research and Innovation for a Resilient Europe, Final Report Phase 1, Evaluation study feeding into the Commission’s *ex post* evaluation of Horizon 2020, page 34.

⁶¹ Bibliometric analysis of ongoing projects 11th Report September 2020.

⁶² Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), p. 38.

6. EU added value

IMI2 and IHI have provided added value in health and life science research and innovation, exceeding what could be achieved through regional or national collaborative research efforts. Central to this is the creation of extensive, EU-wide, cross-border, cross-sectoral collaborative networks, bringing together a diverse range of stakeholders to tackle complex health challenges. These networks, supported by significant funding, could not have been established at a regional or national level⁶³.

IMI2 has proven its adaptability by quickly initiating targeted research projects in response to emerging health crises, such as the Ebola outbreak and the COVID-19 pandemic. This ability to address urgent public health needs in real time, leveraging collective expertise and resources, is a key indicator of its added value. The initiative's projects have produced a wealth of widely adopted assets, tools and processes that have reached significant milestones in the innovation process (see section 1.2).

IMI2 and IHI have provided substantial added value by fostering large-scale, cross-sectoral collaborations, responding flexibly to health emergencies, facilitating large-scale, multinational clinical trials and establishing networks, producing widely adopted research outputs and enhancing the international reach and impact of their partnerships. They have achieved a level of integration and collaboration that is unparalleled by individual regional or national programmes.

This has not only accelerated innovation but also ensured that the results are more widely disseminated and adopted across the industry. An example to show the large-scale and outreach would be the IMI2 project [UNITE4TB](#) on accelerating clinical trials of tuberculosis drug combinations, ultimately aimed at developing new and highly active treatment regimens for TB, including drug-resistant TB. The total cost of the project is EUR 185 million, including EU funding and support from industry and associated partners. The partners' focus on pre-competitive research encourages the sharing of data and resources, a challenge in more fragmented research landscapes. These initiatives have contributed significantly to the EU's competitiveness in the global health research arena, delivering benefits that extend well beyond the scope of what could be achieved through regional, national, or traditional collaborative research funding mechanisms.

7. Relevance

7.1 Relevance to challenges and needs

The partnership has increased its relevance by expanding to include several more health industry sectors in addition to pharmaceuticals and vaccines⁶⁴ (such as medical technologies, imaging, diagnostics, biotechnology and companies active in the digital area). This has enabled the

⁶³ Interim evaluation, page 69.

⁶⁴ Represented by the European Federation for Pharmaceutical Industries and Associations (EFPIA).

development of cross-sectoral innovations with the potential to have a strong impact on patient care and quality of life⁶⁵.

While IMI2's objectives cover a wide range of R&D efforts, they are well chosen to address gaps in medical research, drive innovation in response to complex health needs and develop collaboration between a large number of participants that would not have worked together in other ways, including companies that are usually in competition with each other⁶⁶.

IHI has built on IMI2's successes and expanded its reach to include more life science sectors, reflecting the evolving demands and opportunities in healthcare. As of June 2024, it was not necessary to update the IHI SRIA, as IHI's objectives are still relevant. IHI has also demonstrated that it can address newly emerging health needs, such as greening of healthcare systems and ensuring their environmental sustainability⁶⁷.

This broad approach enhances the initiative's relevance and promotes interdisciplinary collaborations to tackle complex health issues. Both initiatives strongly align with EU health research priorities and have consistently adapted to meet changing healthcare needs. They have significantly contributed to key EU policies with IMI2 projects contributing to building the groundwork for the European Health Data Space, and IHI's objectives being aligned with those of Europe's Beating Cancer Plan and the European Green Deal.

However, the growing complexity of the policy landscape raises challenges around maintaining relevance and avoiding overlap with other health and life science research activities at national and regional levels⁶⁸. Despite these challenges, the initiatives have been successful in fostering a globally competitive European health industry and remain pertinent in driving healthcare innovation. Their objectives clearly recognise the dynamic nature of health research and the need for flexible, strategic responses to public health emergencies and long-term health system needs.

7.2 Flexibility

While IMI2 was focused on priority disease areas (which evolved in response to health emergencies and EU health research policies), IHI gives more space to developing solutions that are disease-agnostic, as well as cross-sectoral, while maintaining a focus on unmet health needs. IMI2's ability to promptly shift focus towards emerging public health crises, such as the Ebola and COVID-19 outbreaks, highlights its capacity to adjust objectives and mobilise resources swiftly.

While IHI objectives demonstrate a continuation from IMI2 objectives, they cover a wider spectrum of health research and innovation, stretching beyond pharmaceutical research and

⁶⁵ Evaluation support study on Horizon Europe's contribution to a Resilient Europe – RTD/2021/SC/021, Final Report Phase 2 – Annexes, Case Study No 1: From Innovative Medicines Initiative to Innovative Health Initiative – the early experience, publication in September 2024.

⁶⁶ Interim evaluation, page 35.

⁶⁷ This has been exemplified by the launching of two topics in IHI call 4 in 2023 covering these areas. These are IHI Call 4, Topic 5: Safe & Sustainable by Design (SSbD) packaging and single use device solutions for healthcare products, [EU Funding & Tenders Portal \(europa.eu\)](https://eufundingandtenders.europa.eu) and IHI Call 4, Topic 6: Sustainable circular development and manufacturing of healthcare products and their quantitative environmental impact assessment, [EU Funding & Tenders Portal \(europa.eu\)](https://eufundingandtenders.europa.eu).

⁶⁸ Interim evaluation, page 37.

emphasising the need to make better use of digital technologies and integrated health solutions. Patient-centricity and the focus on the determinants of health have also become more prominent in the IHI strategy document, the Strategic Research and Innovation Agenda (SRIA).

The transition into IHI signals a strategic expansion from a largely pharmaceutical-focused model to a broader, cross-sectoral R&D framework. This shift makes it possible to anticipate future interdisciplinary opportunities within the wider life sciences and healthcare sectors.

IHI's inclusion of new industry partners allows for a diverse range of contributions, reflecting its commitment to adaptability. However, the complex policy environment presents a challenge for IHI in maintaining strategic coherence and avoiding overlap with other EU and national programmes in the field of health and life sciences research⁶⁹. As it continues to implement its strategic agenda, IHI's aim to foster synergies with other programmes and improve patient engagement and SME inclusion are indicative of its commitment to evolving in line with stakeholder needs. Monitoring IHI's strategic approach will be key in ensuring its responsiveness and effectiveness within the dynamic R&D ecosystem.

8. Directionality

Both the IMI2's SRA and IHI's SRIA set out a clear vision for the programme and these are supported by relevant and specific objectives. IHI's vision is expressed in its general objectives, which refer to EU scientific leadership in health research, improved population health, and a strong competitive position for the EU's industries. Its specific objectives capitalise on the cross-sectoral nature of the partnership, emphasising joint efforts, integrated solutions, digitalisation and data exchange as pathways for impact in the context of creating new products in the future. The case study in the IMI2/IHI evaluation⁷⁰ provides many examples of projects that have made a significant contribution to their respective research fields and developed innovations that promise to have a lasting impact (e.g. digital endpoints for fatigue and sleep disturbances that are on track to gain recognition by the European Medicines Agency; the development of an open-source platform to leverage data from wearables and mobile technologies with the aim of making it available to other researchers, so that they can be used for future commercial and non-commercial purposes).

IMI2 and IHI have contributed to the EU's commitment to addressing global health challenges, such as Ebola, and improving EU competitiveness in health research. IMI2 has surpassed numerous KPIs, produced 439 innovation milestones, including new drug and diagnostic candidates, biomarkers and other tools, and has doubled the target set for regulatory procedures. It has also developed 46 new disease classifications, fostering cross-sectoral collaborations and knowledge-sharing to tackle complex health issues. Despite challenges in patient organisation involvement and SME participation, IMI2 has published nearly 10 000 research papers and established spin-off organisations, strengthening the EU's position as a leader in health research.

IHI is aligned with the Health Cluster under Pillar II of Horizon Europe aimed at responding to global challenges and improving European industrial competitiveness. Although it's too soon to

⁶⁹ Interim evaluation, page 37.

⁷⁰ Evaluation support study on Horizon Europe's contribution to a Resilient Europe (publication Sep 2024), Case Study 2: IMI2 and IHI: driving innovation in digital health.

assess IHI's full impact, its diverse stakeholder involvement and cross-border collaborations indicate its potential contribution to the European Research Area and beyond.

Both initiatives have demonstrated a clear focus on improving the understanding of diseases, enhancing diagnostic capabilities and addressing unmet public health needs. They have also succeeded in creating a more robust European research ecosystem by promoting international collaboration, improving regulatory processes, and ensuring the sustainability of research outcomes beyond the lifespan of their projects.

9. International positioning

The ability to attract participants from outside the EU is an indicator of a programme's international positioning and visibility. IMI2 projects have addressed many global health challenges (e.g. antimicrobial resistance, tuberculosis, diabetes and Alzheimer's disease) and produced solutions and outputs that will be used beyond the borders of the EU.

IMI2 projects have attracted numerous participants from countries outside the EU, including 74 organisations from Associated Countries (6.5%) and 91 based in Third Countries (7.9%)⁷¹.

Both IMI2 and IHI have enhanced the international positioning and visibility of European research by facilitating the involvement of organisations from outside the EU. The initiatives have attracted global participation and produced research outputs with international outreach. An example is the Ebola vaccine, which has received marketing authorisation following several projects that supported different stages of clinical trials in western.

The wide reach of the programme is also illustrated by the number of publications authored by international teams. Globally, authors from 126 countries have participated in at least one publication resulting from an IMI2 project. There are numerous examples of projects that reach beyond the borders of the EU, in terms of participation as well as impact (IMI2 projects on Ebola, antimicrobial resistance, autism, diabetes, etc.).

Analysis of participation in the first two IHI calls by non-EU organisations shows that the countries involved mirror those prominent under IMI2. The evaluation noted⁷² that IMI2 was regarded as a world-first public-private partnership in the field of health research and innovation, while IHI is seen as leading in terms of its cross-sectoral approach to health innovation. However, it was also highlighted that other countries and regions have begun to emulate the approach of IMI2, and that the international prestige of the programme depended on its ability to target resources on the most relevant and most promising topic areas.

During IMI2, associated partners were companies in industries other than the pharmaceutical industry and non-profit organisations, such as foundations or charities that contributed their expertise to the development of call topics and made financial/in-kind contributions⁷³. This

⁷¹ Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), p. 70.

⁷² Interim evaluation of the Innovative Health Initiative (IHI) and its predecessor the Innovative Medicines Initiative (IMI2), p. 59.

⁷³ Examples of IMI associated partners: Bill and Melinda Gates Foundation, Coalition for Epidemic Preparedness Innovations, Autism Speaks, etc. Full list available [publicly](#).

category was created with the goal of opening up activities to a wider range of stakeholders and during IMI2, project participants included a total of 36 associated partners. Given IMI's success as a trailblazer in this respect, the concept of 'contributing partners' was embedded in the legal base of the new scheme for all JUs, including IHI⁷⁴.

10. Phasing-out preparedness

According to the Single Basic Act⁷⁵ all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

IHI has prepared a preliminary plan which was adopted by the IHI Governing Board in December 2023. The preliminary plan included administrative and operational adaptations, which should allow the JU to proceed with its activities in case of no Union funding under the next Framework Programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

The drafting of the updated phasing out plan is currently ongoing and it is planned to be adopted in 2025. It should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

⁷⁴ Regulation Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe: CHAPTER 2, Members, contributing partners and contributions.

⁷⁵ [Council Regulation \(EU\) 2021/2085](#) establishing the Joint Undertakings under Horizon Europe.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 19: Evaluation of SESAR 3 JU

Annex to the Commission's interim evaluation of Horizon Europe

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The Single European Sky Air Traffic Management Research (SESAR) project has been the flagship EU initiative to modernize the European Air Traffic Management (ATM) through the development and implementation of new generation technologies and organisation of the airspace.

The SESAR Joint Undertaking oversees the Research and Innovation activities of the SESAR project, in accordance with the Air Traffic Management (ATM) Master Plan¹, within a complete ATM innovation cycle. It is referred to as SESAR 2020 JU (shortened SJU, for the period 2014 until 2021)² or SESAR 3 JU (shortened S3JU, as from 2021).

Both SJU and S3JU stand out for being three-party JUs – the Union and private sector are joined by an international organisation in the domain of ATM – EUROCONTROL.³ The participation of EUROCONTROL has enabled availability of the best knowledge base relating to ATM and has increased the resources available for the ATM research projects (details in chapter 3 below).

SESAR Joint Undertaking coordinated the European ATM policy and ensured the widespread buy-in of relevant ATM stakeholders in Europe and internationally. However, some of planned research was not concluded and is currently undertaken in the Digital European Sky (DES) programme.⁴

SESAR 3 Joint Undertaking (S3JU) has brought together 57 members representing a variety of actors from the aviation sector (see details in chapter 4).

1. Effectiveness

SESAR policy framework and the European ATM Master Plan

The SESAR project is the technological pillar of the Single European Sky (SES)⁵. Therefore, the effectiveness of the SESAR project is not solely linked to the results of the research projects, but to the overall modernisation of the European ATM.

In accordance with Article 1.5 of the Regulation (EU) 721/2014, the SESAR Joint Undertaking is the EU body responsible for the European ATM Master Plan (ATM MP), the agreed roadmap that connects ATM research and development activities with deployment scenarios to achieve the performance objectives of the SES. This task was also assigned to the S3JU in the Single Basic Act⁶. This evaluation covers two ATM MP versions (2015⁷ and 2020⁸) and preparation of the 2025 update of the ATM MP.

¹ More about the ATM Master Plan: <https://www.sesarju.eu/MasterPlan2025>

² Council Regulation (EU) No 721/2014 of 16 June 2014 amending Regulation (EC) No 219/2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) as regards the extension of the Joint Undertaking until 2024, OJ L 192, 1.7.2014, p. 1–8.

³ EUROCONTROL is a pan-European, civil-military organisation dedicated to supporting European aviation.

⁴ ‘Digital European Sky’ refers to the vision of the European ATM Master Plan, seeking to transform Europe’s aviation infrastructure enabling it to handle the future growth and diversity of air traffic safely and efficiently, while minimising environmental impact. For more see: <https://op.europa.eu/publication-detail/-/publication/c9771e7f-5555-11eb-b59f-01aa75ed71a1>

⁵ For the concept and the elements of the SES policy see: https://transport.ec.europa.eu/transport-modes/air/single-european-sky_en

⁶ Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014, OJ L 427, 30.11.2021, p. 17–119.

⁷ European ATM master plan – Edition 2015, <https://data.europa.eu/doi/10.2829/240873>

⁸ European ATM master plan – 2020 edition, <https://data.europa.eu/doi/10.2829/695700>

The 2015 edition of the ATM MP was a significant refinement of the initial vision from 2009, bringing together performance aspects and technological enablers. The time horizon of the European ATM Master Plan was extended up to 2035. It also referred to the key features of the SESAR2020 programme and to the Pilot Common Project⁹.

The 2020 edition of the ATM MP was a response to critical factors affecting air navigation in Europe, such as the increase of traffic, the growing concern on environmental topics, and the new entrants as users of the European airspace. This 2020 edition of the European ATM Master Plan describes four phases (from A to D) extending from 2020 to 2040. The phases reflect the gradual move towards a new ATM service model which will rely on further assistance of intelligent IT systems, extensive information exchange between air and ground operators and introduction of high level of automation.

The Phase A addressed known critical network performance deficiencies by delivering solutions that enhance collaboration between stakeholders, including across state borders and with aircraft, implementing initial system-wide information management, and introducing network capacity and demand balancing measures.

Phase B added efficient services and infrastructure delivery through the launch of first ATM data services, the introduction of cross-border free-route operations, and the integration of advanced airport performance management into the network and the provision of initial U-space services.

The Phase C, which was the focus of the SJU, tackled defragmentation European skies through virtualisation and dynamic airspace configuration, supported by the gradual introduction of higher levels of automation support, the full integration of airports into ATM at network level and the management of routine drone operations.

Phase D aims for Digital European sky with a fully scalable, highly automated ATM system leading to a safety level above current levels.

The above evolution of the ATM MP vision, and timeline poses a challenge for evaluating the real-life effectiveness of the SESAR project. The lead time from a concept entering the exploratory research phase to its full deployment across European ATM takes on average longer than the duration of one SESAR programme. However, the SESAR project has proven through the establishment of the SESAR innovation cycle and the institution of the common projects to establish and keep the link between research and deployment. The ATM MP update introduced the concept of SESAR Deployment Objectives (SDOs), which in systematic manner enables the evaluation of the state of deployment of the SJU and S3JU research results¹⁰.

Effectiveness of the SJU (2014 – 2021)

From its launch in 2014, the objective of the SJU with its SESAR2020 programme¹¹ was to ensure the modernisation of the European ATM system by coordinating and concentrating the relevant research and development efforts in the European Union. The SESAR 2020 programme mission statement included modernising the European ATM system to address

⁹ Commission Implementing Regulation (EU) No 409/2013 of 3 May 2013 on the definition of common projects, the establishment of governance and the identification of incentives supporting the implementation of the European Air Traffic Management Master Plan.

¹⁰ The 2025 edition of the ATM Master Plan is available here: <https://www.sesarju.eu/MasterPlan2025>

¹¹ https://www.sesarju.eu/sites/default/files/-factsheet_SESAR-final-web.pdf

the fragmentation of the European airspace and improving its performance in terms of capacity, punctuality, efficiency, and environmental footprint.

Over its period of activity, the SJU supported 156¹² projects which led to the definition and development of 137 technological solutions, up to a technical readiness level (TRL) 6 or above¹³. SESAR solutions are in most cases ATM technologies that lead to efficiency gains of the ATM operation in Europe, increasing the capacity of the European skies or reducing the environmental impact of the aviation¹⁴ as a whole and the ATM sector more specifically. SJU also maintained the ATM MP with two updated versions, elaborated with the active involvement of the ATM sector.

SJU was successful in fulfilling its objective of coordination and concentration of ATM related research in Europe. A survey of the State Representative Group of the S3JU on the national research programmes¹⁵ concluded that by 2024 no significant alternative to the SESAR project in the domain of the ATM exists in the EU. The SESAR 2020 programme channelled most of the European ATM research efforts into a single research programme¹⁶, thus ensuring a cohesion and alignment towards the ambition of the Master Plan, and of the Single European Sky.

However, the solutions developed under the SJU programme cover 44% of the Phase C vision of the ATM MP¹⁷, with 55 Phase C key SESAR Solutions not completing TRL 6 at the end of the programme and falling short of the original ambition of 84 solutions by 2023 due to the negative impact of the COVID 19 crisis and R&D challenges¹⁸.

The first industrial research call launched by the S3JU under the DES programme included a specific work area and budget to complete the research and development activities of the Phase C of the ATM MP. The selected projects will complete 22 SESAR solutions needed to achieve the remaining share of the ATM MP Phase C vision and its performance ambitions.

In terms of **scientific impact**, the external evaluation of the SJU and S3JU¹⁹, provides results of the bibliometric research outputs for the Jus compared to the average of other programmes. SJU achieved 56% of international co-publications, against 39% in Societal Challenge 4 overall domain (SC4) and 34% at the EU research programmes level. SJU also shows a higher disciplinary diversity of authors (factor 1.4) compared to SC4 (factor 1.1) and the EU27 (factor 1.1). SESAR 2020 publications were nearly 5 times (4.7) more often amongst

¹² This includes 149 projects funded under Horizon 2020, six projects under the Connecting Europe Facility and one project under

assigned revenues from the European Parliament.

¹³ Full list of SESAR solutions can be found at: <https://www.sesarju.eu/catalogue>.

¹⁴ The benefits deriving from the implementation of the SESAR solutions can be found:

https://assets.ctfassets.net/krj50g99u3hm/2VsoMwtGJGE6WDj1v4UG8m/ed68ba4e8a3fb3497b62c634080227d/SESAR_Deployment_Manager_Factsheet_April_2024.docx.pdf

¹⁵ <https://www.sesarju.eu/news/limited-national-initiatives-confirm-sesar-ju-leadership-european-atm-research>

¹⁶ European Commission: Directorate-General for Research and Innovation and Brodnik, C., *Partnership evaluation report – The Single European Sky ATM Research 3 Joint Undertaking – Horizon Europe and the Green Transition – Interim evaluation support study*, Publications Office of the European Union, 2024, p.21, <https://data.europa.eu/doi/10.2777/7895247>

¹⁷ <https://www.sesarju.eu/sesar2020%20closure%20report>, p. 7

¹⁸ On the negative impact of Covid on the projects, see details in the Consolidated Activity Reports 2021 (<https://www.sesar.eu/node/4164>) and 2022 (<https://www.sesarju.eu/node/4509>)

¹⁹ European Commission: Directorate-General for Research and Innovation and Brodnik, C., *Partnership evaluation report – The Single European Sky ATM Research 3 Joint Undertaking – Horizon Europe and the Green Transition – Interim evaluation support study*, Publications Office of the European Union, 2024, p.20. <https://data.europa.eu/doi/10.2777/7895247>

highly cited publications at the 5% threshold within their subfield and year compared to almost two times the world level in SC4.

The external evaluation also pointed out that the percentage share of SESAR 2020 academic-private co-publications is at 23% compared to SC4 with 17% and the EU27 with 13%. A proportion of 64% of SESAR 2020 publications was available under open access, against 62% at the SC4 level and 44% at the EU27 overall level. SESAR 2020 publications receiving citations from patents, two was comparable to the SC4 baseline (factor 2.2).

However, the same bibliometric analysis²⁰ also revealed some weaknesses in the following dimension: SESAR 2020 publications recorded lower levels in all altimetric dimensions (mentions in journalistic pieces, on Facebook, on Twitter and Wikipedia). The share of SESAR 2020 publications mentioned in journalistic pieces is half (1.2) that of the baseline in SC4 (2.3). This value is also slightly lower compared to the share of relevant EU27 publications mentioned in journalistic pieces (1.5). The reasons for the poor performance can be linked to the specific nature of the ATM research and very well-defined target groups for the project results.

Effectiveness of the S3JU (as from 2021)

S3JU has in general similar objectives to its predecessor: to contribute to achieving the SES policy objectives through coordination of the European ATM research activities and by supporting research projects and maintaining and updating the ATM MP. The Single Basic Act entrusts the S3JU with new specific objectives: a) lead the whole SESAR framework into a more digital mindset, and b) further enhance the link between the development and deployment of the innovative ATM solutions, c) development of standards for the industrialisation of SESAR solutions. The new programme requires the S3JU to focus on enabling the DES vision.

Based on the Single Basic Act establishing the JU (Article 174(9)), the S3JU took over SJU activities and closed in 2023 the last remaining projects funded under SESAR 2020 programme. By 1 July 2024, 76 research projects are in execution from the DES programme. 68 projects are funded under Horizon Europe (Exploratory Research, Industrial Research and Validation and Fast-Track) and eight projects under the Connecting Europe Facility²¹ (Digital Sky Demonstrators). These projects are expected to deliver results as of the end of 2026. This means that a new wave of SESAR Solutions should complement the 137 already existing ones which are being or could be deployed²².

Conclusion

During the timeframe of this evaluation, the two JUs have ensured the maintenance of the ATM MP, as required in the legislation. The work of the SJU and S3JU allowed over the period to deliver validated ATM solutions up to TRL6 allowing to cover - if deployed - 100% of the phase B and 44% of the phase C of the ATM MP. The research activities enabled by the JUs have delivered ATM solutions which will once fully deployed deliver the expected enhancements of the European ATM.

²⁰ Ibid, p. 21

²¹ Connecting Europe Facility (CEF) is managed by an EU executive agency CINEA.

²² More information on the SESAR 3 JU projects portfolio can be found on the SESAR Projects Portal: <https://www.sesarju.eu/projects/portal>

2. Additionality

Additionality of the SJU

The investments into the SESAR2020 programme²³ were estimated to be €1585 million, including €85 million for exploratory research, €1.2 billion for applied research and pre-industrial development, and €300 million for large-scale demonstrations. The total planned contribution from all partners amounted to €1.4 billion. As a significant additional task, the European Commission allocated to the SJU an additional €10 million from the CEF funds to organise a call for proposals on U-space²⁴ demonstrations.

At the end of the SESAR 2020 programme, the overall contribution of the partners, reached a total of €1 213,38 million (see Table 1). With this figure, the actual overall investment reached 88% of the initially planned amount. The contribution by Eurocontrol was lower than expected (70% of the planned level), caused by the effects of the COVID-19 pandemic which did not allow research teams to jointly work on certain solutions. In turn, this led to lower than foreseen consumption of research resources, hence also lower net contribution to SJU. In line with this, it led to the leverage (the ratio between EU contribution and combined contribution by industry and EUROCONTROL) of the SJU not reaching its planned target of 1.35 but remaining at 1.14. The private Members exceeded their planned commitments by 2.5%.

Table 1: Planned and realised total net contribution of members other than the Union and EUROCONTROL (Data from S3JU as of the closure of the SJU programme in 2023)

		Industry	EUROCONTRO L	Union	TOTAL
Total Net Contribution (EUR million)	Planned	297.13	492.25	585	1,374.38
	Realised	304.27	343.05	566.06	1,213.38

The leverage achieved by the SJU was impacted by the absence, by regulation establishing the SJU, of In-Kind Contributions for Additional Activities (IKAA) option - contrary to several other JUs such as Clean Aviation, Fuel Cell and Hydrogen Joint Undertaking, Bio-Based Industries JU or Shift2Rail - and the effect of the SJU providing funding of Exploratory Research and open calls for Very Large-scale Demonstration activities for which no in-kind contribution was expected.

Additionality of the S3JU

The expected leverage effect for the S3JU based on the budget included into the SBA (Single Basic Act) is 1.67. It is based on the assumption that the Union will make a financial contribution of €600 million to the S3JU budget, which will be matched by at least €500 million contribution of the private members and up to €500 million contributions of EUROCONTROL. The Union contribution includes €100 million dedicated to basic research, which was not matched by the partners' contribution. At the time of setting up the partnership, the private members provided the S3JU with the letters of commitment in which they estimated their total contribution to SESAR partnership to exceed €1.6 billion.

This investment is targeted towards contributing to the DES programme through in-cash and in-Kind contributions, encompassing both In-Kind Contributions for Operational Projects

²³ SESAR 2020 closure report, <https://www.sesarju.eu/sesar2020%20closure%20report>

²⁴ U-SPACE refers to dedicated airspace for drones' operations.

(IKOP) and IKAA. The SBA specifies several potential sources for the IKAA (additional tasks carried out at the research projects, dissemination, and promotion of SESAR solutions, etc.)

As of the end of 2023, the total amount of declared IKAA contributions stand at €124.5 million. Both figures are below the expected values at the launch of the JU but above the SBA minimum requirements of the SBA (see Figure 1). They include IKAA from private members, but not Eurocontrol. The leverage effect of the S3JU so far is 1.78 which is one of the highest among the joint undertakings established in the Single Basic Act.

However, the reasons for this below expected declaration of the IKAA is not related to the lack of underlying investments but to the complexity of integrating the IKAA declarations and reporting into the financial reporting systems of multi-national complex enterprises.

Figure 1 Planned and reported IKAA by private members of the S3JU (Source: S3JU reports)



The key element of additionality for the SESAR project is its close link between the research activities and their deployment (see Table 2). The S3JU issues its ‘SESAR solutions catalogue’ with all the validated solutions resulting from its research programme that have reached at least the TRL6 maturity level.

Table 2 The Union investment into SESAR Deployment Phase in € million (Source: EC)

2014-2022	Pilot common project implementation	1 349
	Other ATM implementation projects (non-PCP)	302
	SESAR Deployment Manager	43
2021-2027 (Estimate)	Common Project One and other ATM projects	500
	SESAR Deployment Manager	20
	Digital Sky Demonstrators	150
	European Union Aviation Safety Agency (EASA) support (2021-2025)	2
TOTAL € million		2 366

The Union has incentivised the deployment of SESAR solutions mainly using another fund (Connecting Europe Facility). The total Union investment in the deployment is projected to exceed €2 billion (see Table 2). On the private sector-related side, this amount is estimated to generate a co-investment amounting €4 billion²⁵. The deployment projects currently in operation following the implementation of the Common Projects, driven by the SESAR solutions, are projected to save €9.8 billion by 2030 and deliver a total benefit of €14.2

²⁵ https://transport.ec.europa.eu/document/download/a197696f-0705-4127-8e71-b85ce0dd0f20_en?filename=2020-cp1-cba-update.pdf

billion²⁶. The main benefits have been reaped by deploying the Free Route Airspace and Arrival-Departure management solutions.²⁷

Conclusion

The main additionality effect of the SESAR project derives from the cooperation arrangements between the ATM stakeholders, EU bodies and Eurocontrol, which create a direct link from development to deployment. The financial additionality of the SJU was below expected level due to lower than expected contributions by Eurocontrol because of the COVID-19 pandemic. So far, S3JU has achieved the leverage effect of 1.78 which is better than the SJU thanks to the possibility to declare the IKAA related to other SESAR activities, including the deployment of the SESAR solutions.

3. Transparency and openness

Transparency and openness aspects of the SJU

The SESAR partnership has been open to the ATM industry by increasing its membership and has reached out to all relevant stakeholders when discussing the paths for the ATM innovation in Europe. The calls launched by the SJU included both open procedures and ones exclusively targeting members.

SJU involved in addition to the Union and Eurocontrol another 15 private members. At its closure, the number of private members had increased to 19. The initial list of members was selected by the SJU Board following an open procedure foreseen in the regulation (EU) No 721/2014. Over the course of the activities of the SJU, three members either left or modified their set-up (ALENIA, NORACON, SELEX), while five new members were welcomed (AT-ONE, B4 Consortium, COOPANS, Dassault, LEONARDO).

In addition to the private members, the Union and Eurocontrol, the Administrative Board of the SJU benefitted by the participation of the representatives of:

- military stakeholders (represented by the European Defense Agency);
- Civil users of airspace;
- Air Navigation Service Providers (represented by CANSO);
- Equipment manufacturers;
- Airports;
- Staff in the ATM sector;
- Scientific community.

The main policy guidance of the SJU activities, the ATM MP, was consulted with the relevant ATM stakeholders to obtain an industry wide buy-in for the SESAR vision. All the decisions taken at the Administrative Board were published on the SJU website, as well as the minutes of the Administrative Board meetings²⁸.

Obtaining a gender balance is a challenging task in the ATM sector. According to the International Civil Aviation Organisation (ICAO) data, women comprise 20.6% of air traffic

²⁶ SESAR Deployment Manager: <https://www.sesardeploymentmanager.eu/benefits/money>

²⁷ https://assets.ctfassets.net/kvj50g99u3hm/3W515Ug6vCrnRCrfP8WbOz/ca683d9cd41b0ef04f1cfcb8f71501d7/CP1_CBA_Update_2024_1.pdf

²⁸ <https://www.sesarju.eu/governance/gb>

controllers globally and 21.4% in Europe²⁹. Nevertheless, 49% of SESAR 2020 research publications benefitted from the participation of at least one female researcher, against 37% in the Societal Challenge 4 in Horizon 2020 and 41% in the EU27 average. Finally, 19% of project participants and 17% of project coordinators were women³⁰.

Transparency and openness aspects of the S3JU

S3JU is open when it comes to stakeholder participation and membership. This is realised by not having a minimum financial membership contribution, which created a financial hurdle for some organisations in the past. Private members are expected collectively to cover the administrative costs of the S3JU in an amount of €25 million. At present, a larger number of members (currently 57 members) are part of S3JU, representing a broader perspective of ATM stakeholders, especially regarding new entrants in the field of unmanned air traffic (i.e. drones and U-Space).

Prior to the launch of the S3JU, an open call for membership led to over 60 companies signing up for becoming the founding members of the S3JU. During the preparatory process, some withdrawals happened and at the launch of the S3JU, it had in total 55 members, including 53 private members. The increase in the number of members between SJU (19) and S3JU shows its openness and indicates that the importance and potential benefits of the SESAR project had become widely known and appreciated among the ATM industry partners. The SESAR membership provides benefits that exceed beyond participation in research projects, which is possible without becoming a member.

The S3JU launched on the 15th of December 2023 an open call for expression of interest to become Associated Members of the S3JU. The call received four applications, of which two were not compliant with requirements of the SBA. Two met all conditions and therefore the S3JU has 55 private members and 57 in total. Unlike SJU, the S3JU launches only open calls for proposals. The analyses of the call results³¹ (one industrial and two exploratory research calls) indicate that some 41% of the projects are led by entities without ties to the membership of the S3JU. 44% of the funded entities are newcomers. This indicates that the information about the support provided by the S3JU is widely available and that it is not obligatory to be a member to present high quality proposals.

Total number of beneficiaries in Horizon Europe funded projects as of 1st July 2024 was 809 (292 unique participants) of which 15.20% are SMEs (21.4% in CL5) and 12.83% of EU funding is received by those SMEs (17.7% in CL5), 57.2% are private for profit/large companies (44.8% in CL5) and 68.9% of EU funding received by those companies (47.5% in CL5). 4.3% are non-EU-non associated members' entities (4.1% in CL5). These entities do not receive funding.³²

At the end of 2023, 54% of the 37 S3JU staff were female and 46% were male, with 12 nationalities represented. An analysis conducted on the SESAR 3 project portfolio reveals that 24% of project participants were female which is an improvement compared to the 19% of SESAR 2020 programme³³.

²⁹ <https://www.sesarju.eu/news/mind-gap-why-gender-equality-air-traffic-management-matters>

³⁰ SESAR 2020 JU Consolidated Annual Activity Report 2022, p. 106. <https://www.sesarju.eu/node/4509>

³¹ S3JU Consolidated Annual Activity Report 2023. <https://www.sesarju.eu/node/4722>

³² Information extracted from the Horizon Europe Dashboard by the S3JU

³³ European Commission: Directorate-General for Research and Innovation and Brodnik, C., *Partnership evaluation report – The Single European Sky ATM Research 3 Joint Undertaking – Horizon Europe and the*

Conclusion

Over the course of its activity SESAR JUs have been open and transparent about their activities. S3JU has further increased membership opportunities and is a very inclusive European Partnership. In addition, the open calls ensure that non-members also have access to research support. While the ATM sector would benefit from increased gender diversity, the S3JU is working towards improving its gender balance at management and governance level.

4. Efficiency

Efficiency aspects of the SJU

The table below includes the total **operational costs** (OC) (EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), **certified IKAA** and **running costs** (commitment appropriations EU voted budget and contributions from sources other than the EU) for the period 2014-2023. See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Table 3 Operational and administrative costs (source: CORDA database)

The table includes data for Single European Sky ATM & SESAR Joint Undertaking. OC: Operational Costs; IKAA: Certified IKAA; RC: Running Costs

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC	-	-	543,044,351	30,663,237	14,848,351	322,279,604	159,939,359	9,255,055	-	371,531,580	1,451,561,538
IKAA	-	-	-	-	-	-	-	-	14,706,000	30,615,000	45,321,000
RC	-	-	-	10,341,000	9,516,000	9,657,000	8,477,000	4,287,000	4,158,000	7,498,000	53,934,000

** This table only includes costs linked to grants funded under Horizon 2020 and Horizon Europe. It excludes grants financed under the CEF and through assigned revenues from the European Parliament.*

The execution rate of the budget allocated to the research and innovation projects has reached 94%, with a cumulative residual error rate consistently under 2%. The three efficiency indicators required by the financial regulation are time-to-inform (TTI) and time-to-grant (TTG) as well as time-to-pay (TTP).

- Time to Inform (TTI) represents the time needed to manage the evaluation and selection phase from the call deadline to informing the participants. The average time to inform has been 116 days (target of 153 days);
- Time to Grant (TTG) represents the time between the call deadline and grant signature. The average time to grant was 233 days (target of 245 days);
- Time to Pay (TTP) represents the outcome of the process for the payment of costs claimed by beneficiaries. The average time to pay has been 77 days.

All 156 projects funded were assigned with specific performance goals deriving from the ATM MP, with results subsequently validated through SJU level evaluation processes (and consolidated in a yearly Release exercise). This method led to a significant acceleration of the

time to market and industrialisation (from TRL 0 to TRL 6) from 10 years under the first ever SESAR JU (2007 – 2013) to 7 years at the end of SESAR 2020 programme.

Efficiency aspects of the S3JU

Since its launch, the administrative costs of the S3JU have been comparable to those of the SJU, except for 2023 because of the onetime cost of moving the S3JU offices to the Eurocontrol Headquarter.

The S3JU has achieved further efficiency gains compared to SJU, notably with a reduction of its staff by 2 FTEs, and through back-office arrangements with other JUs (on HR and legal matters) and with EUROCONTROL (on IT).

Regarding the exploratory research (ER) and industrial research (IR) calls, compliance with the efficiency indicators was as follows³⁴:

- For ER1 and IR1 calls, the average TTI has been 124 days, and 121 days for ER2, against a target of 153 days. 100% of project's applicants were informed on time.
- For ER1, ER2 and IR1, the average TTG has been 226, 230 and 242 respectively, against a target of 245 days. 100% of ER1 and ER2, and 93.3% of IR1 grants were signed on time.
- Payments for ER1 projects have been made in 4 days, while IR1 payments took an average of 7 days, both compared to a target of 30 days for prefinancing payments.

The S3JU plans its operational expenditure using bi-annual work programme tool (BAWP). The Governing Board approves a yearly budget via an amendment to the BAWP. The S3JU has successfully launched three calls for projects with the expected budget. It has also secured sufficient funds for running costs.

Conclusion

SJU managed its operations efficiently as it declared lower than expected running costs and exceeded the objectives for the other efficiency indicators. Building on this, The S3JU continued to meet the targets the grant management domain and obtained further efficiency gains through enhanced collaboration with other JUs and reduction of staff.

5. Coherence and synergies

Coherence of the SESAR project

SESAR is an integral part of the overall EU Sustainable and Smart Mobility Strategy³⁵. It supports work towards achieving the EU climate goals as defined in the Fit for 55 package³⁶. In addition, the SJU and S3JU have been cooperating with other partnerships towards integrated transport solutions and with international partners to promote European ATM solutions at the world level.

As mentioned above, the main policy instrument, elaborated by the S3JU, ensuring the coherence of the SESAR project is the ATM MP. This strategic policy document is the roadmap shared by all European ATM stakeholders to modernise the ATM systems in Europe and support investment decisions for development and deployment activities. The SESAR

³⁴ S3JU Consolidated Annual Activity Report 2023. <https://www.sesarju.eu/node/4722>

³⁵ COM/2020/789 final

³⁶ COM/2021/550 final

vision developed in the ATM MP (Digital European Sky) has direct impact for the development of supporting services and technologies, such as ground to ground and ground to air communication, global positioning services (including EU initiatives EGNOS and GALILEO³⁷), airport services and airframe development.

Through the development and maintenance of the ATM MP, the SESAR JUs ensure the coherence of the SESAR vision within the whole ATM innovation cycle, with a specific focus on the development phase with its own programme (see Figure 2). Thanks to its cooperation with the SESAR Deployment Manager (SDM) and the other parties involved in the SESAR project cycle, the S3JU ensures that the process of implementing SESAR solutions is supported by the knowledge and documentation produced at the development phase of the SESAR project. To this end the S3JU proposed to introduce the SESAR Deployment Objectives (SDOs) into the latest update of the ATM MP planned to be adopted at the end of 2024.

Synergies of the SESAR project

Within Horizon Europe framework, S3JU is the primary instrument through which ATM R&I at European level is funded and administered, and it is the only partnership providing support for ATM related research. Still, as SESAR is an integral part of transport policy framework and the ATM is a key element supporting aviation, SJU and S3JU have cooperated with other JUs, with DG R&I, DG MOVE and other relevant stakeholders to find common ground and cooperation opportunities.

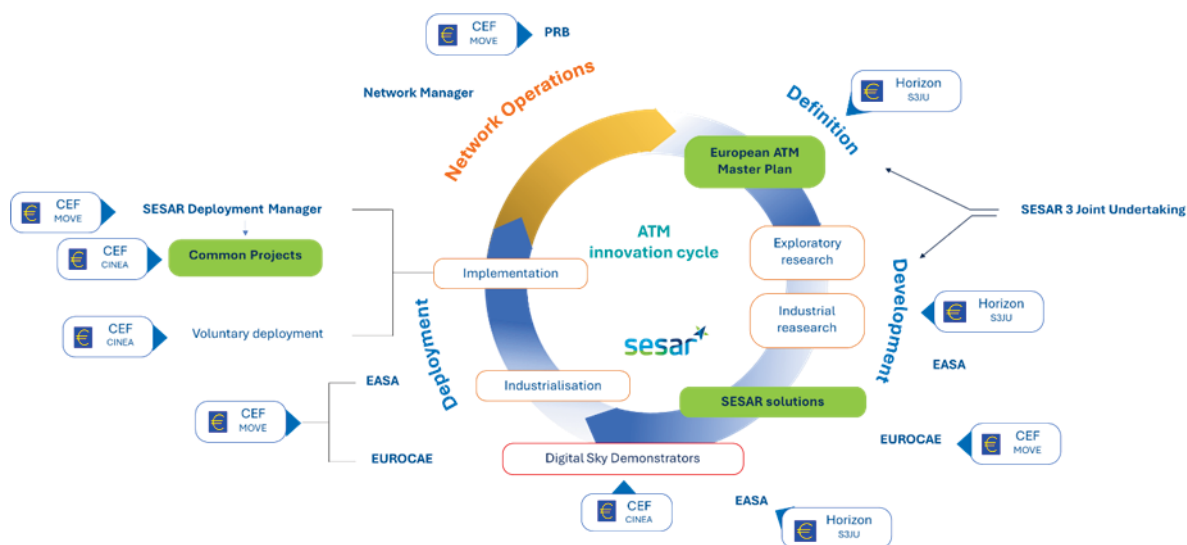
The main synergy with other EU initiatives is with the Connecting Europe Facility for the Digital Sky Demonstrators (DSD). The DSDs are an integral part of the DES and of the SESAR innovation pipeline that bridge the gap between development and deployment by putting technological solutions to the test in live environment. At the time of publishing 9 DSD projects were ongoing. Through an ad hoc administrative agreement with CINEA, the S3JU ensures the strategic orientation of the calls for proposals and supports the management of resulting grants through technical expertise during the call evaluation and grant management phases. Since the beginning of S3JU, around € 120 million from CEF funds have been funnelled into DES projects.

Between 2017 and 2020, a delegation agreement between the European Commission and the SJU led to several projects in the field of U-Space and geofencing for a total amount of around € 10 million.

In October 2023, EU-Rail JU and S3JU published a joint call for the development of an “Integrated air and rail network backbone for a sustainable and energy-efficient multimodal transport system”. The call targets solutions that are expected to improve door-to-door mobility for Europe’s citizens and is a specific synergy between the air and rail innovation communities. With an EU contribution of up to EUR 5 million, this is the first ever joint call co-funded by two Joint Undertakings within the framework of the EU’s Horizon Europe research programme.

³⁷ See <https://www.euspa.europa.eu/eu-space-programme/egnos> and <https://www.euspa.europa.eu/eu-space-programme/galileo>

Figure 2 the phases of the SESAR project and EU intervention tools for each phase (Source: EC)



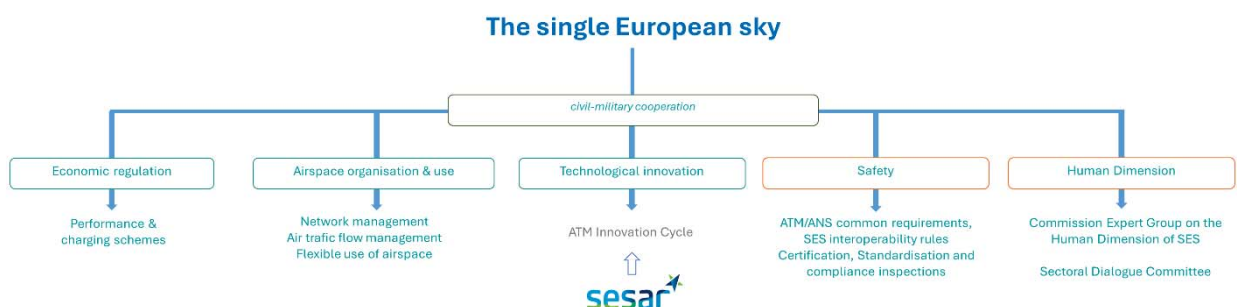
Conclusion

The two SESAR JUs have played a crucial role in modernizing European ATM by aligning research, development, and deployment efforts, by fostering synergies with other EU initiatives, and by ensuring coordination of all the relevant actors across the ATM innovation value chain. The SESAR project has helped to target the relevant ATM related investments from other EU funds, such as CEF and GALILEO programme.

6. EU added value

As an integral part of the SESAR project, the SJU and S3JU have constituted the technological pillar of the Single European Sky (see Figure 3). The JUs are incorporated into the EU policy framework and provide significant EU added value by coordinating all ATM related research in Europe. The JUs have delivered in the overall policy aims of the SES, that is to reduce the fragmentation of the European ATM systems, increase the efficiency of the ATM service provision and to reduce the environmental impact of the ATM.

Figure 3 The pillars of the Single European Sky policy framework (EC drawing)



SESAR project has brought together all ATM stakeholders in Europe through a public-private partnership. SESAR incorporates the entire ATM value chain, enables cross-border initiatives, and strengthens the link between ATM research and the SES policy initiative. The added value of the SESAR partnership is not only linked to the funds this initiative is able to

mobilize but also the creation of the co-operation platform between entities that otherwise would be competitors and between the suppliers and their future clients.³⁸

The management of a portfolio of projects funded under different EU programmes (Horizon Europe and the Connecting Europe Facility) ensures cohesion and alignment with the ambition of the ATM MP and the Single European Sky. This approach generates a cumulative impact that exceeds the sum of individual projects, which is crucial as the development of solutions from idea to industrialisation takes longer than the duration of a single project.

The S3JU provides also EU added value by facilitating the link with standardisation and certification activities in view of an accelerated industrialisation of the solutions and a harmonisation of the ATM systems. For example, S3JU is actively participating in the EASA industrial forum specifying the deployment and standardisation efforts for ATM Functionality 6 of the CP1.³⁹

Based on the work of the JU, the Commission, having established the SESAR Deployment framework, adopted Common Projects⁴⁰. The existence of such a framework supports the implementation of SESAR solutions in a synchronised and coordinated manner.

The deployment experience has also exposed the weaknesses in the research processes. In a large-scale deployment, new challenges emerge which can be overlooked at the research phase of the given solutions. To tackle this, S3JU in cooperation with CINEA, is running number of large-scale demonstration projects. The experience from these projects, which target demonstration of SESAR solutions (in view to facilitate their deployment) ensures higher TRL levels of these solutions.

Conclusion

The EU added value of the S3JU compared to national action by Member states is that it represents an R&I policy lever that induces coordination and collaboration between ATM stakeholders along the entire innovation value chain, from research to deployment, which can ultimately change how air traffic is managed and regulated in the EU.

7. Relevance

The S3JU remains relevant as the European airspace is under extreme pressure from increasing demand while also experiencing reduced airspace capacity⁴¹. Compared to 2019 air traffic is at 97% and, with up to 20% of the Network's airspace unavailable due to Russia's full-scale invasion of Ukraine, nearly half (18) of the air navigation service

³⁸ European Commission: Directorate-General for Research and Innovation and Brodnik, C., *Partnership evaluation report – The Single European Sky ATM Research 3 Joint Undertaking – Horizon Europe and the Green Transition – Interim evaluation support study*, Publications Office of the European Union, 2024, p.20. <https://data.europa.eu/doi/10.2777/7895247>

³⁹ <https://www.easa.europa.eu/en/newsroom-and-events/news/easa-publishes-final-report-industrialisation-initial-trajectory>

⁴⁰ Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan OJ L 190, 28.6.2014, p. 19–44 (repealed);

Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan OJ L 36, 2.2.2021, p. 10–38.

⁴¹ For trends in demand for ATM Services and the limitations of the European Airspace, see Eurocontrol Data Hub: <https://www.eurocontrol.int/our-data>

providers (ANSPs) are managing exceptional increases in traffic (some of which was not forecasted) of more than 15% above 2019 levels.

The ambition of building a Digital European Sky is defined in ATM MP, which serves as the strategic agenda for the S3JU. It matches the ambitions of the European Commission's Sustainable and Smart Mobility Strategy and its European Green Deal priorities as well as the aviation research priorities in Horizon Europe, namely climate neutrality by 2050 and digital transformation⁴².

To increase the relevance of the S3JU and to better integrate the development and deployment phases of the SESAR project, the updated edition of the ATM MP, elaborated by the S3JU during 2024 and benefiting from stakeholder involvement, includes strategic development priorities and strategic deployment objectives⁴³. This evolution indicates that the practical challenges of deployment need to be tackled already during the research and development phase of the technical innovation cycle.

To ensure relevance regarding the certification requirements, the S3JU has signed a comprehensive cooperation agreement with EASA, involving them early in the development phase and thereby ensuring informed certification process in the deployment pipeline, and accelerated industrialisation of the solutions when they come.

Conclusion

For the Union, SES objectives remain relevant to enable smooth functioning of the European aviation sector. The S3JU is constantly maintaining the focus of the SESAR project and of its own activities on the most relevant needs by regularly updating its key strategic and policy document – the ATM MP. The ATM stakeholders welcome the increasing integration of the SESAR development and deployment phases, which is further supported by a close cooperation with EASA.

8. Directionality

Whereas the DES programme is in its early phase and has not yet delivered new solutions, the SJU already developed, once implemented, will result in a significant performance improvement for ATM in line with the SES performance framework⁴⁴. This estimation foresees that by 2035 the SESAR solutions would deliver:

- Increased punctuality of flights by 18% (target 10-30%)
- Cost efficiency increased by 30.3% (target 30-40%)
- Increased capacity of airports by 23% (target 10%)
- Terminal Manoeuvring Areas (TMA) increased by 36% (target 47%)
- En route capacity increased by 60% (target 49%)
- Reduction of additional flight time by 41% (target 50-55%)

⁴²European Commission: Directorate-General for Research and Innovation and Brodnik, C., Partnership evaluation report – The Single European Sky ATM Research 3 Joint Undertaking – Horizon Europe and the Green Transition – Interim evaluation support study, Publications Office of the European Union, 2024, p.15. <https://data.europa.eu/doi/10.2777/7895247>

⁴³ https://www.sesarju.eu/sites/default/files/documents/reports/Declaration_SESAR_AnnualConference.pdf

⁴⁴ Commission Implementing Regulation (EU) No 409/2013

- Save 180 kg of fuel per flight (target 250-500 kg).⁴⁵

This will translate into substantial economic benefits, increased competitiveness of the EU aviation industry, and improved overall passenger experience, while reducing the overall environment footprint of the sector. S3JUs efforts in reducing airspace fragmentation and enhancing the performance of ATM systems are not only vital for the advancement of Europe's ATM capabilities but also play a key role in supporting Europe's strategic autonomy and technological sovereignty in the global aviation sector.

Conclusion

The estimated impact of future SESAR solutions has been to shorten the flight paths, increase traffic capacity, and reduce the ATM-related delays and fuel consumption.

9. International positioning

S3JU aims for the EU aviation sector to speak with one voice at the international level. SJU and S3JU have been able to orientate/influence international policy by engaging with bi-lateral contacts across the globe and working in the aviation led international organisations to ensure the harmonisation of global ATM system aligned on the European standards.

SJU has over time signed number of cooperation agreements (see Table 4). The level intensity of these agreements is variable. The cooperation with USA, Singapore and Japan is leads to coordination meetings that take place several times per year, while the agreements with UAE, Qatar and Georgia have led to limited number of joint actions. As part of the EU external aviation policy, S3JU also supports EU technical cooperation projects by EASA for ATM-related aspects with various regions, including North Asia, Southeast Asia, South Asia, and Latin America.

Table 4 S3JU International Cooperative Arrangements (Source: S3JU)

Country	Arrangement	Date of signature
 USA	EU-US Memorandum of Cooperation for ATM Modernization, Civil Aviation Research & Development, and Global Interoperability	2011 (amended 2017)
 Japan	Memorandum of Cooperation between MLIT and DG MOVE	2011
 Singapore	Memorandum of Cooperation between CAAS and SJU	2012
 UAE	Memorandum of Cooperation between GCAA and SJU	2016
 Qatar	Memorandum of Cooperation between QCAA and SJU	2017
 Georgia	Letter of Intent between GCAA and SJU	2019

The S3JU's international engagement strives to synchronize the EU priorities with those at the ICAO level, involving direct participation in expert groups and close collaboration with

⁴⁵ [European ATM Master Plan 2025 Edition](#), as adopted by the Governing Board of the S3JU on 12 December 2024.

the EC, EASA, and EUROCONTROL on ATM modernization. For example, to this end a major symposium on Trajectory Based Operations was held in June 2024 in Brussels⁴⁶.

Conclusion

Via the S3JU's bilateral cooperation arrangements, regional cooperation and joint efforts at the ICAO level, the European approach to ATM modernisation has a global reach.

10. Phasing-out preparedness

According to the Single Basic Act⁴⁷, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

In detail, the plan should include administrative and operational adaptations, which should allow the JU to proceed with its activities in case of no Union funding under the next Framework Programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

Also, concerning the policy aspects, the phasing out plan should include concrete reflections on short- and long-term targets, strategic alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

At its meeting on the 14th of December 2023 the S3JU Governing Board adopted the phasing out plan. The plan provided details about the legal and financial aspects of the closure of the partnership.

In detail, in the 2023 phasing out plan, the S3JU proposed the following possible future development scenarios:

- The extension of the S3JU under the next MFF with Union financial contribution. Sub-options are the merge of the S3JU with other existing JU's or the creation of a new JU. This option allows for continuation of the public-private partnership and ensures highest continuity.
- Entrusting EU ATM research to an Executive Agency of the European Commission. This option means the end of a public-private partnership, while it ensures a certain degree of continuity.
- Entrusting EU ATM research to EUROCONTROL, the legal and institutional consequences of such an approach needs to be further studied.
- Entrusting EU ATM research to a partnership under Article 185 of the TFEU. Article 185 initiatives are long term public-public partnerships established on a voluntary basis by EU Member States that are also eligible for a substantial financial contribution from the EU Research Framework Programme. They are established through the EU ordinary legislative procedure and require a Dedicated Implementation Structure.

⁴⁶ <https://www.sesarju.eu/node/4616>

⁴⁷ Council Regulation (EU) 2021/2085 establishing the Joint Undertakings under Horizon Europe.

- Coordination of ATM research and innovation by the sector without EU funding

The members of the Governing Board have expressed their support for the partnership and willingness to work with the Commission and Eurocontrol to find ways for continuing the partnership to ensure the delivery of the revised ATM MP. To provide factual and contextual input to the preparation of FP10, the Commission has launched a study to explore paths of future developments. The results of the study are expected in 2025.



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PART 12/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 20: Evaluation of Smart Networks and Services (SNS) JU

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

This is an evaluation of the Smart Networks and Services Joint Undertaking (SNS JU) partnership (2021-2031) and its predecessor under Horizon 2020, the 5G PPP (2014-2020), both aimed at developing the next generation of mobile communication technologies as key infrastructure for the economy and society. While the 5G PPP¹ focused on 5G mobile telecommunication technology standards, the SNS JU² aims to develop technologies for 6G and boost deployment of 5G. As an external evaluation³ found, both partnerships were (and are) successful in accelerating technology development, leveraging funding, and enabling early collaboration among leading European companies for greater control over key aspects of the technology.

Horizon 2020 – 5G PPP: The aim of the 5G PPP under Horizon 2020 was to deliver solutions, architectures, technologies and standards for the next generation of communication infrastructure, most notably 5G; to secure Europe’s leadership; and to create new markets.

Overall, the 5G PPP successfully met its objective to ‘conduct research and innovation work that will form the basis of the 5G infrastructure’⁴ by efficiently and effectively managing the projects and calls⁵. It covered more than 90 projects over the entire period, which was organised in three phases, covering basic research, system development and the use of 5G technology in vertical industries, and validation and research activities targeting developments beyond 5G⁶. For instance, one project under the 5G PPP was Hexa-X⁷, a flagship project for 5G and 6G development that focused on technology enablers for connecting the human, physical, and digital worlds.

Another objective of the 5G PPP was to ‘support the emergence of global standards’⁸. This objective has been achieved as the 5G PPP fostered European participation in standardisation activities and was an active contributor to 5G standardisation globally (see Section 1.b). Another aim of the 5G PPP was to foster innovation across the 5G value chain as well as linking 5G technology development with its use cases in vertical industries, reflected in the objective to ‘validate technologies from a technical and business perspective through early trials and reference deployments’. This was realised as the 5G PPP shifted from research activities (first stage) to large trials in different vertical industries. The objective to ‘reinforce the European

¹ [Regulation \(EU\) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation \(2014-2020\)](#)

² [Council Regulation \(EU\) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe](#)

³ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 28. <https://data.europa.eu/doi/10.2777/17621>

⁴ 5G PPP, The 5G Vision (2015), [brochure-A4-nospread.indd \(5g-ppp.eu\)](#).

⁵ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 28. <https://data.europa.eu/doi/10.2777/17621>

⁶ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

⁷ <https://hexa-x.eu/>, <https://cordis.europa.eu/project/id/101015956/>.

⁸ 5G PPP, The 5G Vision (2015), [brochure-A4-nospread.indd \(5g-ppp.eu\)](#).

industrial capability in communication network technologies⁹ was supported by the 5G PPP's activities, but the partnership's goal to achieve a global market share of over 43% of communication infrastructure was not met¹⁰.

Horizon Europe - SNS JU: Building on the achievements of the 5G PPP, the SNS JU's general objectives¹¹ include:

- to 'contribute to European technological sovereignty across the future smart networks and services value chain';
- 'advance European technological and scientific excellence to support European leadership to shape and master 6G systems by 2030';
- 'contribute to the uptake of digital solutions in the European markets and of digitisation of key vertical industrial sectors';
- 'contribute to the development of digital innovations responding to a 6G EU shared vision'; and
- to 'ensure the alignment of future smart networks and services with EU policy and societal needs, contribute to societal objectives and SDG's' including European Green Deal, network and information security, ethics and privacy, as well as a human-centric and sustainable internet.

The objectives of the SNS JU are well aligned with the main strategic policy goals of the European Union, in particular, the Digital Single Market Strategy, the European Green Deal, and the Industrial Strategy for Europe. The SNS JU ties in closely with the goals of the Horizon Europe programme and some of its key strategic orientations¹². It further contributes to all destinations of Horizon Europe Cluster 4.

While it is too early to fully evaluate the SNS JU's achievements, its performance so far indicates that it is on the right path. An external evaluation found that the SNS JU effectively utilises economies of scale and cross-border effects to surpass the scope of bilateral and national funded collaboration projects. It caters to the needs of the telecommunication industry and various vertical sectors, accelerates technology development, and enables European companies to maintain a competitive position and shape the direction of next-generation mobile technologies¹³.

⁹ 5G PPP, The 5G Vision (2015), [brochure-A4-nospread.indd \(5g-ppp.eu\)](#).

¹⁰ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 26. <https://data.europa.eu/doi/10.2777/17621>

¹¹ SNS JU (2023), *Strategic Research and Innovation Agenda 2021 – 2027*. Available at [sns-ju-sria-2021-2027-second-edition-2023.pdf](#).

¹² Particularly, Key Strategic Orientation A ('Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains') and Key Strategic Orientation C ('Making Europe the first digitally enabled circular, climate-neutral and sustainable economy'). See *Horizon Europe strategic plan 2021-2024*, <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/3c6ffd74-8ac3-11eb-b85c-01aa75ed71a1>.

¹³ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 28. <https://data.europa.eu/doi/10.2777/17621>

The 5G PPP and SNS JU pursue several long-term scientific, societal, economic and technological objectives, focusing on research, innovation and development of 5G and 6G technologies and their deployment in verticals, aiming to provide high-quality networks and services for the benefit of society. As available data shows, the 5GPPP has been successful in delivering on its goals, and the SNS JU, which was only launched in 2021, is considered to be making promising progress thus far¹⁴.

Scientific impact

Scientific excellence: For the 5G PPP, data collected from the public sites of the funded projects shows that they have had a significant impact on the scientific community. For instance, Phase 3¹⁵ projects have produced more than 1900 publications (34% of which were published in scientific journals)¹⁶.

In 2023, SNS projects produced and disseminated knowledge in 129 peer-reviewed articles, 230 conference papers, and 14 white papers. These figures exceed the target of 100 publications¹⁷. This indicates that the SNS JU has an impact on the level of scientific activity and publications, which is a crucial element of Europe's long-term scientific and technological leadership in the sector.

High-risk research funding: Low-TRL activities are considered as high-risk. In the SNS JU, they accounted for 70% of the total funding of call 1 projects¹⁸. The 2023 target was 50%¹⁹. It is expected that low-TRL activities will deliver innovative solutions in the future and allow European companies to spearhead innovation. The figure is not available for the 5G PPP.

Rapid diffusion: More than 100 5G PPP events took place in 2022, including technical workshops, information days and research and innovation events to harmonise the activities of projects and promote their results²⁰. There was no target in the 5G PPP for this value.

The SNS projects that started in 2023 (call 1) reported the organisation of 100 events and workshops, exceeding the target of 25 workshops for 2023. Additionally, they reported

¹⁴ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 5. <https://data.europa.eu/doi/10.2777/17621>

¹⁵ 5G PPP was organised in three phases. Phase 1 focused on basic research to provide the key concepts and solutions for 5G networks, Phase 2 concentrated on system development and bringing this new 5G technology to the vertical industries, and Phase 3 focused on creating large-scale trials and innovation infrastructures as well as basic research activities beyond 5G.

¹⁶ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

¹⁷ Smart Networks and Services Joint Undertaking (2024), Annual Activity Report 2023, https://smart-networks.europa.eu/wp-content/uploads/2024/07/sns-ju_annual_activity_report-2023-ef-esigned.pdf. These numbers are not final as the projects have reported in the context of the SNS-OPS project questionnaire and further processing is underway.

¹⁸ Call 1 refers to the first call launched by the SNS JU, which opened on the 18 January 2022 and closed on the 26 April 2022. There are 35 Call 1 projects.

¹⁹ Smart Networks and Services Joint Undertaking (2024), Annual Activity Report 2023, https://smart-networks.europa.eu/wp-content/uploads/2024/07/sns-ju_annual_activity_report-2023-ef-esigned.pdf.

²⁰ https://5g-ppp.eu/event-calendar/list/?tribe_paged=1&tribe_event_display=list&tribe-bar-date=2022-01-01.

participation in 314 industry events²¹. Overall, the SNS JU helped create and expand an R&I network covering various sectors (application fields and use cases) and the entire value chain²².

Technological impact

Technological innovations: The 5G PPP produced numerous significant technological innovations (key achievements) across its different projects, notably for THz communications, reconfigurable intelligent surfaces and integrated sensing and communications, leading to the creation of related industrial specification groups in the European Telecommunications Standards Institute (ETSI). In 2022 alone, 129 key achievements were reported in Phase 3 projects²³. Key achievements cover nine technical areas, one for business standardisation and regulation, and nine vertical sectors²⁴. Categories include radio access networks; software networks; security, privacy, resilience; vertical experimentation; trials and pilots; transport and logistics; business, standardisation and regulation. No data is available for the SNS JU.

Standardisation contributions: European contributions to standardisation offer several substantial benefits for EU key players, stakeholders and consumers, including a strategic position for European players in the future connectivity market, enhanced interoperability, market efficiency and innovation. Based on the latest figures reported by SNS-OPS²⁵, SNS JU projects have produced 308 contributions to standards by December 2023, exceeding the 2023 target of 50.

Likewise, the 5G PPP has been an active contributor to 5G standardisation globally. Overall, the 5G-IA Pre-Standardisation WG has tracked more than 230 inputs in various organisations. Inputs included technical reports, study/work items, proofs of concept and new commercial requirements²⁶. Most inputs have been submitted to 3GPP and ETSI with a growing number of inputs to IEEE²⁷, and inputs to sector associations working groups like 5GAA²⁸. No target existed for 5G PPP.

Balance between research, innovation, and deployment: In 2023, the SNS JU started Phase 1 of its roadmap with a first batch of 35 projects (29 research and innovation actions (RIAs), 4 innovation actions (IAs) and 2 coordination and support actions (CSAs)) that started by early 2023. The SNS R&I work programme was designed to focus on research activities during its

²¹ Smart Networks and Services Joint Undertaking (SNS JU), Annual Activity Report 2023, https://smart-networks.europa.eu/wp-content/uploads/2024/07/sns-ju_annual_activity_report-2023-ef-esigned.pdf.

²² European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 31. <https://data.europa.eu/doi/10.2777/17621>

²³ Phase 3 Key Achievements 3.2, <https://5g-ppp.eu/phase-3-key-achievements-3-2/#radio>.

²⁴ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

²⁵ <https://smart-networks.europa.eu/csa-s/#SNS-OPS>, These numbers may not be the final ones, as the projects have reported contributions in the context of the SNS-OPS project questionnaire and further processing is underway.

²⁶ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

²⁷ The 3rd Generation Partnership Project (3GPP), the European Telecommunications Standards Institute (ETSI) and the Institute of Electrical and Electronics Engineers (IEEE) are important bodies or associations for standard development, which play a crucial role in defining 5G and 6G standards. Participating in these bodies early on is central to shape standards and define the vision of technologies and their use cases.

²⁸ The 5G Automotive Association (5GAA), <https://5gaa.org/>.

initial phases to shift gradually towards large-scale trials in the final ones, therefore the IA percentage will grow in the final phases. In 2023, 85.7% of funding was allocated to RIAs and 9.5% to IAs.

Economic impact

Market share: While the 5G PPP had set an ambitious target to achieve a global market share of over 43% for European players in communication infrastructure, this goal was not achieved. According to some experts, the target was too ambitious. Reaching it would depend not only on R&D efforts, but also corporate strategy and geopolitical developments²⁹. In 2023, the market share for communication networks was 27.8%³⁰. No target was set for the SNS JU.

Societal impact

While the societal impact of the 5G PPP and the SNS JU remains difficult to measure, the 5G PPP and even more so the SNS JU do include societal aspects. For example, the Hexa-X-II project³¹, the European level 6G Flagship project, a continuation of the Hexa-X initiative funded by the 5G PPP, is a ‘big pillar’ project involving over 40 partners and focuses on sustainability, as well as aspects like user-centricity, user acceptance, and trustworthiness.

Moreover, the importance of meeting societal goals is addressed within a sub-working group within the SNS partnership. This group defined the concept of key value indicators (KVI), which complements the current performance-based approach using key performance indicators (KPIs). KVIs are indications of relevant societal values that can be enabled by future 6G technology and services, and will be used to assess progress toward the goals of safety, security, trustworthiness, inclusiveness and sustainability³².

2. Additionality

With a mobilisation of private investment worth 11 times the EU's public investment, the 5G PPP reached its target of a leverage factor between 5 and 10, set as a business KPI³³. The direct leverage factor remained at the same level under the first two work programmes of the SNS partnership. Participants in the projects funded by Horizon Europe are required to contribute at least a certain proportion of their own funds to the projects. This constitutes a co-investment of public and private investment towards achieving the programme's objectives. Table 1 depicts the most recent data on the partners' financial contribution.

²⁹ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 29. <https://data.europa.eu/doi/10.2777/17621>

³⁰ Smart Networks and Services Joint Undertaking (SNS JU), Annual Activity Report 2023, https://smart-networks.europa.eu/wp-content/uploads/2024/07/sns-ju_annual_activity_report-2023-ef-esigned.pdf.

³¹ <https://hexa-x-ii.eu/>, <https://cordis.europa.eu/project/id/101095759>.

³² European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 31, 41. <https://data.europa.eu/doi/10.2777/17621>

³³ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

Table 1: SNS JU members' contribution and leverage

Expected members' minimum contributions, as per founding Regulation and legal decisions			Actual members' contributions, as of December 2023/June 2024		
EU ³⁴ contribution, in million EUR	Total contributions by partners, in million EUR (of which only cash)	Expected direct leverage factor (of which only cash)	EU contribution, in million EUR	Total contributions by partners, in million EUR (of which only cash)	Direct leverage factor (of which only cash)
900	895 ³⁵	0.99	368	239 (30)	0.65 (0.08)

Source: CORDA (Horizon Europe contribution and costs), eGrants dashboard (other EU contribution and costs), Annual Activity Reports of JUs (for additional activities).

The current direct leverage factor of 0.65 as depicted in Table 1 is below the expected leverage factor of 0.99. Since certification for many in-kind contributions from SNS JU members for 2023 is still pending, it is likely that this value will be higher in following years. According to data provided in the SNS Annual Activity Report 2023³⁶, the total amount of financial and in-kind contributions for the year 2023 amounts to EUR 122 463 655.76. Since the in-kind contributions to operational activities (IKOP) are reported by private members after the end of a project, the first IKOP for SNS JU projects will only be reported by 2026.

3. Transparency and openness

Overall, both the 5G PPP and the SNS JU demonstrate transparency in their implementation and are open to newcomers. In comparison to the 5G PPP, the SNS JU expands the scope and partner composition, encompassing the entire value chain and addressing the demand side more effectively. Newcomers in SNS projects account for 9% of participation (see Table 2), and receive around 6.5% of allocated EU funding.

Table 2: Participation of newcomers in the SNS JU

Participants	Participations	EU funding	Participants %	Participations %	EU funding %
62	81	24 255 571	15.35	9.06	6.52

Source: Data provided by DG RTD based on CORDA data, accessible here: [JU newcomers 20240701.xlsx](#). Reference date 01/01/2024.

The involvement of SMEs was already an important goal of the 5G PPP, and a KPI set a target of 20% of project participations by SMEs. Already in the 5G PPP, an SME working group was established by Network Europe promoting the skills and expertise of SMEs, especially towards larger companies and research organisations, and on supporting the engagement of SMEs in collaborative projects. SME participation in 5G PPP projects has increased over the years; the original target of 20% was even exceeded, and the share of SMEs ended up at 23%.

As 6G is an even broader technological concept than 5G, involving SMEs from different sectors and expanding the community remains crucial. This is why there were numerous efforts to promote the involvement of SMEs and their capacity to become partners in projects in the SNS JU. Under SNS, the target is also to have 20% SME participation, but efforts to mobilise SMEs have been further strengthened.

³⁴ Includes only Research and Innovation FP contributions, not other contributions that might come from the EU.

³⁵ According to Art. 164 of Council Regulation (EU) 2021/2085, at least EUR 900 000 000.

³⁶ Smart Networks and Services Joint Undertaking (SNS JU), Annual Activity Report 2023, https://smart-networks.europa.eu/wp-content/uploads/2024/07/sns-ju_annual_activity_report-2023-ef-esigned.pdf.

Table 3: Participation from SMEs

	No of SME participations	% SMEs in total participations	Commission contribution to SMEs (million EUR)	% of EU contributions to SMEs
HE - SNS	244	27.29%	39.2	24.35%
H2020 - 5G	349	23.3%	122.3	20.8%

Source for Horizon Europe: Data provided by DG RTD based on CORDA data, accessible here: [JU SMEs 20240701.xlsx](#). Reference date 01/01/2024.

Source for H2020: Technopolis Group, based on CORDA data (reference date HE 19/06/2023, Horizon 2020 15/11/2021)

As shown in Table 3 above, the share of EU funding received by SMEs in SNS projects has increased from 20.8% in H2020 to 24.35% in Horizon Europe. SME participation in the SNS JU was higher than that in other JUs, indicating that outreach and mobilisation efforts have succeeded in involving stakeholders of different sizes³⁷. Despite the successful efforts to address SMEs, some general challenges to their inclusion remain, specifically relating to the administrative burden and the lack of resources for participating in time-consuming calls for proposals.

For the 5G PPP and the SNS JU, the development of strategic research and innovation agendas (SRIAs) has been an important step in expanding the R&I network and ensuring openness to new partners³⁸. The development and updating of the SRIAs was organised by Networld Europe ETP³⁹. The partnership also created a forum for exchange between partners, competitors and other stakeholders who often do not meet and discuss regularly in this way. The SNS JU has already carried out extensive dissemination in conferences, workshops and other events to inform the communities about SNS and the 6G Industry Association (6G-IA). These events have been organised at European, national and regional level.

In the SNS JU, the development and updating of the SRIAs is organised by NetworldEurope ETP and has its roots in the European Technology Platforms (ETPs), established under the seventh research framework programme (FP7). The platform has more than 1 000 members and goes beyond the telecommunications sector. It integrates companies from several industries (verticals) that are relevant for the partnership. There are no barriers (e.g. membership fees) to becoming a member of this ETP. NetworldEurope has a procedure for ensuring participation, with a public consultation to which everyone can contribute. NetworldEurope includes a

³⁷ European Commission (2024), SME participation in Horizon Europe: Key figures (and key issues) in the first three years, doi:10.2777/576670. Based on data from the R&I programmes' monitoring system (CORDA), reference date 1 January 2024.

³⁸ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 40. <https://data.europa.eu/doi/10.2777/17621>

³⁹ NetworldEurope is the incorporation of the European Technology Platform (ETP) for communications networks and services, the follow-up of NetWorld2020, to keep pace with changing EU policies as stated in Horizon Europe. NetworldEurope ETP brings together players in the communications systems sector: industry leaders, innovative SMEs, and leading academic institutions, thus reaching out to a significant part of the European ICT community. <https://www.networldeurope.eu/overview>

scientific committee, which allows it not only to focus on industrial aspects but also to give space to longer-term aspects.

The 5G PPP and the SNS JU have adjusted their SRIAs every 2 years to respond to changes and challenges. The partnership and the developing process of the SRIAs enabled them to cope with changes in the environment. The challenges include geopolitical developments and the emerging demand for sovereignty, which slowed down international coordination and efforts to shape development in this area. For instance, under a previous US administration during the 5G PPP those efforts slowed down with interim consequences for these relationships, and the war in Ukraine influenced global collaboration patterns in the development of 6G technology⁴⁰.

4. Efficiency

Table 4 below reports the total **operational costs (OC)**, EU contributions; Validated IKOP; Financial contributions to operational activities by JU partners; Eligible project costs funded by non-JU members to project activities; Contribution from Member States and international organizations to project activities), **certified IKAA** (In-Kind contributions to additional activities) and **running costs (RC)**, commitment appropriations EU voted budget and contributions from sources other than the EU) for the period 2014-2023 (the JU has been financially autonomous from end of 2023). See also Annex 4.4.1 for a comparison of operational expenditure and administrative expenditure of Joint Undertakings and EIT KICs of the period 2014 -2023.

Table 4: Operational and administrative expenditures of the JU (source: CORDA database)

*The table includes data for Smart Network & Services Joint Undertaking (the JU has been financially autonomous from end of 2023).
OC: Operational Costs; IKAA: Certified IKAA; RC: Running Costs*

	2014 [EUR]	2015 [EUR]	2016 [EUR]	2017 [EUR]	2018 [EUR]	2019 [EUR]	2020 [EUR]	2021 [EUR]	2022 [EUR]	2023 [EUR]	Total
OC		-	-	-	-	-	-	-	259,074,164	139,176,182	398,250,345
IKAA	-	-	-	-	-	-	-	-	-	107,984,600	107,984,600
RC	-	-	-	-	-	-	-	-	204,599	2,397,882	2,602,481

One main difference between the 5G PPP and the SNS JU is the governance, due to the new form of public-private partnership. While the organisation's form as a JU provides additional opportunities due to its more stable financial funding the disadvantage is that the coordination effort has increased significantly due to the involvement of numerous stakeholders. The administrative tasks also increased at DG CNECT level as more effort and competencies were required, particularly for the initial operations of the JU. In this context, the people in the European Commission responsible for overseeing the JU had to build up expertise in financial, legal and human resources matters.

The SNS JU has been efficient in managing its grants with an average time-to-grant (TTG) of 214 days (see Table 5). TTG is the time from call deadline to the signing of the grant agreement.

⁴⁰ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 37. <https://data.europa.eu/doi/10.2777/17621>

All 63 grants signed by SNS JU up to 1 June 2024 were granted within the TTG target of 245 days or less.

Time-to-inform (TTI) specifies the time from call closure to the date of communicating the evaluation results. With a TTI of 100 days, the SNS JU met the target of 5 months (153 days). Time-to-signature (TTS) is the time from the invitation letter to the signing of the grant agreement. The target is 3 months (92 days), which the SNS JU missed by a small margin with 115 days.

Table 5: Time-to-grant for grants under the SNS JU

	Signed grants	Average time-to-inform TTI)	Average time-to-signature (TTS)	Average time-to-grant (TTG)	% below TTG target (less than 245 days)
Totals all JUs	452	110	122	231	81%
SNS	63	100	115	214	100%

Source: Data compiled by DG RTD (extraction date 01/07/2024), to be accessed here: [TTG Dashboard Partnerships.xlsx \(sharepoint.com\)](#)

Needing to cover half the costs of the SNS JU office, the 6G Industry Association (6G-IA) had to increase 6G-IA membership fees to EUR 20 000 for large organisations and EUR 5 000 for SMEs, universities and public research organisations from 2022 onwards. The 5G PPP started with about 50 members and ended with about 100, which also participated in the launch of the new JU. The number of associated members will be just over 300 in 2023.

A drawback of the JU governance and its operational costs perceived by industry representatives is the limited ability of the industrial core members to impose a fee on all benefiting entities⁴¹. Only constituent or affiliated industrial members of the JU pay membership fees to operate the office. However, the legal base of the SNS clearly provides that JU funding must be made available to any entity eligible for funding under Horizon Europe with no entry barriers. As a result, the number of organisations that are funded by and benefit from the programme is significantly higher than the number of constituent or affiliated industrial members of the JU. The aim of the JU is to encourage beneficiaries involved in large or multiple projects who are not yet members to become members of the 6G-IA⁴².

Another identified challenge is the administrative burden and resources associated with participating in calls for proposals, which can present a barrier for SMEs. SMEs may also have difficulty finding a consortium as they often do not have large networks. This issue affects newcomers in particular. Overall, the administrative burden for SMEs has not decreased, especially due to increased reporting duties.

⁴¹ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 27. <https://data.europa.eu/doi/10.2777/17621>

⁴² European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 27. <https://data.europa.eu/doi/10.2777/17621>

5. Coherence and synergies

In the 5G PPP, the 5G for Connected and Automated Mobility WG has been a platform for discussing and sharing information on the Connecting Europe Facility (CEF) Digital programme, specifically focusing on the 5G Corridors deployment plans⁴³. Moreover, work on the Smart Connectivity Digital Innovation Hub Network under 5G PPP contributed to the Digitalisation of the European Industry, which is part of the next Digital Europe programme (DEP), by enabling the adoption of 5G and IoT technologies⁴⁴.

SNS JU has increased synergies with other programmes and is more consistent with them than the 5G PPP was. The SNS works closely with the States' Representatives Group (SRG) and national initiatives through joint events (a special meeting and a convened session at EuCNC (European Conference on Networks and Communications)⁴⁵ 2023 and a dedicated session at the 5G Techritory⁴⁶ event). It also collaborates actively with the SRG through the SNS-ICE project⁴⁷, an information gateway between the EU national initiatives and the SNS JU. The SNS JU also contributes to the coordination of national programmes, including under the Recovery and Resilience Facility and other European programmes and facilities such as the Digital Europe programme (DEP). Overall, the SNS JU puts greater emphasis on exploiting synergies with national programmes than the 5G PPP, most notably via a process facilitated by the States' Representatives Group (SRG).

In addition, according to the most recent BMR survey results (2022), the SNS JU exploits synergies with the Connecting Europe Facility (CEF) and the Digital Europe programme (DEP). It has a strategic role in providing guidance for the relevant programmes under the Connecting Europe Facility, in particular reviewing the Strategic Deployment Agenda (SDA) for 5G for Connected and Automated Mobility and facilitating the establishment of project pipelines. After obtaining the approval of the SNS JU Governing Board in November, and in partnership with the European Commission and industry co-chairs, the SNS JU helped to prepare the launch of the SNS Strategic Working Group on 5G deployment for CAM. This working group brings together industry members and CEF projects participants and reports to the SNS JU Governing Board.

Moreover, the SNS JU is active in engaging the vertical sector, capitalising on the 6G-IA memoranda of understanding (MoUs) with all key global vertical associations (e.g. the 5G Automotive Association (5G AA) and the 5G Alliance for connected industry and automation (5G ACIA)). It explicitly manages collaboration with other associations and groups such as the 5G AA. The SNS-ICE project maintains a detailed verticals cartography with related information from all SNS JU projects.

⁴³ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

⁴⁴ 5G PPP Progress Monitoring Report – 2022, <https://5g-ppp.eu/wp-content/uploads/2023/08/5G-PPP-PMR2022v3.0.pdf>.

⁴⁵ <https://www.eucnc.eu/>

⁴⁶ <https://www.5gtechritory.com/>

⁴⁷ Support action to create a collaborative environment for European and global stakeholders involved in the preparation of 6G smart networks and services, <https://cordis.europa.eu/project/id/101095841>.

Already during 5G PPP, it became clear that, given the pace of technological progress, stronger integration and collaboration with the microelectronics sectors was crucial to successful commercialisation of the technology in the later stages. Therefore, the 5G PPP has established links with the Chips JU through scientific workshops and funded a CSA to establish a roadmap for microelectronics in wireless communications⁴⁸.

Under SNS JU, collaboration with partners from various sectors was further broadened. From the start, the SNS JU aligned its activities with other European partnerships, aiming to exploit synergies with other areas, notably with the Chips JU, HPC, photonics, AI and connected, cooperative and automated mobility (CCAM) partnerships. In 2023, SNS JU developed strong collaboration with the Chips JU, EU-Rail JU and Photonics 21. This collaboration includes synchronised calls between the partnerships based on shared strategic objectives. One example is the development of mobile communication devices which require a strong alignment with the progress and topics defined in the Chips JU partnership⁴⁹.

In the SNS WP 2023, the Chips JU and SNS JUs are launching focus topics as joint and complementary activities in their respective WP, with both communities encouraged to participate in the relevant funded projects. The SNS strand ‘SNS-2024-STREAM-C-01-01: SNS Microelectronics Lighthouse’ will develop a platform where solutions from the microelectronics area will be validated in terms of performance and applicability for 6G networks. The SNS WP 2023 also included a joint call with Rail JU for the development and trials of the Future Railway Management and Control System (FRMCS).

Apart from collaborating with other partnerships, there is alignment with other parts of the main FP and Cluster 4 activities, such as two projects funded dealing with 6G in the main Horizon Europe work programme, which do not belong to the SNS JU WP. Moreover, there are ongoing discussions on aligning SNS JU projects and future Cluster 4 activities relating to the 3Cs (‘Connected Collaborative Computing’) networks⁵⁰. Under Cluster 4, some financial resources were kept as additional budgets for long-term topics, particularly for promoting collaboration between different partnerships or topics positioned between different partnerships. As the SNS JU recognised early on how important it was to address topics in microelectronics, the fast-track was set up to put in place a specific project focusing on microelectronics for telecommunication.

6. EU added value

Both the 5G PPP and the SNS JU provide significant EU added value and contribute to fostering Europe’s technology sovereignty in 5G and 6G and boosting 5G deployment. The partnerships enabled early collaboration among leading European companies, thus securing greater control

⁴⁸ <https://www.corenect.eu>.

⁴⁹ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 24. <https://data.europa.eu/doi/10.2777/17621>

⁵⁰ The White Paper ‘How to master Europe’s digital infrastructure needs?’ (February 2024) envisages the creation of a ‘Connected Collaborative Computing’ Network (‘3C Network’) to set up end-to-end integrated infrastructure and platforms for telco cloud and edge, which could be used to orchestrate the development of innovative technologies and AI applications for various use cases. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=COM:2024:81:FIN>

over key aspects of the technology in the future. The SNS partnership exploits cross-border effects to surpass the scope of bilateral collaboration projects and national funded projects. It caters to the needs of the European telecom industry and various vertical sectors, and it accelerates the development of 5G and 6G technology, enabling European companies to maintain a competitive position and shape the direction of these technological developments. The SNS partnership is in a position to better align its activities more systematically with initiatives and policies on the national level, particularly via the States' Representatives Group (SRG).

Added value of the partnership in compared to the work carried out in Pillar II

The SNS JU has so far been able to generate capacities to exploit economies of scale and cross-border externalities of EU intervention beyond common R&I projects. The partnership has established a platform where companies, research actors and other stakeholders can convene and engage in structured discussions, facilitating interactions that might otherwise not occur regularly. Experts argued that the partnerships made it possible to speed up development against a background of global competition and that the funding had a leverage effect⁵¹. The partnership makes it possible for leading European companies and other institutions to work together early and have control over the key parts of this technology. The 5G PPP worked on the assumption that the telecom industry would create a technology and other industries would adopt it, it became clear that technology, especially in the case of 6G, must be developed in collaboration with vertical industries. The SNS JU takes this into account to meet the needs of the telecom industry (e.g. vendors, telecom operators), but also of verticals, i.e. the users of 5G (e.g. manufacturing industry, transport) in the development of technologies and advanced solutions and applications.

Added value of the partnership compared to interventions at the regional and national level

Promoting competitiveness and innovation in 5G and 6G requires intensive collaboration between key players in different European regions and cannot be achieved simply by coordinating national or regional funding programmes. The SNS JU was able to generate capacities to exploit economies of scale and cross-border externalities of EU intervention, which go far beyond other bilateral collaborative projects or national funded projects. The outcomes of projects funded by Member States are also expected to provide valuable input to SNS JU projects and vice versa. However, a more coherent coordination started only with the SNS JU. In contrast to the 5G PPP, the SNS JU has a higher level of ambition to exploit synergies with national programmes in a process that can be facilitated by the States' Representatives Group (SRG).

⁵¹ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 30. <https://data.europa.eu/doi/10.2777/17621>

7. Relevance

The objectives of the 5G PPP and SNS JU are aligned with the policy objectives of the Horizon Europe framework programme to ensure relevance and adaptation to technological trends. The main differences between Horizon 2020 with the 5G PPP and Horizon Europe with the SNS JU are: i) the scope of technologies and sectors; ii) the directionality; and iii) the governance due to the new form of public-private partnership.

The main objectives of the SNS JU, according to the first SNS JU WP⁵², are:

1. to reinforce European leadership in the field of next-generation network technologies (6G), connected devices and services while accelerating European digital industry uptake and the digitisation of economy and society; and
2. to position Europe as a lead market and positively impact people's quality of life by supporting key Sustainable Development Goals (SDGs) while boosting the European data economy and helping to ensure European sovereignty in these critical supply chains.

In addition to maintaining a solid European industrial leadership position in mobile telecommunications, it has become important to secure sovereignty beyond the conventional drivers of a competitive industry, especially for the SNS JU. Policymakers identified this need early on in relation to the design of the SNS JU and the advancement of the next-generation telecommunications infrastructure⁵³. Mobile telecommunication was an important domain within the ICT sector, but it was not as strategic as it has become lately due to geopolitical developments. Since around 2015, policy and industry have recognised the strategic significance of this infrastructure and of dependency on China. According to industry experts, the joint undertaking form has the potential to leverage Europe's strategic influence and impact globally, for instance via its efforts to shape standardisation processes and by fostering technological innovation in Europe⁵⁴. Considering the relevance of digital infrastructure and technological innovation for European sovereignty and competitiveness, the objectives of the SNS JU are highly relevant – and increasingly so – for the EU.

The Strategic Research Innovation Agendas (SRIAs) for the 5G PPP and the SNS JU are the main instruments for the long-term planning of the partnership's technological development and have proved flexible enough to adapt to emerging trends. Although the SRIAs look ahead to the long-term development of 5G/6G technologies and applications, they should not be seen as fixed long-term plans. By defining development goals and themes, the SRIAs, updated every 2 years, helped the industry to reduce uncertainty and allowed long-term commitments to be

⁵² SNS JU (2020), SNS R&I work programme 2021-2022, https://smart-networks.europa.eu/wp-content/uploads/2022/10/snsriworkprogramme20212022_ckvqrabs7gkb08dhgl6wh73cwqa_82061-6.pdf.

⁵³ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 15. <https://data.europa.eu/doi/10.2777/17621>

⁵⁴ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 17. <https://data.europa.eu/doi/10.2777/17621>

made⁵⁵. According to stakeholders, the process of adapting the SRIAs to the needs of stakeholders is considered to be ‘dynamic’⁵⁶. This relates to the organisation, people and consultations.

Further, the SNS JU regularly consults with stakeholders and Member States to adapt and further develop its objectives and activities. Member States’ feedback is primarily gathered via the States’ Representatives Group (SRG), while workshops with industry stakeholders and experts provide an opportunity to take their views on board. The SNS JU Policy Working Group also collects stakeholder opinions on various relevant topics, including policy, industrial and business developments, and emerging trends. After internal discussions among the Industry Association members, the work programme is negotiated with the European Commission and the Member States. These processes have proven flexible enough to adapt to emerging developments through swift coordination and exchanges, while at the same time providing direction.

8. Directionality

The objectives of the SNS JU align with the EU's macro-level objectives, such as sustainable economic growth, strategic autonomy, the Green Deal, and specific SDGs, with a focus on societal goals and key value indicators to validate the contribution of 6G technology for the EU and its citizens. While the main focus of the 5G PPP was competitiveness, Horizon Europe and the SNS JU put an additional emphasis on policy objectives such as strategic autonomy, sustainability, privacy and security⁵⁷.

The ‘European Vision of the 6G Network Ecosystem’⁵⁸ emphasises a human-centric approach and end-user engagement, aiming for technological sovereignty, advanced 6G ICT solutions, transformation of the EU digital value chain, and alignment with EU policy and societal needs. While the SNS JU has not yet collected key performance indicators to assess its progress, experts view the progress achieved as positive⁵⁹.

The SNS JU has brought together European actors, generating a catalytic effect and establishing a recognised focal point for 6G developments globally. However, there is a need for a clearer technological strategy, especially in cloud technology. The current approach is rapidly evolving

⁵⁵ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 22. <https://data.europa.eu/doi/10.2777/17621>

⁵⁶ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 22. <https://data.europa.eu/doi/10.2777/17621>

⁵⁷ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 32. <https://data.europa.eu/doi/10.2777/17621>

⁵⁸ <https://5g-ppp.eu/european-vision-for-the-6g-network-ecosystem/#:~:text=Key%20features%20of%206G%20will,trustworthy%20infrastructure%2C%20scalability%20and%20affordability>.

⁵⁹ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 33. <https://data.europa.eu/doi/10.2777/17621>

and raises concerns about reliance and effectiveness, although the JU is taking a proactive stance to initiate global discussions.

9. International positioning

International collaboration and geopolitical developments significantly influence the development of 5G and 6G technologies. International cooperation has been strengthened under the SNS, with discussions about developing a global ecosystem for 6G to ensure interoperability and avoid regional fragmentation, as seen in the 5G development process. More generally, the SNS JU is recognised globally as a focal point for 6G development, with its private member (6G-IA) signing MoUs with third countries, such as Japan, the US, China, Korea and India⁶⁰.

The SNS JU also has a dedicated Coordination and Support Action (CSA) project aimed at creating synergies with other regions. Additionally, there are specific topics in the work programme for bilateral collaborative projects, for example, with the US. Furthermore, aligned topics with Japan and Korea are part of the SNS 2024 work programme, with further international cooperation activities planned. In the 2023 work programme, the SNS JU actively engaged with the United States on topics related to AI and future networks. To support this cooperation, the project 6G-XCEL⁶¹ was launched in 2023.

The SNS JU further facilitates cooperation between projects through workshops and information exchange. The SNS JU is also involved in and supports major international events, such as the European Conference of Networks and Communications.

10. Phasing-out preparedness

According to the Single Basic Act, all Joint Undertakings have the legal obligation to adopt a plan for the phasing-out of the partnership from Horizon Europe funding by the end of 2023. The aim of the plan is to ensure a smooth continuation of the JUs' activities in the scenario of no funds available under the next Framework Programme. In this perspective, JUs are asked to perform an in-depth reflection on a phasing out strategy leading to a lesser dependence from the Union contribution.

SNS JU has prepared a preliminary plan which was adopted by its Governing Board in December 2023. The preliminary plan included administrative and operational adaptations, which should allow the JU to proceed its activities in case of no Union funding under the next Framework Programme. In detail, the adaptations concern several aspects, such as legal status, staffing, accounting and cashflow, procurement, logistic and IT, follow up of the grant agreement obligations after the end of projects.

The drafting of the updated phasing out plan is currently ongoing and it is planned to be adopted in 2025. It should include concrete reflections on short- and long-term targets, strategic

⁶⁰ European Commission: Directorate-General for Research and Innovation, *Institutionalised partnership report – Smart Networks and Services (SNS) joint undertaking*, Leitner, K.-H. (author). Publications Office of the European Union, 2024, p. 33. <https://data.europa.eu/doi/10.2777/17621>

⁶¹ <https://www.6g-xcel.eu/>, <https://cordis.europa.eu/project/id/101139194>.

alignment and financial sustainability. The aim is to develop a strategy enabling the JU to obtain the objectives beyond the duration of the Union's participation.

In detail, to ensure continuity, the JU Office is exploring possibilities for a potential successor project, most likely also considering the results of a further impact assessment study. Efforts are already being made to establish programme-level structures, such as working groups, which may continue beyond the partnership's duration. The sustainability of these structures will depend on their ability to be self-sustaining and coordinate ongoing efforts. Considering the continuous evolution of standards, with 5G standardisation ongoing and the start of 6G standardisation, there will quite likely be a strong case and need for continued investments in standardisation challenges. If there is a significant shift in the landscape where standards become less critical in telecom or other domains like AI, alternative approaches can be considered.

In the next years, the phasing-out plan will be further developed and the SNS JU will produce a more detailed document upon advice from the European Commission, inputs from its private member, the 6GIA and in collaboration with the other Programme stakeholders to refine the phasing-out plan and monitor and report on its progress.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 21: Evaluation of EIT Climate-KIC

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Climate Knowledge and Innovation Community ('KIC' or 'EIT Climate-KIC') was established in 2010 as part of the first wave of EIT KICs, in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. The first operational activities and calls were launched in 2011. It is part of the first wave of KICs and is currently in the phase-out stage. EIT Climate-KIC was established to help the EU mitigate and adapt to climate change. Its main goal is to accelerate the transition towards a decarbonised and resilient society through innovation. To achieve its objective, for the 2010-2024 period, EIT Climate-KIC received an EIT grant of EUR 720 million.

The EIT Climate-KIC has around 450 partners and has incubated over 2 100 climate-positive companies, which attracted over EUR 2.0 billion in capital and created more than 15 000 jobs².

Objectives and achievements

EIT Climate-KIC's 2021-2027 strategic agenda³ has set the following objectives: (1) strengthening sustainable innovation ecosystems; (2) strengthening next-generation climate entrepreneurship; (3) achieving financial sustainability (4); boosting governance, capability and inclusion; and (5) increasing synergies and alignment.

The EIT Climate-KIC's goal is to help cities, regions, countries and industries implement solutions for climate innovation by mobilising funding, testing business models and opening pathways for institutional and behavioural change. Therefore, EIT Climate-KIC is contributing to reshape the innovation model to address the climate emergency. To maximise its impact, as set in the KIC's 2021-2027 strategic agenda, EIT Climate-KIC has focused on place-based efforts, deploying innovation in cities, regions and industry value chains to deliver systemic change and, therefore, help achieve its main objectives.

Since the launch of the European Green Deal in 2019, the need for a rapid systemic response to the climate emergency has increased. EIT Climate-KIC has successfully adapted its strategy, working towards the objectives of Horizon 2020 and Horizon Europe programmes aiming to achieve the Green Transition⁴.

All these strategic objectives are being implemented, and the results are delivered by the knowledge triangle integration concept, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's activities in innovation, business creation and education. Table 1 shows EIT Climate-KIC's achievements in terms of KPIs for 2014-2023.

¹ [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#) replaced the original regulation, Regulation (EC) 294/2008.

² Deloitte and White Research and White Research, [Final Review of EIT Climate-KIC - Final Report](#), November 2023 p. 8.

³ [EIT Climate-KIC 2021-2027 Strategic Agenda](#)

⁴ European Commission: Directorate-General for Research and Innovation, Stanislovaityte, I., Steinert, M. and Zhechkov, R., Partnership evaluation report – European partnership for EIT Climate-KIC – Horizon Europe and the Green Transition – Interim evaluation support study, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/1601692> p. 37.

Table 1: EIT Climate-KIC 2014-2023 KPIs; targets (T) and achieved results (A)

	2014		2015		2016		2017		2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	20	39	118	52	69	89	68	82	95	115	112	120	103	127	51	108			636	732
Designed/Tested innovations*	98	216	225	276	317	363									29	99			669	954
KIC Supported Start-ups/Scale-ups							195	266	221	321	311	345	272	330	169	464	50	185	1218	1911
Start-ups created of/for innovation							4	2	3	3	1	1	2	3	3	2	0	17	241	150
Start-ups created of EIT labelled MSc/PhD programmes	71	48	83	38	74	36														
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)							2	2	6	1	3	2	1	0	7	0	0	0	19	5
Graduates from EIT labelled MSc/PhD programmes							110	187	66	160	63,6	115	72	516	46,5	140,7	10	45,7	368,1	1164,4
Participants in (non-degree) education and training*	50	46	123	117	135	90	121	80	66	92	91	81	150	125	440	254	10	10	1186	895
															10984	13850	0	307	10984	14157

* Reported from 2021 only (the KPI on designed/tested innovations reports on IPR applications from 2021).

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT); data for some years/KPIs not reported/collected due to changes in the KPI system / impact framework.

Overall and as the external evaluations highlight ⁵, EIT Climate-KIC is making substantial progress towards achieving its KPI targets. The KIC has accomplished significant achievements across several areas, but the assessment of its performance also reveals areas that require further attention ⁶.

The KIC has fostered innovation, with 732 products and processes launched on the market between 2014 and 2022 ⁷, overachieving the target of 636. As regards entrepreneurship and business creation, EIT Climate-KIC also succeeded in supporting start-ups and scale-ups, with 1 911 companies being created since 2017 compared to the target of 1218. However, the KIC has failed to reach its targets in start-ups created under the EIT-labelled MSc/PhD programmes (with a total of 5 compared to the target of 19) and the number of start-ups created of/for innovation (with a total of 150 compared to the target of 241). When it comes to the investment attracted, EIT Climate-KIC has met the target of EUR 368.1 million attracting over EUR 1 164 million. The KIC has exceeded the targets set for each year, as shown in the table above. In 2024, The Financial Times ranked EIT Climate-KIC among the top 125 of Europe's leading start-up hubs, together with four other KICs. EIT Climate-KIC was the top ranked KIC at number 14 ⁸.

In 2021, in light of preparing the end of the Partnership Agreement with the EIT and the end of the EIT grant, the KIC has begun a transformative phase, shifting towards a model based on deep demonstrations, i.e. large-scale demonstrations that show what is possible when cycles of innovation and learning are designed to trigger decarbonisation and build resilient communities. As a result, EIT Climate-KIC has significantly changed its KPI objectives ⁹. For example, the KIC agreed with the EIT to move away from the EIT-labelled MSc/PhD programmes towards learning that is more embedded in their deep demonstrations. As a result, the number of graduates has not reached the target of 1 186 (with a total of 895), but the number of participants in (non-degree) education and training has exceeded its target of 10 984 students with a total of 14 157.

As regards the KIC's financial sustainability, there was little progress made until 2021. A positive development happened in 2022 when the KIC focused only on financially profitable

⁵ Partnership evaluation report for EIT Climate-KIC (2024) p. 36 and Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 17.

⁶ Partnership evaluation report for EIT Climate-KIC (2024) p. 36.

⁷ Data for 2023 have not yet been reported by EIT Climate-KIC.

⁸ [Ranking - Europe's leading start-up hubs | Incubator Accelerator Programmes Europe \(ft.com\)](https://www.ft.com/content/2024/04/11/eit-climate-kic-start-up-hubs)

⁹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 58.

initiatives, thanks to the guidance of the EIT. The EIT Governing Board has highlighted specific weaknesses and issued strategic recommendations for improvement, given its increased responsibility in steering and monitoring the KIC's activities since the EIT Regulation (recast) from 2021. EIT Climate-KIC's response involved actions to diversify revenues, align governance systems, and participate in an independent assessment of the impact of deep demonstrations. Since 2022, and according to the last Governing Board Rapporteur visit, rapid progress has been made on the proposed adjustments ¹⁰. While facing challenges in achieving certain targets, the KIC's overall trajectory is promising and EIT Climate-KIC is on track to achieve its seven-year KPI goals.

Long-term scientific, societal, economic and technological impacts

EIT Climate-KIC has identified several societal long-term impact goals, defined in the EIT Impact Framework 2022-2027 as follows:

- 1) reduced CO₂ emissions;
- 2) strengthened resilience to the unavoidable impacts of climate change;
- 3) cities, regions, countries and large-scale businesses succeeding in tackling climate change at the speed and scale needed;
- 4) climate-friendly jobs created or sustained;
- 5) funding leveraged to support scale-up / diffusion of innovations to tackle climate change ¹¹.

The KIC also defined the following targets for 2021-2027:

- help prevent over 500 million tonnes (CO₂eq) of emissions;
- strengthen the resilience of 10 million people to the impacts of climate change;
- help leverage over EUR 100 billion to support the scale-up of innovations to tackle climate change;
- generate 50 000 green jobs;
- become the strategic partner of choice for over 50 cities, regions and countries across Europe, orchestrating change through innovation (including in policy, business models, supply chains and public engagement) to achieve net-zero emissions and climate resilience aligned to the 2015 Paris Climate Change Agreement;
- boost the innovation and entrepreneurial skills of over 200 000 people across Europe.

The indicators were only introduced in 2021. The assessment therefore focuses on the relevance of the KIC's activities in helping to achieve these goals, rather than on the extent of the impact already achieved.

Actions under the EIT Climate-KIC, as set in its 2021-2027 strategic agenda, are focused on changing systems in cities, regions and industry value chains to create lead markets within which start-ups could scale up.

To track progress made towards preventing 500 million tonnes of CO₂ emissions in Europe, EIT Climate-KIC relies on existing monitoring evaluation and learning systems within flagship programmes. For example, it leads the Net Zero Cities (or NZC) initiative within the

¹⁰ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 106.

¹¹ [EIT Impact Framework 2022-2027](#) p. 12.

[EU Climate Neutral and Smart Cities Mission](#), which aims to help 112 cities reach net-zero emissions by 2030. Achieving this goal would help reduce emissions by approximately 700 million tonnes of CO₂ emissions. The Barometer tool used in NZC aggregates emissions data for cities that have submitted greenhouse gas inventories as part of their Climate City contracts, giving a clear snapshot of the progress made in reducing emissions across multiple sectors. This approach is an *ex post* assessment, and figures from the Cities' tools are not yet available to report against the baseline provided last year in the City Contracts agreed with European Commission under this programme. In addition, findings from a survey conducted for the external evaluation¹² show that 75 of the supported start-ups have claimed that they have made a strong impact in reducing CO₂ emissions, 30 have claimed a medium impact, while 10 have claimed a weak impact, whereas 4 start-ups did not report any impact and 7 engaged in activities unrelated to CO₂. However, as highlighted by the external evaluation report¹³, assessing the progress of the KIC in reducing CO₂ emissions can be challenging due to the lack of specific quantitative information about the actual emissions reductions achieved.

Furthermore, EIT Climate-KIC seeks to strengthen the resilience of 10 million people by improving the climate adaptation and resilience capacities and capabilities of public and private stakeholders that lead climate resilience actions in cities and regions. Through the [Pathways to Resilience \(P2R\)](#) project, 100 regions and their regional representatives will be trained to acquire and improve the key capacities required for climate adaptation. P2R is part of the [EU Mission on Adaptation to Climate change](#), helping improve the regional understanding of climate risks, develop regional climate adaptation pathways, and identify innovative solutions to build resilience to climate change. The project seeks to mobilise interest and networks to leverage political commitment towards the EU Mission on Adaptation to Climate change, elevating the ambition and capabilities of regional authorities. The process for engaging with P2R will be supported by wider public and stakeholder engagement at the regional level, co-creating the key components of a climate resilience strategy, such as regional vision and adaptation pathways, fostering local ownership and ensuring a positive long-term impact. Training under P2R includes technical understanding of climate adaptation pathways, development of investment plans, policy advocacy and multi-level governance, as well as stakeholder and public engagement for a co-created climate resilience strategy. These regions will be supported over an 18-month period through a capacity building programme that will allow them complete their [regional resilience journey \(RRJ\)](#), a comprehensive process for developing a transformative climate resilience strategy that can be implemented effectively. The regions are divided in two cohorts:

- first cohort of 40 regions for 2024-2025;
- second cohort of 60 regions for 2025-2026.

Each cohort will be structured in a way that will encourage peer learning and collaboration among regions. This will be fostered and encouraged, increasing practice-based knowledge, tailor-made to local challenges and needs. In this respect, the project seeks to foster a multi-level integration with both local stakeholders as well as at national and EU level. It also seeks to foster, as well as horizontal integration across the board among peer regions.

Once each of the participant regions has finished their climate resilience strategy, they develop action plans and investment plans. Regions are then able to start implementing

¹² Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 66.

¹³ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 66.

ambitious and transformative climate resilience strategies, benefiting about 53 million people (as per the first cohort).

Furthermore, the KIC has implemented a versatile funding strategy ¹⁴ that supports innovations at various stages of development of varying scales to advance in the target of over EUR 100 billion to support scale-up innovations by 2027.

- 15 start-ups received modest support of up to EUR 1 000. This seed funding likely enabled the initial stages of development and proof of concept.
- The KIC provided essential support to 32 start-ups of between EUR 1 000 to EUR 5 000, enabling them to progress from initial stages to more advanced development.
- A further 9 start-ups received between EUR 5 000 and EUR 10 000, potentially assisting in further refinement and scaling of their innovations.
- A substantial group of 35 start-ups benefited from funding worth between EUR 10 000 and EUR 25 000 range. This level of support likely enabled moderate scaling-up and expansion.
- For those reaching a more advanced stage, 19 start-ups received funding of between EUR 25 000 and EUR 50 000, allowing for a more significant expansion of their climate-focused initiatives.
- 15 start-ups received funding of between EUR 50 000 and EUR 100 000, signifying substantial progress and the potential for broader diffusion of their innovations.
- 6 start-ups received substantial funding exceeding EUR 100 000, indicating that the KIC is keen on supporting high-impact initiatives that can make a substantial difference in addressing climate change.

This indicator aggregates information about the total amount of funding allocated to work by partners or in partner communities that were influenced by collaborative work with Climate-KIC. The funding is considered leveraged specifically due to EIT Climate-KIC's involvement, rather than all funding spent on climate issues by the partners or in their locations. Many scenarios are possible, including:

1. Implementing a project – EIT Climate-KIC is directly involved and invested in gathering resources to implement a project or portfolio.
2. Supporting portfolio development – EIT Climate-KIC supports portfolio development by partners and funding is committed to the work within the portfolio (which the KIC is not generally involved in implementing).
3. Project co-funding – funds are leveraged to support financing from EIT Climate-KIC or because of collaboration with EIT Climate-KIC.
4. The cities component of the NZC initiative develops Climate City Contracts/City Action Plans, etc. and manages to secure funding to implement one of the plans that EIT Climate-KIC helped develop. This funding can comprise an increase in the city budget for climate action, funding from another EU programme, etc.
5. The Capital Hub under the NZC initiative supports cities by enabling them to access capital (connecting them to investors) and providing them with technical assistance.

¹⁴ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) pp. 66-70.

Any funding mobilised by the cities because of these engagements can be reported here.

6. Regions mobilising finance through P2R.

It is not yet possible to fully report against the target of over EUR 100 billion to support scale-up innovations by 2027, as the EU Mission's finance resource - Climate City Capital Hub - has launched only in 2024. It aims to leverage the large-scale finance required by cities innovating towards achieving net-zero targets. According to NZC calculations, the 112 selected cities require EUR 650bn to finance their decarbonisation efforts between now and 2030.¹⁵

In addition, supported start-ups have raised over EUR 5.91 billion in follow-on investments since exiting Climate-KIC's acceleration support, as per DealRoom data.

According to the external evaluation report ¹⁶, The KIC's versatile funding approach has played a crucial role in nurturing and scaling climate-focused innovations, reflecting a commitment to addressing climate change comprehensively. While positive strides have been made, the need to keep efforts to ensure that all supported activities align with climate goals and more jobs transition into fully climate-friendly roles were identified. Therefore, in view of the external evaluation report ¹⁷, the KIC's initiatives contribute significantly to the global climate action agenda and drive positive societal change.

EIT Climate-KIC aims to help generate 50 000 green jobs by 2027 through its support to start-ups. These jobs involve sectors such as renewable energy, sustainable agriculture, green technology development and other environmentally friendly fields. Overall, data suggests a positive trend according to the external evaluation report ¹⁸, indicating a commitment to sustainable practices and environmental responsibility, even if efforts are still required. To date, EIT Climate-KIC has supported 21 000 climate-friendly jobs through its entrepreneurship activities¹⁹.

As regards the target to become a strategic partner of choice for over 50 cities, regions and countries across Europe, EIT Climate-KIC relies in his work as the coordinating partner leading the Net Zero Cities (or NZC) under the EU Cities Mission, supporting 112 cities, and the P2R programme under the EU Mission on Adaptation to Climate, which supports 100 regions.

In its aim to boost innovation and entrepreneurial skills of over 200 000 people across Europe by 2027, the KIC has trained 14 157 participants in non-degree programmes by the end of 2023, against a target of 10 984 (see Table 1 above). The KIC's work via the EIT's Higher Education Institutions (HEI) initiative has resulted in a further 9 192 participants in 2023 and 5 415 participants in 2024.

In addition, the KIC's activities contribute to other societal impacts. In 2023, EIT Climate-KIC invested in the following areas:

- 20% in biodiversity (e.g. supporting KIC Resilient Regions on landscapes, healthy soils, etc.);

¹⁵ <https://netzerocities.eu/capital-hub/>

¹⁶ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 70.

¹⁷ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 70.

¹⁸ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 70.

¹⁹ Data extracted from the start-up database DealRoom, to track investment rounds and employment at start-ups supported by the KIC.

- 20% in clean air, as part of the KIC's work on cities;
- 20% in digital transformation, supporting the KIC's work on cities and regions as well as space, and the KIC Entrepreneurship, Ventures and Solutions team.

In view of the external evaluation report ²⁰, EIT Climate-KIC has effectively pursued its strategic objectives, despite minor shortcomings in its activities. The KIC's progress towards its ambitious targets, including emission reduction, resilience strengthening, funding mobilization, job creation, and innovation skills development, is evident ²¹.

EIT Climate-KIC has also identified several economic long-term impact goals. These are defined in the 2022-2027 EIT Impact Framework as follows:

- contribution to the revenue growth of organisations trading or employing innovations developed with KIC support;
- number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceased,
- new jobs created in start-ups and scale-ups;
- impact on employment growth as a result of companies being engaged with KICs;
- number and type of jobs in existing businesses sustained through innovations;
- number and type of skill gaps and/or skill shortages filled, by KIC sector;
- visible innovation ecosystems; not previously in existence,
- share of indicated innovation ecosystems that covers RIS countries ²².

Overall, EIT Climate-KIC funding has had a varied impact on the revenue growth of different start-ups. As mentioned above, start-ups that have exited Climate-KIC's acceleration support have raised over EUR 5.91 billion in follow-on investments. Based on the answers provided to the survey conducted for the external evaluation ²³, most startups experienced some level of positive impact, with 37% reporting moderate to substantial growth (from 10-20% to over 50% growth). From the KIC's perspective, considering that it is working with very early-stage companies that have just experienced the COVID-19 crisis, the economic fallout from Russia's war of aggression against Ukraine and the high inflation rates across the EU, the survey shows a positive picture. The KIC's view is that, if half of the startups see a positive impact of more than 5% on its revenue growth thanks to the KIC's support, this is a positive outcome.

According to the survey ²⁴, 59% of respondents indicated that one or more new jobs have been created thanks to their engagement with the KIC, which shows a positive impact on job creation, even though it might not be universal across all entities.

The external evaluation concludes ²⁵ that supported start-ups created a moderately higher number of jobs than the control group. In addition, based on the survey results ²⁶, 61 entities reported being able to sustain jobs while 64 entities indicated that their ability to sustain jobs

²⁰ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 58.

²¹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 58.

²² EIT Impact Framework 2022-2027, pp. 7-11.

²³ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 70.

²⁴ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 74.

²⁵ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 74.

²⁶ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 75.

was not a direct result of their engagement with the KIC. This variability in job sustainability outcomes is mostly influenced by the factor that the responders are mainly start-ups that are more likely to create new jobs than to sustain existing ones. Furthermore, there are other influencing aspects to this indicator such as the nature of the industry, market conditions and the specific support provided by EIT Climate-KIC ²⁷.

Regarding the number of jobs and skills, as mentioned above, EIT Climate-KIC has supported 21 000 climate-friendly jobs through its entrepreneurship activities. The external evaluation report concludes ²⁸ that EIT Climate-KIC's engagement has been particularly effective in filling skill gaps related to entrepreneurship, innovation, technical expertise, sustainability, creativity, and leadership, indicating a comprehensive approach to addressing various dimensions of skill shortages within the sector. Moreover, according to the survey²⁹, 68 respondents believe that their engagement with EIT Climate-KIC has helped fill skill gaps and/or skill shortages, while 23 respondents disagreed and 34 were unsure. Among the skill gaps and shortages addressed thanks to engagement with EIT Climate-KIC, entrepreneurship skills and competencies appear to be the most prominent, with 56 respondents indicating their positive impact.

On the long-term impact of education on career growth of participants in EIT-labelled education, EIT Climate-KIC shows a general trend of graduates moving from internships to more stable and advanced roles, with a reasonable number of individuals maintaining their positions within entry-level, intermediate, and executive levels. A decrease in senior staff and self-employed positions might be influenced by various factors such as industry trends, personal choices and market conditions ³⁰.

2. Additionality

Table 2 provides the basic financial figures for EIT Climate-KIC since it started operating in 2010. EIT Climate-KIC was able to achieve a direct leverage factor ³¹ of 0.22 in 2010-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.29 (if one adds direct revenues created through KIC activities (EUR 204 million vs EIT grant of EUR 703 million)). The direct leverage factor increased to 1.19 in the 2021-2023 Horizon Europe period.

Table 2: EIT Climate-KIC financial figures (in EUR million.)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	4,7	9,1	27,3	42,1	70,5	85,1	70,0	70,6	81,0	85,0	92,0	31,0	23,4	11,5	703,3
Co-funding	0,0	2,5	1,7	6,0	6,1	2,2	7,8	10,2	21,4	27,9	23,0	24,5	23,3	0,0	156,8
Revenues							1,9	2,6	4,2	4,1	4,3	4,0	6,0	20,8	48,0
Activities not funded by EIT	39,5	105,8	145,1	392,0	200,4	258,3	196,8	277,0	310,8	264,6	149,2	1,0	14,4	0,0	2354,9
Co-investment, i.e. investments attracted by start-ups								188,0	160,0	115,0	160,8	92,3	41,4	45,7	803,3

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from two-year business plans

In terms of leverage effects for EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KIC's activities, but also through the activities not

²⁷ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 75.

²⁸ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 77.

²⁹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 76.

³⁰ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 77.

³¹ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(funding rate))-1.

funded by the EIT³² as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT Climate-KIC achieved a leverage factor of 3.64 in 2010-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 803 million) are also included, the leverage factor rises to 4.78 over the period of the EIT Climate-KIC lifecycle to date. This means for every euro of EIT funding spent, EIT Climate-KIC activities have helped attract close to EUR 5 in external investment.

3. Transparency and openness

According to the external evaluation report³³, EIT Climate-KIC has addressed the EIT good governance principles related to the openness to new members effectively, through open and accessible calls by providing clear criteria for partners. EIT Climate-KIC's membership application process is fully open, with clear instructions on the KIC's website³⁴. The KIC has also adapted its membership fees to the size of the applicant organisation. SMEs can typically enjoy lower fees than those for large corporations³⁵.

As concluded by the external evaluation report³⁶, EIT Climate-KIC has made considerable strides in building a diverse partner community, aiming for a broad inclusion of stakeholders. Its composition appears wide-ranging and aligned with the KIC's goals, offering a comprehensive response to climate challenges. The KIC has achieved a well-balanced representation of key players in the knowledge triangle, including businesses (49%), higher education institutions (14%), research organisations (14%) as well as cities, regions and NGOs (23%)³⁷. In 2021-2022, 17% of the total EIT grant went to SMEs. As of October 2024, SMEs represented 25% of the total active partners under the EIT grant agreement for 2023-2025. EIT Climate-KIC's extensive collaboration with SMEs implies a commitment to supporting entrepreneurship and innovation at grassroots level. This collaboration may involve funding, mentorship and access to the KIC's resources and networks³⁸.

The EIT Climate-KIC community of partners has been growing in line with the targets set out in the Strategic Agenda until 2022. The strategic shift to a new innovative community model in 2021-2022 combined with a lower level of EIT funding in the final years of the KIC led to a temporary disruption in growth³⁹. This disruption is not necessarily problematic, as it is an unavoidable consequence of the KIC needing to adjust to a new reality at the end of the EIT funding phase. Based on survey responses⁴⁰, the KIC's new partnership model and value proposition was able to attract new partners, most of which see the value proposition of the model viable for the KIC's future. By participating in the EIT regional innovation scheme

³² Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

³³ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 20.

³⁴ Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

³⁵ Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

³⁶ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 19.

³⁷ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 20.

³⁸ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 98.

³⁹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 91.

⁴⁰ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 94.

(RIS) and working with associated countries, the partnership has also attempted to expand its network to countries and regions with a lower innovation performance.

On transparent processes to ensure that relevant stakeholders help identify the KIC's priorities, in April 2023, EIT Climate-KIC hosted the 'EIT Climate-KIC Meets Climate Change to 2030' workshop, with around 160 participants including stakeholders, members from the EIT Climate-KIC community and beyond. The contributions served as input to shape the KIC's new strategic agenda: Transformation with Urgency: 2024-2030.

4. Efficiency

Table 3 sets out EIT Climate-KIC's operational budget and administrative expenditures (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditures paid from the EIT grant. This does not include the contribution from EIT Climate-KIC partners.

Table 3: EIT Climate-KIC operational and administrative expenditures (in euro)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Operational Expenditures	69 113 729 €	77 703 668 €	62 815 765 €	69 722 847 €	93 307 730 €	103 011 052 €	107 290 618 €	51 316 368 €	42 759 411 €
Running Costs	9 638 429 €	12 284 724 €	16 018 920 €	13 751 945 €	12 220 078 €	11 439 398 €	10 168 327 €	4 178 965 €	3 997 308 €
Total budget	78 752 158 €	89 988 392 €	78 834 685 €	83 474 792 €	105 527 808 €	114 450 449 €	117 458 946 €	55 495 333 €	46 756 719 €

Source: EIT financial data reported by KICs and validated by the EIT.

Table 3 indicates that the running costs covering EIT Climate-KIC's headquarters and co-location centres (or CLCs) for 2014-2022 ranged between 7.5% and 20.3%, with an average of 12.2%. When considering only the period of Horizon Europe (2021-2022), these costs constituted 8% of the overall operational costs.

The impact of the CLCs network on the administrative expenses is obvious because the administrative expenses decrease considerably once the costs related to the CLCs are excluded.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to KICs, set maximum thresholds for the EIT-funded share of the KIC's administrative costs, depending on the KIC's maturity. The values range from 18% and 15% in the first and second years of a KIC, respectively, to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and in regions, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

EIT Climate-KIC headquarters are located in Amsterdam and the KIC activities are supported locally through CLCs in nine countries: Germany, Denmark, Spain, France, Hungary, Italy, Poland, Switzerland and the United Kingdom.

Until the end of 2022, the EIT Climate-KIC ran climate-specific RIS hubs that served as national 'focal points' in 13 countries (Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Latvia, Malta, Portugal, Romania, Serbia, Slovakia and Slovenia). They acted as innovation community catalysts and local knowledge brokers for innovation in the field of climate,

promoting the knowledge triangle locally. Since 2023, EIT Climate-KIC has been expanding its activities to all RIS-eligible countries thanks to the EIT Community RIS hubs.

In 2021, the EIT Governing Board asked EIT Climate-KIC to reduce its cost base, refocusing its portfolio on activities that can ensure EIT Climate-KIC's long-term financial sustainability. The subsequent corrective measures have led to systemic improvements in the financial management and controlling system, with all necessary resources focused on 'systems innovation as a service', i.e. deep demonstrations, in the 2023-2024 business plan.

2023 data indicate that the average time-to-grant for calls launched by EIT Climate-KIC was 2.6 months.

Together with the other first wave KICs, EIT Climate KIC has pioneered the EIT innovation model, reaching its 15th year of operation in good financial health, having made a significant impact on Europe in the field of climate change.

5. Coherence and synergies

The external evaluation study ⁴¹ confirmed that EIT Climate-KIC has pursued and achieved relevant synergies and complementarities, as outlined in its strategic agenda. The KIC has forged many synergies with diverse education, research and innovation initiatives, at both national and global level.

EIT Climate-KIC has been successful in aligning its activities and vision with relevant EU policy ⁴². The KIC helps in particular to achieve the EU's climate objectives as part of the 'Fit for 55' package and the national energy and climate plans. Therefore, EIT Climate-KIC is fully aligned with the European Green Deal and the 2030 Climate Target Plan.

EIT Climate-KIC has forged synergies and collaborations with the LIFE programme, the Just Transition Platform, the New European Bauhaus and the NextGenerationEU recovery plan. It has also directly collaborated with DG CLIMA on the Innovation Fund, financed through the EU emissions trading system. In addition, EIT Climate-KIC has created synergies with the common agricultural policy through its 'deep demonstration' model ⁴³ and with the InvestEU programme, establishing links with other EU instruments including the European Innovation Council (EIC), the European Investment Bank and the European Investment Fund. Collaboration mechanisms between EIT Climate-KIC and the EIC have begun, aiming to: i) increase the impact of the EIC's innovation portfolio; ii) creating a pipeline of impactful innovations addressing the goals of the European Green Deal; and iii) strengthen climate-relevant entrepreneurship capacities. The KIC's engagement and active involvement in these initiatives showcase its commitment to extensively addressing climate change ⁴⁴.

As regards Horizon Europe, EIT Climate-KIC's 2021-2027 Strategic Agenda was updated in 2021 in line with the new programme priorities, ensuring consistency and alignment with its main objectives. The KIC runs large-scale EU initiatives funded by Horizon Europe, e.g. NetZeroCities, bringing its knowledge and experience into the play.

⁴¹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 85.

⁴² Partnership evaluation report for EIT Climate-KIC (2024), p. 27.

⁴³ <https://www.climate-kic.org/sustainablefoodireland/>.

⁴⁴ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 84

On synergies and collaboration with other European partnerships and missions within Horizon Europe, the EIT KIC's community is clearly the most active, as highlighted in the two-yearly monitoring report from 2024⁴⁵. From the design stage, the KIC has been involved in several missions, namely: i) 'Adaptation to Climate Change'; ii) 'Societal Transformation'; iii) 'Climate Neutral and Smart Cities'; iv) 'Soil Health and Food'; and v) 'Healthy Oceans, Seas Coastal and Inland Waters'.⁴⁶ It also played a major role in these, for example in 'Climate Neutral and Smart Cities' EU Mission. All these missions have become a central part of the KIC's current strategy. The Commission has integrated the lessons learned from EIT Climate-KIC's approach to deep demonstrations into the design of these missions. This is reflected through the acknowledgement of the systems transformation approach of EIT Climate-KIC in the draft mission board texts of the EU Missions on Climate Adaptation, Cities and Soil⁴⁷. Currently, EIT Climate-KIC is also part of the consortium of the Mission Soil implementation platform⁴⁸ and leads the consortium of the flagship project under the EU Mission for Adaptation to Climate Change – Pathways2Resilience⁴⁹.

Furthermore, the EIT KICs have established several EIT Community activities, thereby forging synergies with other KICs. EIT Climate-KIC has always paid special attention to these activities. For example, it has played a leading role in the EIT Community activities on artificial intelligence, water scarcity and resource efficient society. This shows EIT Climate-KIC's dedication to cross-disciplinary synergies when addressing multifaceted challenges.

According to the 2020 EIT RIS Evaluation Report, at regional and national levels, EIT Climate-KIC has strengthened its cooperation with the managing authorities and ministries in several RIS countries, especially in Estonia, Bulgaria, Slovenia and Cyprus. This progress has been underpinned by long-term cooperation with the respective ministries and regional agencies, bolstering start-up support and the KIC's business creation activities. EIT Climate-KIC is also cooperating with local authorities in all RIS participating countries, focusing on knowledge exchange. In addition, it builds upon collaborations with the Joint Programming Initiative (JPI), for example in 'Connecting Climate Knowledge for Europe' (JPI Climate), which provides an opportunity to align the respective strategies and help bring the results of the partnerships' work closer to the market⁵⁰.

⁴⁵ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p.56.

⁴⁶ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 84

⁴⁷ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023) p. 19.

⁴⁸ <https://www.climate-kic.org/wp-content/uploads/2021/11/EU-Affairs-Update-November-2021.pdf>.

⁴⁹ <https://www.climate-kic.org/news/eit-climate-kic-joins-eu-mission-soil/>.

⁵⁰ <https://www.climate-kic.org/news/call-open-for-100-european-regions-to-step-up-transformative-climate-adaptation/>.

⁵⁰ Joint Programming is a strategic engagement process by Team Europe and other European partners. It starts with a joint analysis of the challenges and opportunities in a partner country and then develops a joint response at country level based on the EU's values and interests and in support of that country's national development priorities and associated financing strategy. The aim is to pool national efforts and make better use of national research programmes. [EIT_Climate-kic.pdf \(europa.eu\)](#).

6. EU added value

According to the external evaluation report ⁵¹, EIT-Climate KIC has created EU added value by integrating the knowledge triangle by building an innovation ecosystem that has developed concrete solutions to societal challenges. By nurturing climate entrepreneurs, promoting transformative innovations and supporting start-ups at EU level, the KIC has contributed to economic growth and has been able to address environmental challenges at a wider scale.

As highlighted in the KIC's partnership report ⁵², EIT Climate-KIC continues to be an influential and well-known European institutionalised partnership that operates closely with stakeholders in the field of climate. The EIT Climate-KIC network enables stakeholders to be part of a wide ecosystem that expands across the EU, therefore enabling coordination and collaboration across EU Member States. Within the network, there is potential to share good practices and data, increase capacity through peer-to-peer learning, promote standardisation of methodologies, integrate research efforts across borders, and ensure comprehensive and accessible knowledge generation at a European scale ⁵³. This allows stakeholders to align their efforts towards mitigating and adapting to climate change. Therefore, the level of coordination facilitated by EIT Climate-KIC would be challenging to replicate through national or regional support mechanisms ⁵⁴. In addition, EIT Climate-KIC works with EU Member States, cities, and regions across Europe, through climate leadership coalitions ⁵⁵, EIT Climate-RIS hubs (until the end of 2022) and the national secretaries who run EIT Community RIS hubs (since 2023) ⁵⁶. The emphasis that EIT Climate-KIC places in building place-based innovation ecosystems reflects a broader European approach to innovation, which seeks to leverage partnerships, networks and regional strengths to drive innovation and economic growth that could not be achieved at national or regional level, or with a fully centralised institution.

7. Relevance

According to the external evaluation report ⁵⁷, EIT Climate-KIC's activities have been aligned with the EU's objectives, particularly in boosting economic growth, strengthening EU countries' innovation capacity as well as fostering innovation and entrepreneurship. By running the one of the largest incubation and acceleration programmes for climate-oriented business ideas and start-ups, EIT Climate-KIC has helped the start-up community in Europe to grow ⁵⁸. The data collected during the evaluation highlight the relevance of EIT Climate-KIC and its activities in tackling EU challenges overall. In particular, EIT Climate-KIC is dedicated to reaching the objectives of the European Green Deal and it is aligned with the UN climate agenda through its systems innovation, which acts as a service model.

Furthermore, EIT Climate-KIC has shown flexibility by diversifying its activities to adapt to the end of EIT funding ⁵⁹. Based on lessons learned from 2014-2020, EIT Climate-KIC also modified its impact logic as part of its 2021-2027 strategy, moving from a supply-led to a

⁵¹ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 42.

⁵² Partnership evaluation report for EIT Climate-KIC (2024), p. 30.

⁵³ Partnership evaluation report for EIT Climate-KIC (2024), p. 30.

⁵⁴ Partnership evaluation report for EIT Climate-KIC (2024), p. 31.

⁵⁵ <https://www.climate-kic.org/partners/climate-leadership-coalition/>.

⁵⁶ <https://www.climate-kic.org/our-community/our-partners/eit-climate-kic-ris/>.

⁵⁷ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 38.

⁵⁸ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 38.

⁵⁹ Partnership evaluation report for EIT Climate-KIC (2024), p.26.

demand-led model. This shift reflects an innovative approach to fostering transformative change. By embedding single-point solutions within demand-led initiatives, Climate-KIC ensures that innovations created by start-ups are aligned with real-world challenges.

Moreover, by integrating start-ups, researchers and innovators from EIT RIS countries into its ecosystem, EIT Climate-KIC has shown its commitment to stepping up innovation capacity across Europe. The KIC has incorporated various technological, scientific and socio-economic characteristics of different Member States through CLCs and RIS innovation hubs. By providing targeted support, coaching and incubation programmes to start-ups from EIT RIS countries, EIT Climate-KIC helps bridge the innovation gap and promotes entrepreneurship in regions with lower business maturity ⁶⁰.

8. Directionality

EIT Climate-KIC's progress towards achieving its strategic vision is evident in its capacity to engage and mobilise a diverse spectrum of stakeholders across Europe, activity areas and cross-activity collaborations ⁶¹. It has been facilitating the transformation of places and industries by means of implementing large-scale, place-based demonstrations, which serve as test beds for ambitious climate action. These initiatives help in developing climate-resilient regions, advancing climate-neutral and smart cities and steering land and agri-food systems towards climate neutrality. ⁶² The KIC is strategically placed to deal with the urgent need for transformative action and systemic change to combat climate change. It emphasises innovation across multiple sectors, has a collaborative network of diverse stakeholders and is committed to nurturing future climate leaders and innovators. EIT Climate-KIC has played a valuable role in advancing climate solutions and influencing policy discussions at a global scale. ⁶³

The KPIs encompass metrics such as: i) supported start-ups/scale-ups; ii) investment attracted by KIC-supported ventures; iii) innovation-focused start-ups; iv) EIT-labelled MSc and PhD programme graduates; and v) participants in non-degree education and training. However, they remain relatively modest when compared to the scale of challenges. This indicates that there is room for improvement in the KIC's efforts to foster innovation and accelerate the transition to a sustainable and low-carbon economy. Nevertheless, the KIC's initiatives remain a vital force in driving climate action and in facilitating a greener, more innovative Europe. Therefore, EIT Climate-KIC's potential to have a positive impact should not be underestimated ⁶⁴.

9. International positioning

As highlighted in the external evaluation report ⁶⁵, EIT Climate-KIC has launched global initiatives, including Climathon and the Journey, and participates in international climate summits. This demonstrates its active engagement in passing on climate knowledge and fostering innovation worldwide. Its global outreach aligns with the EU's efforts to have a wider influence on public policy beyond EU programmes.

⁶⁰ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 39.

⁶¹ Partnership evaluation report for EIT Climate-KIC (2024), p. 32.

⁶² [Place-based transformations - Climate-KIC](#)

⁶³ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p.15

⁶⁴ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), pp. 38-41.

⁶⁵ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 38.

EIT Climate-KIC cooperates with international partners and associated countries. Specific examples provided in the partnership evaluation report ⁶⁶, include the launch of EIT Climate-KIC Australia and its participation in the EIT Hubs in Silicon Valley and Israel. Other examples are initiatives such as ‘Accelerating Climate Tech Solutions for a Net-Zero Africa in 2021/2022’ ⁶⁷, the EIT Climate-KIC Climathon in Latin America ⁶⁸, investments in South Asian start-ups ⁶⁹, and the Adaptation Innovation Cluster Tanzania ⁷⁰.

EIT Climate-KIC has also established a programme called ‘Gender Mainstreaming for Entrepreneurship’. To implement pilot initiatives that support women entrepreneurs, the KIC collaborated with five partners in the Global South from September 2022 to May 2023 ⁷¹.

At COP26, the United Nations Framework Convention on Climate Change (UNFCCC) and EIT Climate-KIC announced that they intend to form a partnership to establish a new climate change global innovation hub. This will help promote transformative innovations for a low-emission and climate-resilient future ⁷². Furthermore, a significant number of EIT Climate-KIC partners are from associated countries, including Norway, Iceland, Bosnia and Herzegovina, Serbia, Türkiye, the United Kingdom and Israel.

EIT Climate-KIC participates in the EIT Global Outreach Programme’s ⁷³ activities and the Strategic Regional Innovations (SRI) ⁷⁴. The Programme was established in 2018 and links the EIT’s innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The Programme currently comprises established and successful EIT hubs in Silicon Valley (USA) ⁷⁵, Tel Aviv (Israel) ⁷⁶ and London (UK) ⁷⁷. The cross-KIC Global Outreach programme has strengthened EIT Climate-KIC’s international positioning and visibility ⁷⁸. Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in the future expand into Moldova and potentially Georgia, in line with the EU’s enlargement policy priorities.

According to the partnership evaluation report ⁷⁹, the global operations of the Climate-KIC International Foundation – a charitable organisation that attracts and consolidates funding from philanthropic and public sources – contribute to EIT Climate-KIC’s role as a global ambassador and ensure its global relevance and visibility in the area of climate resilience and sustainable development. In the future, this will be further strengthened by the recent strategic

⁶⁶ Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

⁶⁷ <https://www.climate-kic.org/news/eit-climate-kic-accelerates-climate-tech-solutions-for-a-net-zero-africa/>.

⁶⁸ <https://www.climate-kic.org/news/latina-climathon-green-opportunities-latin-america-climate-action-helps-local-development/>.

⁶⁹ <https://www.climate-kic.org/news/climate-adaptation-solutions-in-african-and-south-asian-countries/>.

⁷⁰ <https://www.climate-kic.org/adaptation-innovation-cluster-tanzania/>. Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

⁷¹ <https://www.climate-kic.org/news/five-partners-global-south-gender-mainstreaming-into-entrepreneurship/>. Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

⁷² <https://www.climate-kic.org/news/new-innovation-hub-launched-at-cop26/>.

⁷³ <https://go-eit.eu/>.

⁷⁴ <https://eit-ris.eu/>.

⁷⁵ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁷⁶ <https://go-eit.eu/eit-israel-hub/>.

⁷⁷ <https://go-eit.eu/eit-uk-hub/>.

⁷⁸ Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

⁷⁹ Partnership evaluation report for EIT Climate-KIC (2024), p. 35.

alliance between the International Institute for Environment and Development (IIED) and EIT Climate-KIC ⁸⁰.

10. Phasing-out preparedness

The EIT Regulation ⁸¹ defines ‘financial sustainability’ as the EIT KICs’ capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT funding. The closer the EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

As required by the EIT Regulation, EIT Climate-KIC has a strategy in place to ensure financial sustainability and has KPIs that are set to measure how it performs in implementing this strategy. Looking at the KPIs set for 2017-2020 and 2021-2027, until the end of 2021, the KIC underperformed on financial sustainability, particularly on the level of revenues ⁸².

The KIC started systematically reporting financial sustainability revenues to the EIT in 2016 ⁸³. It reported revenues from membership fees, alternative funding sources, services and consulting fees, and educational services. However, revenue diversification remained low with a high dependence on membership fees and alternative funding sources. The KIC started to build its financial assets portfolio in 2018, and generated its first revenues from returns on investments (RoI) and equity in 2022. At that time, the KIC did not seem to be fully prepared for the decrease of EIT funding. In addition, the COVID-19 pandemic and staff problems made its situation more challenging ⁸⁴.

In the years up to 2020, it became clear that the financial sustainability mechanisms in place were insufficient and the KIC’s financial sustainability was at high risk. This prompted the EIT to take action and its Governing Board launched an independent external due diligence process in 2021. Following the findings provided under this process, the KIC narrowed its focus on deep demonstration projects that yield revenues. In addition to the strategic shift, the KIC underwent a significant reduction of its cost base. This translated into crucial changes to the KIC’s financial sustainability strategy.

2022 was a turning point when the KIC delivered a positive income balance, met revenue targets and collected revenues in all categories, including RoI and equity, marking a significant milestone ⁸⁵. As of the end of 2023, the KIC’s investment portfolio covered acquisitions in 111 companies, with a current value of EUR 6.7 million. The true valuation is certainly higher, as many investments are recorded at a low level due to national accounting standards.

⁸⁰ <https://eit.europa.eu/news-events/news/eit-climate-kic-announces-new-strategic-alliance-iied-tackle-climate-crisis>. Partnership evaluation report for EIT Climate-KIC (2024), p. 34.

⁸¹ In particular, Article 2, (16) and Article 6 (i). [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#)

⁸² Partnership evaluation report for EIT Climate-KIC (2024), pp. 29-30.

⁸³ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 117.

⁸⁴ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), pp. 117-118.

⁸⁵ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 118.

Since 2022, EIT Climate-KIC has in particular improved its self-sustainability, with a clear roadmap for financial independence and a promising hybrid model, based on which it achieved strong results in building up alternative sources of income in addition to and as future replacement for EIT grant income. The shift from 2022 thus points towards financial sustainability without EIT funds.⁸⁶

Looking ahead to 2025-2027, memoranda of cooperation (MoCs) were signed in 2024 by the EIT with first-wave KICs (including EIT Climate-KIC). Under the MoCs, KICs (including their partner organisations) agreed to continue to undertake knowledge triangle integration activities aligned with their strategic agendas and thus with the EIT strategic innovation agenda, independent of contributions from the EIT. However, for those activities which could be discontinued because they typically do not bring in revenues for the KICs but rather involve costs (i.e. some education and training or RIS activities), the EIT may decide to allocate a smaller and clearly earmarked grant for 2025.

⁸⁶ Deloitte and White Research, Final Review of EIT Climate-KIC – Final report (2023), p. 121.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 22: Evaluation of EIT Digital

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Digital Knowledge and Innovation Community (the KIC or EIT Digital) was established in 2009 in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. The first activities and calls were launched in 2010. It is part of the first wave of the knowledge and innovation communities (KICs) and is currently being phased out. The KIC's main goal is to bridge the gap between research and innovation in order to develop products, services and businesses that will increase the EU's digital competitiveness and quality of life. To accelerate the market uptake of research-based digital technologies, EIT Digital invests in the following strategic areas: Digital Tech, Digital Cities, Digital Industry, Digital Wellbeing and Digital Finance. To achieve its objective, for the 2010-2024 period, EIT Digital received an EIT Grant of EUR 650 million

EIT Digital has more than 440 key partners, representing one of the largest digital innovation ecosystem in the EU, as highlighted in the external final report².

Objectives and achievements

EIT Digital's strategic objectives (as defined in its 2021-2027 Strategic Agenda³) are aimed at strengthening the EU's impact on the digital sector in order to build a strong, inclusive, fair and sustainable digital Europe. In particular, the KIC pursues this by building and scaling up ventures as well as by upskilling talents to equip them with both the digital and the entrepreneurial skills to become proficient players in the market. The KIC thus contributes to the EU's digital sovereignty and has proven to be fully aligned with Horizon Europe and the top priorities of the European Commission.

All these strategic objectives are implemented and the results are delivered by the knowledge triangle integration concept, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's innovation, business creation and education activities. Table 1 shows EIT Digital's achievements in terms of KPIs for 2014-2023.

Table 1: EIT Digital 2014-2023 KPIs; targets (T) and achieved results (A)

	2014		2015		2016		2017		2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	34	20	26	24	51	77	77	96	77	83	79	70	76	78	128	132	67	43	615	623
Designed/Tested innovations*	218	169	134	174	217	221									63	17	67	0	699	581
KIC Supported Start-ups/Scale-ups							48	33	60	73	89	96	100	107	306	298	110	114	713	721
Start-ups created of/for innovation							11	9	12	10	17	15	35	33	91	94	50	26	280	228
Start-ups created of EIT labelled MSc/PhD programmes	35	21	14	8	15	12														
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)							15	2	8	9	18	3	12	7	35	6	25	2	113	29
Graduates from EIT labelled MSc/PhD programmes	70	74	165	146	160	158	220	232	280	257	300	288	366	257	750	821	450	270	2761	2503
Participants in (non-degree) education and training*															3232	5817	800	5 127	4032	10944

* Reported from 2021 (the KPI on designed/tested innovation reports on IPR applications from 2021)

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT); data for some years/KPIs not reported/collected due to changes in the KPI system / impact framework.

Overall and as the external evaluation has highlighted⁴, EIT Digital has achieved significant success in various areas – especially in talent attraction, start-up support and innovation

¹ Regulation (EU) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology) replaced the original regulation, Regulation (EC) No 294/2008.

² Deloitte and White Research, Final Review of 1st Wave KICs: EIT Digital – Final Report, November 2023, p. 2.

³ EIT Digital 2021-2027 Strategic Agenda

⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 44.

promotion. It did not meet all targets, but its overall performance reflects its commitment to fostering education, innovation and entrepreneurship in its initiatives. The external evaluation⁵ concluded, based on the KIC's performance so far, that EIT Digital can be expected to achieve its main objectives.

As regards the education pillar, EIT Digital has fallen short in the number of students who have graduated from EIT-labelled MSc/PhD programmes between 2021 and 2023, not meeting the target of 2 761 with 2 503 graduates. In addition, the KIC underperformed in supporting start-up creation and entrepreneurship based on education activities from EIT-labelled programmes, with only 29 achieved by 2023, compared to the target of 113. However, as shown in Table 1, EIT Digital exceeded its 2021-2023 target for participants in (non-degree) education and training with 10 944 as compared to the 4 032 targeted.

Concerning innovation activities, EIT Digital has made good progress in achieving its targets in recent years for marketed innovations thus demonstrating its pivotal role in accelerating deep tech adoption and commercialisation⁶. As Table 1 shows, EIT Digital launched 623 products and services onto the market between 2014 and 2023, slightly exceeding the target of 615. However, the support to start-ups created of/for innovation fell short, with 228 supported start-ups compared to the target of 280.

Within the EIT RIS (Regional Innovation Scheme) framework for 2021-2023, EIT Digital's proactive approach exceeded expectations in innovation creation, investment attraction and start-up support. EIT Digital's inclusive approach engages partners from EIT RIS – promoting skills development, and innovation and knowledge-sharing through initiatives like summer schools, RIS-oriented venture programmes and public media engagement⁷. EIT Digital has made commendable progress by establishing EIT RIS hubs, exceeding targets in RIS start-up creation and attracting substantial investment. It has thus been able to bridge gaps (e.g. with the Digital Cities projects).

When it comes to supporting entrepreneurial and business creation, EIT Digital has proven to be effective. The KIC has supported 721 start-ups or scale-ups since 2014 and over EUR 740 million in investment was attracted in 2017-2023 – surpassing both the targets shown in Table 1. According to the external partnership report⁸, EIT Digital was more effective in achieving KPIs related to start-ups and scale-ups under Horizon Europe than it was under Horizon 2020. In 2024, the Financial Times ranked EIT Digital (together with four other KICs) among the top 125 leading European start-up hubs⁹.

Some targets have not been met, but the EIT Digital's overall performance proves its ability to drive positive change. EIT Digital has successfully pursued its strategic objectives to strengthen the EU's digital ecosystem and enhance digital competitiveness. The KIC's efforts have thus significantly improved the EU's digital landscape. Areas that need further improvement include tested innovations and start-up creation from educational programmes, where there are opportunities for strategic enhancement¹⁰.

⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 44.

⁶ Deloitte and White Research, Final Review EIT Digital, 2023, p. 100.

⁷ Deloitte and White Research, Final Review EIT Digital, 2023, p. 10.

⁸ European Commission: Directorate-General for Research and Innovation, Lotito, A., Viscido, S., Strauka, O., Boekholt, P. et al., *Horizon Europe and the digital & industrial transition – Interim evaluation support study – Phase 2 – Horizon Europe – Institutionalised partnership report – EIT Digital*, Viscido, S.(editor), Boekholt, P.(editor) and Lebhardt, F.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/431739> p. 31

⁹ [Ranking – Europe's leading start-up hubs | Incubator Accelerator Programmes Europe \(ft.com\)](https://www.ft.com/content/2024/01/15/eit-digital-start-up-hubs)

¹⁰ Deloitte and White Research, Final Review EIT Digital, 2023, p. 10.

Long-term scientific, societal, economic and technological impacts

The following societal impact goals have been identified in the EIT Impact Framework 2022-2027 for the KIC's activities:

- 1) increased access to high-speed networks;
- 2) strengthened economic impact of EU digital firms through increased share of exports of their digital services to non-EU markets;
- 3) increased competitiveness of EU Member States, with a special focus on Member States with a DESI (Digital Economy and Society Index) score below 50;
- 4) increased centrality of organisations from the Widening Countries or Member States with a DESI score below 50 in EIT Digital activities;
- 5) deep tech digital R&D results brought to the market in areas of strategic importance for the EU;
- 6) increased digital talent development in the EU;
- 7) increased digital upskilling of EU professionals;
- 8) increased gender equality in digital education in the EU;
- 9) supporting EU regulation and digital standards that address key EU values such as AI ethics, data protection and trusted social media platforms;
- 10) increased influence of EIT Digital on Digital Innovation Hubs ¹¹.

The indicators were only introduced in 2021. The assessment therefore focuses on the relevance of the KIC's activities in contributing to achieving these goals rather than on the extent of the impact already achieved.

EIT Digital is committed to advancing social impact through access to high-speed networks and to supporting the development and adoption of innovative digital technologies by 50% by 2024, as required by the KIC's Strategic Agenda. This commitment is evident in the selection of companies across various programmes (e.g. the Open Innovation Factory, Venture Incubation Programme and Champions), each highlighting transformative solutions. This can be seen in the following three examples. The first is InterSight, which is a company that benefited from the Open Innovation Factory and which offers a marketplace for integrating next-generation IoT (5G/6G) within a data-driven urban landscape. The second is Snowpack, which is a beneficiary of the Venture Incubation Programme and delivers a secure network overlay that anonymises data exchanges, providing users with a 'beyond-trust' design that ensures privacy without relying on traditional infrastructure. The third is Nano Corp., which benefits from the champions programme and provides a cloud-native threat detection and network visibility solution that enables cloud providers to maintain their compliance with stringent data protection standards while achieving unparalleled network observability.

As regards strengthening the economic impact of EU digital firms by increasing their share of exports of digital services to non-EU markets, the KIC's 2021-2027 Strategic Agenda set a specific target of increasing the non-EU market exports of digital services by firms associated with EIT Digital by 20% by 2024. This should promote EU digital enterprises' expansion and prosperity on the international stage, thereby boosting their competitiveness and economic significance. EIT Digital reported in 2023 that 40% of the services of firms involved with the

¹¹ [EIT Impact Framework 2022-2027](#), pp. 12-14.

KIC were exported to non-EU countries – so double the 20% target and representing very positive progress on this societal KPI ¹².

The external evaluation report ¹³ states that EIT Digital has shown a relatively strong commitment to enhance the competitiveness of EU Member States and particularly of those with low DESI scores; and also involve organisations from under-served regions in its activity. This has been achieved through successfully executing of the venture programme, expanding their network in RIS countries, and attracting students and professionals from these regions to their educational programmes ¹⁴. In its 2021-2027 Strategic Agenda, EIT Digital targeted at least a 100% increase in the participation of Member States with DESI scores under 50 in its activities and particularly through the RIS programme. The external report ¹⁵ and data provided by the KIC indicate that this target has been met. In particular, the KIC's venture programme, which was conducted in five regional editions, has attracted applications from 20 countries, including those within the RIS in Eastern and Southern Europe. In 2024, the Venture Incubation Programme received 366 applications and will select more than 60 entrepreneurial teams from 24 countries. These teams actively engaged in the pre-acceleration phase, developed their MVPs and established their ventures. The Programme provides up to EUR 30 000 in the form of a prize that reflects the start-up's achievements. It also supports EIT Digital's financial sustainability through equity stakes in these newly established businesses. ¹⁶

EIT Digital has also focused on education in RIS countries, partnering with higher education institutions and conducting targeted recruitment campaigns in these countries. The Master School had 206 students and graduates from RIS countries in its programmes in 2023. The master school and the professional school together had a total 2 246 graduates in the various programmes that were run in 2023. ¹⁷

EIT Digital has made significant efforts to enhance the involvement of organisations from Widening Countries and those with a DESI score below 50 in its operations. This is particularly achieved by expanding its presence in RIS countries (as already mentioned). In its 2021-2027 Strategic Agenda, EIT Digital stated that its goal was for countries with a DESI score below 50 to be 50% more central to EIT Digital activities than in 2021. The external report ¹⁸ and data provided by the KIC indicated that this percentage goal has been achieved. The goal for those countries has now been raised to 100% centrality until the end of the KIC's Partnership Agreement.

EIT Digital has also made progress in bringing the outcomes of deep tech digital research and development to the market, particularly in areas that are crucial for the EU. In view of the external evaluation report ¹⁹, this has been done particularly through the EIT Digital venture programme and the support extended both to scale-ups and to emerging entrepreneurial talents in RIS countries. The venture programme has assisted entrepreneurs with innovative business concepts, guiding them through the process of finalising their MVPs and facilitating the launch of their ventures. There were 282 applications to participate in the venture programme in 2023 alone, resulting in the establishment of 37 new ventures in RIS countries and an increase in the total number of ventures created to 150 ²⁰. EIT Digital has also supported scale-ups in RIS

¹² Deloitte and White Research, Final Review EIT Digital, 2023, p. 52.

¹³ Deloitte and White Research, Final Review EIT Digital, 2023, p. 56.

¹⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 84.

¹⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 52.

¹⁶ EIT Administrative data (data reported by KICs and validated by EIT), December 2024.

¹⁷ EIT Administrative data (data reported by KICs and validated by EIT), December 2024.

¹⁸ Deloitte and White Research, Final Review EIT Digital, 2023, p. 53.

¹⁹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 53.

²⁰ EIT Administrative data (data reported by KICs and validated by EIT), December 2024.

countries by connecting them to the EIT Digital Accelerator so that they can expand their operations internationally ²¹. The venture programme has also extended its support for local entrepreneurial talents through the RIS venture programme, helping them to transform their ideas into deep tech ventures²². EIT Digital has thus made remarkable strides in promoting the translation of deep tech digital research and development outcomes into practical applications within domains that are of strategic importance for the EU ²³.

The KIC's educational initiatives have equipped students and professionals with digital skills, thus increasing digital talent development in the EU. According to a survey launched for the purpose of the external evaluation ²⁴, a significant proportion of the students who responded (145 out of 181) is employed in a sector that is related to the EIT Digital study programmes. 41 out of 60 students believe they have gained or improved skills in entrepreneurship and innovation through the EIT Digital educational programme. 114 out of 197 students feel they would not be better off today if they had not chosen to participate in EIT Digital's related programmes.

EIT Digital has increased digital upskilling through various activities. These include collaboration with the Talent Garden Innovation School; customisation and curation for corporate learning; successful online courses; the Coursera platform; marketing campaigns and recruitment; and the EIT Digital venture programme. However, EIT Digital had set some very ambitious targets for 2024 both for professional and online learners and for the number of new credentials developed by KIC-supported universities. The KIC has made substantial progress but the impact is not yet evident. Only 472 000 online learners were reported in 2023 against a target of 1 000 000 to be achieved by 2024, and 25 000 new micro credentials had been issued by 2023 against a target of 50 000 to be achieved by 2024 ²⁵.

EIT Digital has been actively engaged in measures to boost the participation of female students in the Master School ²⁶. The overarching objective is to create opportunities for female students to excel in digital education and make meaningful contributions to the ongoing digital transformation of EU industries. EIT Digital has made some progress here and has reported a 36% participation of female students in EIT Digital programmes so progressing towards a targeted 40% to be achieved by 2024 ²⁷. In 2021, 50% of recruited PhD students were female, which is a substantial increase on previous years. This accomplishment underscores EIT Digital's firm dedication to fostering gender diversity within the Industrial Doctoral Programme.

When it comes to supporting EU regulation and digital standards that address key EU values such as AI ethics, data protection and trusted social media platforms, EIT Digital has actively embraced the promotion of AI ethics ²⁸. EIT Digital has developed detailed syllabi and clear learning objectives for each course that are aligned with its educational philosophy. It has also aligned the first-year curriculum with various universities' entry and exit points to ensure a consistent educational experience. EIT Digital also implemented data protection measures and conducted thorough recruitment processes (including application reviews and candidate evaluations) during the first quarter of 2021, demonstrating its commitment to data security.

²¹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 53.

²² Deloitte and White Research, Final Review EIT Digital, 2023, p. 53.

²³ Deloitte and White Research, Final Review EIT Digital, 2023, p. 53.

²⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 54.

²⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 55.

²⁶ Deloitte and White Research, Final Review EIT Digital, 2023, p. 55.

²⁷ EIT Administrative data (data reported by KICs and validated by EIT), December 2024.

²⁸ Deloitte and White Research, Final Review EIT Digital, 2023, p. 56.

EIT Digital has made notable progress in expanding its impact on Digital Innovation Hubs²⁹ to increase the presence of EIT Digital partners among the European Digital Innovation Hubs by 50% by 2024. One example of this is the Budapest Node, which is leading a consortium to submit a proposal for a cybersecurity-fintech project within the European Digital Innovation Hubs Network. This initiative underscores EIT Digital's strong commitment to enhancing the digital innovation ecosystem.

EIT Digital has also identified a number of economic long-term impact goals. These are defined in the EIT Impact Framework 2022-2027 as follows:

- contribution to the revenue growth of organisations trading or employing innovations developed with KIC support;
- the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceases;
- new jobs created in start-ups and scale-ups;
- the impact on employment growth as a result of company being engaged with KICs;
- the number and type of jobs in existing businesses sustained through innovations;
- the number and type of skill gaps and/or skill shortages filled, by KIC sector;
- new visible innovation ecosystems;
- the share of indicated innovation ecosystems that covers RIS countries³⁰.

The results of the survey conducted for the external evaluation among the KIC's supported start-ups³¹ show that EIT Digital's funding has had a varied impact on start-up revenue growth. 17 out of 31 start-ups have grown by between 5% and 50%.

When it comes to the number of supported start-ups and scale-ups trading after the KIC's support ceased, 85% of portfolio companies were still trading three years later according to the KIC's data.

According to the KIC's data, approximately 15 000 direct and indirect jobs have been created by EIT Digital since 2010, surpassing the targets of 5 000 and 6 500 by 2024 and 2027 respectively³². The results of the survey conducted for the external evaluation³³ indicate that job creation outcomes vary. 39% of survey respondents stated that they had not created new jobs but 61% start-ups reported that between 1 and 20 new positions had been created thanks to their engagement with EIT Digital.

The external evaluation study indicates that³⁴, EIT Digital's engagement has helped to fill skills gaps and shortages, particularly in technical skills, entrepreneurship and innovation within the sector. 14 respondents to the start-up survey believed that their engagement with EIT Digital had helped fill skill gaps, while 5 respondents disagreed and 9 were unsure. The Speed Master has gone through 4 editions (with 145 participants, 132 start-ups trained and 28 countries), involving the inclusion of 43 women in founding or C-level roles and collaboration with 11 external speakers.

²⁹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 56.

³⁰ EIT Impact Framework 2022-2027, pp. 7-11.

³¹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 57.

³² EIT Administrative data (data reported by KICs and validated by EIT), December 2024.

³³ Deloitte and White Research, Final Review EIT Digital, 2023, p. 60.

³⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 63.

When it comes to the long-term educational impact on the career growth of participants in EIT-labelled programmes, the data collected through the evaluation survey³⁵ underscore the positive rate of 85% KIC Label graduates employed, with a reasonable number of individuals maintaining their positions at entry-level, intermediate and executive levels. Further analysis and exploration of the underlying factors influencing these trends could provide valuable insights both for educational institutions and for aspiring entrepreneurs³⁶.

In conclusion, EIT Digital's impact is evident across several KPIs that demonstrate substantial progress aligned with the EIT Impact Framework, including societal impact KPIs³⁷. EIT Digital has played a significant role in enhancing the competitiveness of EU Member States (particularly those with a DESI score below 50) by fostering a stronger digital economy. EIT Digital has successfully translated deep tech digital R&D into market-ready solutions in areas of strategic importance for the EU. The initiative has also driven the development of digital talent across the EU, promoted the upskilling of professionals in the digital sector and boosted gender equality in digital education. EIT Digital has strengthened its influence on Digital Innovation Hubs, further solidifying its role as a pivotal force in the EU's digital transformation.

2. Additionality

Table 2 provides the basic financial figures for EIT Digital since it started operating in 2010. EIT Digital was able to achieve a direct leverage factor³⁸ of 0.31 in 2010-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.38 (if one adds direct revenues created through KIC activities (EUR 238 million vs the EIT grant of EUR 629 million)).

Table 2: EIT Digital financial figures (in EUR million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	5,1	16,6	24,3	39,2	60,3	66,8	64,6	64,5	70,3	70,2	67,6	30,8	31,3	17,5	629,0
Co-funding	0,0	3,0	6,1	6,3	6,4	11,8	22,4	22,1	22,1	25,1	20,7	23,3	17,0	8,9	195,1
Revenues							1,2	2,4	3,2	4,0	7,4	9,0	9,0	7,0	43,2
Activities not funded by EIT	11,5	62,4	81,8	141,8	200,7	191,5	202,9	161,6	174,2	233,4	215,9	0,1	297,3	38,3	2013,3
Co-investment, i.e. investments attracted by start-ups								5,6	236,0	113,4	48,5	128,4	129,5	82,7	744,1

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from three-year business plans.

In terms of leverage effects for EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KIC's activities, but also through the activities not funded by the EIT³⁹ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT Digital achieved a leverage factor of 3.58 in 2010-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 661 million) are also included, the leverage factor rises to 4.76 over the period of the EIT Digital lifecycle to

³⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 65.

³⁶ Deloitte and White Research, Final Review EIT Digital, 2023, p. 63.

³⁷ Deloitte and White Research, Final Review EIT Digital, 2023, p. 67.

³⁸ Ratio of direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(funding rate))-1.

³⁹ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to the KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

date. This means that, for every euro of EIT funding spent, EIT Digital activities have helped to attract close to EUR 5 in external investment.

EIT Digital has received larger annual EIT contributions under Horizon 2020 than under Horizon Europe. In terms of in-cash and in-kind contributions, EIT Digital mobilised the same amount under Horizon Europe and Horizon 2020. In addition, there is a noticeable shift within Horizon Europe towards partner contributions increasing as the EIT's contributions decrease – reflecting the constant decrease in the EIT's financial backing and intensified efforts to establish a sustainable business model. The direct leverage effect therefore increased under Horizon Europe, compared with Horizon 2020. In addition, EIT Digital's community creation priorities focused on organisations aligned with research, innovation and market implementation, particularly within the KIC's five strategic areas (Digital Tech, Digital Cities, Digital Industry, Digital Wellbeing and Digital Finance)⁴⁰.

3. Transparency and openness

EIT Digital has demonstrated steady growth and geographic diversity while ensuring a balanced composition across critical thematic areas⁴¹. Overall, EIT Digital's proactive expansion, commitment to inclusivity and focus on innovation ecosystems have positioned it as a leading force in European digital transformation with opportunities for further development⁴². The KIC has broadened its scope and partner composition, notably by expanding its partnership to encompass the entire value chain in order to better address market demands. In view of the external evaluation report⁴³, EIT Digital's openness in attracting new partners is consistent with the EIT Regulation Framework principles. The KIC is open to new members and information on the KIC membership scheme is publicly accessible for those interested in joining.

EIT Digital has thus cultivated a robust and diverse innovation ecosystem that has grown to include more than 350 organisations across 31 European countries⁴⁴. SME participation increased from 5% to 40% in 2022 alone and in October 2024 represented 55% of the total number of active partners in the implementation of the 2023-2024 EIT grant agreement (17% of the EIT total grant was allocated to SMEs alone). According to the external evaluation report, EIT Digital has a balanced representation of education, research and innovation players in its partnership. This allows it to have a holistic approach, equipping graduates with skills, supporting research and fostering innovation⁴⁵.

In order to foster stakeholders' participation, according to the Partnership evaluation study⁴⁶, EIT Digital has set up outreach activities to create links with other European countries and non-EU countries. It has also put in place measures to strengthen the participation of Widening Countries⁴⁷, end users and/or the private sector (particularly SMEs). The KIC has also carried out targeted visits to promote the partnership to under-represented stakeholder groups and countries. More specifically, EIT Digital has used communication activities such as information sessions and brokerage events and worked with the national/regional community through the

⁴⁰ Institutionalised partnership report – EIT Digital, p. 16., <https://data.europa.eu/doi/10.2777/431739>

⁴¹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 101.

⁴² Deloitte and White Research, Final Review EIT Digital, 2023, p. 101.

⁴³ Deloitte and White Research, Final Review EIT Digital, 2023, p. 101.

⁴⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 101. Updated data, validated by EIT, December 2024.

⁴⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 101.

⁴⁶ Institutionalised partnership report – EIT Digital, p. 48

⁴⁷ According to its Strategic Agenda, the definition is 'Countries with a DESI score below 50'.

EIT RIS hubs to attract new partners ⁴⁸. Its inclusive approach involves partners from 16 RIS countries. However, although the KIC has made progress in expanding engagement in RIS regions (particularly in Spain, Italy and Hungary), there is still room for growth in under-represented areas. The KIC has also seen increased SME involvement in EIT RIS activities. This is due to a shift in EIT Digital's Strategic Agenda, with more emphasis on commercial activities and SME/start-up growth. Several factors are nevertheless hampering SME participation (e.g. administrative burden for SMEs) ⁴⁹. Overall, EIT Digital has been effective in attracting and integrating new partners, and its membership base continues to grow over time ⁵⁰. It should nevertheless be noted that EIT Digital increased membership fees by 30% in 2022-2024 (10% annually) for all partner categories. This might discourage new partners from joining and prompt existing partners to leave the KIC ⁵¹.

When it comes to transparent processes with relevant stakeholders, EIT Digital consults stakeholders both at regional level and in the General Assembly, where all members can vote ⁵². Members have also been represented through the Supervisory Board, which has been geographically balanced down the years ⁵³. The KIC follows good governance practices, but there is still room for improvement (e.g. by publishing entry and exit rules). However, survey data from the external evaluation ⁵⁴ indicate that its transparency and active engagement with partners foster trust and inclusivity.

4. Efficiency

Table 3 sets out EIT Digital's operational budget and administrative expenditure (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditure paid from the EIT grant. This does not include the contribution from EIT Digital's partners.

Table 3: EIT Digital operational and administrative expenditure (in euro)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Operational Expenditures	64 951 025 €	78 681 213 €	78 423 141 €	77 584 979 €	84 394 907 €	86 432 013 €	81 741 948 €	49 227 019 €	50 091 407 €
Running Costs	10 317 534 €	11 866 033 €	9 349 213 €	9 571 072 €	8 647 462 €	9 015 427 €	8 294 121 €	4 842 001 €	4 784 225 €
Total budget	75 268 559 €	90 547 246 €	87 772 354 €	87 156 051 €	93 042 369 €	95 447 440 €	90 036 069 €	54 069 020 €	54 875 632 €

Source: EIT financial data (reported by KICs and validated by the EIT).

Table 3 indicates that the running costs for EIT Digital's headquarters and co-location centres (CLCs) for 2014-2022 ranged between 8.7% and 13.7%, at an average of 10.5%. When only the period of Horizon Europe (2021-2022) is considered, these costs constituted 8.8% of the overall operational costs. Taking into account only the administrative costs of EIT Digital's headquarters, the average ratio of administrative costs to EIT Digital's overall operational budget dropped to 5.4% for the Horizon Europe period.

The impact of the CLCs network on administrative expenditure is obvious, because this decreased considerably once the costs related to the CLCs are excluded.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT has, in order to keep these administrative costs at an acceptable

⁴⁸ Institutionalised partnership report – EIT Digital, p. 48

⁴⁹ Institutionalised partnership report – EIT Digital, p. 56.

⁵⁰ Institutionalised partnership report – EIT Digital, p. 48

⁵¹ Institutionalised partnership report – EIT Digital, p.49

⁵² Institutionalised partnership report – EIT Digital, p.49

⁵³ Institutionalised partnership report – EIT Digital, p.49

⁵⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 101.

level, set maximum thresholds in its guidelines to the KICs for the EIT-funded share of the KICs' administrative costs, depending on the KICs' maturity. The values range from 18% and 15% in the first and second years of a KIC respectively to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and regionally, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

Under Horizon 2020, the EIT's contributions between 2014 and 2020 were typically channelled into areas of strategic importance (e.g. the CLCs, the ecosystem, education, research and business development – so predominantly innovation, research and education activities). As the EIT grants increased in this period, so the relative weight of management and coordination activities also increased. EIT contributions were more spread across the different activity lines under Horizon Europe than in Horizon 2020. A greater share was allocated to ecosystem-building activities. When one compares 2021-2022 with 2023-2024, the person-months allocation to different EIT Digital activity lines indicates that a larger share of resources is now being allocated to EIT RIS activities⁵⁵. In addition, EIT Digital has sought to reduce the administrative burden by funding activities via sub-granting and awarding prizes. Funding via sub-granting was used predominantly for educational activities, while prizes were awarded for supporting ventures⁵⁶. In total, EIT Digital spent EUR 3.9 million on sub-granting under Horizon Europe. In 2021, EIT Digital generated EUR 8.9 million in revenue, had 293 partners and mobilised a total of EUR 48.5 million in funding. Historical data show a steady growth of EIT Digital's revenues as part of its strategy to improve financial sustainability. When one compares the financial sustainability of EIT Digital under Horizon 2020 (2016-2019) with that under Horizon Europe (2021-2022), EIT Digital's revenues gradually increased from EUR 2.4 million in 2016 to EUR 8.9 million in 2021. However, while EIT Digital exceeded or almost reached the financial sustainability revenues target under Horizon 2020, only 48% of the target was achieved under Horizon Europe in 2021. This corresponds to the KIC's phasing-out period of the KIC (in terms of achieving self-sustainability) and to ambitious sustainability KPIs⁵⁷.

2023 data indicate that the average time-to-grant for calls launched by EIT Digital was 1.5 months.

5. Coherence and synergies

EIT Digital has proactively sought synergies with EU initiatives and projects in order to amplify its impact on the EU's digital transformation⁵⁸.

EIT Digital is a partner of the EIF. Both parties have signed a memorandum of understanding whose objectives include making it easier for EIT Digital's coached start-ups to access the EIF network. EIT Digital also has a strong collaboration relationship with the EIC. In 2022, EIT Digital and the EUC launched a pilot programme to make it easier for DeepTech companies that have already received funding from the EIC to join the EIT Digital Accelerator. This collaboration was extended in 2023, following a successful pilot year that resulted in scale-ups

⁵⁵ Institutionalised partnership report – EIT Digital, p.54

⁵⁶ Institutionalised partnership report – EIT Digital, p.54

⁵⁷ Institutionalised partnership report – EIT Digital, pp. 26-27.

⁵⁸ Deloitte and White Research, Final Review EIT Digital, 2023, p. 71.

reaching their investment milestones and mobilising more than EUR 25 million in private capital. Scale-ups supported by EIT Digital can benefit from EIC funding through the Fast Track instrument. This partnership will strengthen EU support for scale-ups, both in funding and in business development. The EIT Digital Accelerator aims to increasingly engage with the European Innovation Ecosystems under Pillar III of Horizon Europe in order to help an increasing number of scale-up companies to attract customers and investors across Europe, with a special focus on RIS countries⁵⁹. Other synergies include the European Central Bank (with which EIT Digital has successfully provided brokerage and training services; and secured participation in various strategic projects, such as the sustainable cities impact challenge); the Institute of Electrical and Electronics Engineers (IEEE); the European Telecommunications Standards Institute (ETSI); the Internet Engineering Task Force (IETF); the Trust in Digital Life organisation; the European CIO Association; the Future Internet Public-Private Partnership Programme; the Future Internet Research & Experimentation Initiative; and the Big Data Value Association.

The KIC has created synergies with other EU programmes, such as the Connecting Europe Facility (CEF); the Digital Europe Programme (DEP)⁶⁰; Erasmus+; the EU Space Programme and the InvestEU Programme. Its main approach is to apply in response to calls for proposals and secure funding for projects that are highly strategically aligned with EIT Digital's Strategic Agenda⁶¹. In 2021, EIT Digital signed a letter of intent for collaboration with DG CNECT in support of the EU's digital transformation. The aim is to cooperate in areas such as digital infrastructure, the Internet of Things, cloud computing, big data and artificial intelligence, cybersecurity, privacy and trust, quantum computing, photonics and optical computing⁶².

When it comes to synergies with other European Partnerships and Missions within Horizon Europe, the EIT KICs community is clearly the most active – as highlighted in the Biennial Monitoring Report 2024⁶³. EIT Digital shows close ties to Cluster 4 (digital, industry and space), with a particular focus on the development of relevant skills and competencies. Education programmes are developed in a way that complements the research and innovation activities funded under Horizon Europe, so that students, entrepreneurs and the EU workforce are trained and equipped with the skills and competences suited to the future needs of EU industries, which are being modernised and digitally transformed. EIT Digital has also created synergies with Cluster 1 (health), Cluster 5 (climate, energy and mobility) and Cluster 6 (food, bioeconomy, natural resources, agriculture and the environment)⁶⁴. Examples of joint activities

⁵⁹ Institutionalised partnership report – EIT Digital, p.23.

⁶⁰ As highlighted in the external evaluation, there are strong synergies between EIT Digital and Digital Europe Programme (DEP).

- Firstly, EIT Digital is the project coordinator of the SME4DD – Training SMEs for the Digital Decade project financed by the Digital Europe Programme. This project will deliver short-term training programmes in three strategic digital technologies for the EU: a) artificial intelligence; b) blockchain; and c) cybersecurity.
- Secondly, EIT Digital has participated in 8 winning consortia to establish European Digital Innovation Hubs (EDIH). EIT Digital contributes to the activities of 8 EDIHs by offering acceleration services for start-ups, organising hackathons, solution-scouting, and by offering tailored training opportunities via professional school and summer school course portfolios. The role of EIT Digital in the EDIHs also indicates that EIT Digital has strong synergies with national/regional ecosystem members. The 8 EDIHs in which EIT Digital participates are established in Germany, Spain, Hungary, the Netherlands (2 EDIHs), Sweden and Finland (2 EDIHs).

Institutionalised partnership report – EIT Digital, p. 24.

⁶¹ Institutionalised partnership report – EIT Digital, p. 24.

⁶² Institutionalised partnership report – EIT Digital, p. 23.

⁶³ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

⁶⁴ Institutionalised partnership report – EIT Digital, pp. 22-23.

include the communication and dissemination of project results; networking by project partners in similar research areas; capacity-building activities; strategic exchanges; joint foresight exercises to help align agendas; mentoring; support for spin-off development; standardisation or certification activities; activities to develop the national ecosystems; and joint calls for research and/or innovation projects ⁶⁵.

EIT Digital is participating in eight winning consortia to establish European Digital Innovation Hubs (EDIH) by offering acceleration services for start-ups, organising hackathons and solution-scouting, and offering tailored training opportunities via its professional and summer schools. EIT Digital's role in the EDIHs indicates that EIT Digital has strong links with national and regional ecosystem members ⁶⁶. Other examples of connections at regional level are collaboration with local governments in Estonia and Hungary. Collaborations at national level have been established with Italy, Hungary, the Netherlands, Sweden and Finland, as well as with the United Kingdom ⁶⁷. International synergies have also been created (e.g. with FedEx) that provide financial support for the Sustainable Cities Climate Impact Challenge ⁶⁸.

The EIT KICs have established a number of EIT Community initiatives, thereby fostering synergies with other KICs. EIT Digital has played a crucial role in EIT Community initiatives (e.g. the Strategic Regional Innovations activity, the Strategic Education activity and the Access to Finance activity). It took the lead in the EIC-EIT collaboration activity alongside EIT Health. It has also contributed significantly to the EIT Community's Strategic Synergies activity (particularly in the area of artificial intelligence) and the newly initiated New European Bauhaus activity, where EIT Digital spearheaded the acceleration task ⁶⁹.

6. EU added value

According to the external evaluation report ⁷⁰, EIT Digital has created EU added value thanks to the integration of the knowledge triangle, both by providing links to expertise and markets that are difficult to access and by building stronger and sustainable innovation ecosystems. Many national public policy initiatives support the digital transition in the fields of innovation, start-up creation and entrepreneurship. However, EIT Digital integrates all three elements of the knowledge triangle at EU level – which is not an explicit feature of national or sub-national initiatives. For example, digital innovation and entrepreneurship education is a key differentiator of EIT Digital ⁷¹. The courses offered by EIT Digital combine technical knowledge with entrepreneurship and business skills that are not covered by other parts of the Framework Programme ⁷². Moreover, a key success of EIT Digital has been its role in incubating business ideas; creating and launching start-ups and spin-offs; developing new or improved products and services; supporting scale-ups; and building digital talent with a strong technological and entrepreneurial background. EIT Digital has thus brought together organisations from many countries, and is thus distinguished from national and regional public policy initiatives ⁷³.

⁶⁵ Biennial Monitoring Report (BMR) Survey Results, 2022. Responses provided by EIT Digital.

⁶⁶ Institutionalised partnership report – EIT Digital, p. 24.

⁶⁷ Deloitte and White Research, Final Review EIT Digital, 2023, p. 70.

⁶⁸ Institutionalised partnership report – EIT Digital, p. 25.

⁶⁹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 69.

⁷⁰ Deloitte and White Research, Final Review EIT Digital, 2023, p. 35.

⁷¹ Institutionalised partnership report – EIT Digital, p. 54.

⁷² Institutionalised partnership report – EIT Digital, p. 54.

⁷³ Institutionalised partnership report – EIT Digital, p. 33.

EIT Digital has built bridges to enhance digital competitiveness and address societal challenges in the EU Member States⁷⁴. The number of participants from Widening Countries⁷⁵ increased from 5% under Horizon 2020 to 14% under Horizon Europe. The number of participants from third countries increased from 0.5% to 16% respectively. This cross-border element provides access to EIT Digital partners, investors and customers that would otherwise be difficult to identify and access – especially for companies in RIS countries in Southern Europe, South-Eastern Europe, Central and Eastern Europe, and the Baltic⁷⁶.

In accordance with the EIT Strategic Innovation Agenda, one of the ways for the EIT KIC to create added value is to provide start-ups and scale-ups with coaching and mentoring. Several EIT Digital activities have therefore focused on strengthening soft skills and innovation potential in an EU-wide setting. In particular, the Business Development Accelerator, the idea challenge, the summer school and the professional school have supported scale-ups, start-ups and students. The measures include business and coaching support, go-to-market strategy support, providing access to customers and ventures, and entrepreneurial training⁷⁷.

EIT Digital has been able to contribute to digital and industrial transitions due to its ability to exploit economies of scale across Europe. For example, EIT Digital capitalises on economy-of-scale effects by linking integrated dissemination campaigns of its core activities (e.g. its annual calls for proposals, the EIT Digital Challenge (Champions) scale-up competition and annual events)⁷⁸.

Compared with what would be available at national or regional level, EIT Digital enables the pooling of resources and competences from different actors to achieve industrial and technological goals that would not be possible either for the individual Member States acting alone or with a fully centralised institution;

7. Relevance

According to the external evaluation findings⁷⁹, EIT Digital has made substantial progress towards meeting the EU's priorities, and particularly in driving digital innovation and transformation in the EU and fostering the EU's digital sovereignty. EIT Digital is resolutely committed to building a resilient digital Europe through multifaceted initiatives that are all geared towards fortifying innovation capacity and nurturing entrepreneurship⁸⁰. EIT Digital's central purpose is to strive for an EU that thrives as a global digital leader, in alignment with its core priorities, while championing its digital sovereignty. The KIC creates and scales up ventures. It also provides talented individuals with digital and entrepreneurial skills through initiatives like the Open Innovation Factory, the RIS venture programme and collaborations with EU programmes. Its impact is evident when it comes to its innovation portfolio, its accelerator programme and the growth of EU tech companies⁸¹.

⁷⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 100.

⁷⁵ The large increase in the number of participations from third countries should be treated with caution to the reallocation of the UK from EU Member State to third country category.

⁷⁶ Institutionalised partnership report – EIT Digital, p. 33.

⁷⁷ Institutionalised partnership report – EIT Digital, p. 32.

⁷⁸ Institutionalised partnership report – EIT Digital, p. 32.

⁷⁹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 30.

⁸⁰ Deloitte and White Research, Final Review EIT Digital, 2023, p. 30.

⁸¹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 31.

Overall, EIT Digital is actively addressing the EU's digital transformation and sustainable development, aligning with relevant UN Sustainable Development Goals (SDGs) and particularly those related to innovation, sustainability and education ⁸².

Since its inception in 2010, EIT Digital's strategic orientation has undergone significant transformations in its strategic orientation to adapt to evolving societal needs and policy priorities ⁸³. Under Horizon 2020, EIT Digital's research activities were focused on emphasising the international, multidisciplinary, collaborative and iterative nature of research and innovation in information and communications technology (ICT). Under Horizon Europe, by contrast, the emphasis is now on fostering a multistakeholder and open innovation ecosystem to ensure European digital sovereignty, achieve industrial leadership in key value chains, promote open strategic autonomy and address societal challenges. EIT Digital is boosting the economic impact of EU companies and supporting EU regulation and digital standards that reflect key EU values, such as AI ethics, data protection and trusted social media platforms ⁸⁴. EIT Digital also aims to reinforce the long-term impact of its partnership through new EU initiatives, such as the Regional Innovation Valleys, where the KIC's know-how and ecosystem reinforces collaboration with a view to enhancing the digital innovation capabilities of the regions involved ⁸⁵.

EIT Digital has aligned its objectives with the challenges and needs of Cluster 4 and the Key Digital Technologies intervention area under Horizon Europe. It has shown its adaptability by shifting from support for research and low technology readiness levels (TRLs) to greater emphasis on innovation and commercialisation. This shift has increased SMEs' participation and thus leveraged research results for market opportunities and growth. Larger enterprises initially reduced their level of engagement, but are now re-engaging because they are attracted by the growing pool of SMEs in EIT Digital's network ⁸⁶.

When it comes to flexibility, EIT Digital has demonstrated a high degree of responsiveness in adapting to emerging developments, shifting markets and policy needs. This flexibility was particularly apparent during the COVID-19 crisis, when EIT Digital was able to transition rapidly to an online mode of operation. EIT Digital is a complex organisation with a broad partnership base, but it nevertheless succeeded in maintaining continuity of service to its partners. EIT Digital provided opportunities for businesses to pivot their models. Educational institutions were able to transition quickly to online teaching, although the number of students did decrease slightly. Open innovation projects yielded mixed results, with some seeing an improvement due to the new circumstances. The ecosystem therefore demonstrated remarkable resilience despite the challenges posed by the crisis ⁸⁷.

8. Directionality

EIT Digital's proactive involvement in EU policy discussions through scenario-based policy reports was instrumental in addressing evolving societal challenges and priorities. EIT Digital has strategically aligned its vision with Horizon Europe's, thus significantly contributing to the EU's digital evolution, industrial competitiveness and technological competency – while at the same time demonstrating its commitment to sustainability. Its approach involves a thematic focus on areas monitored by innovation leaders – ensuring consistency between education,

⁸² Deloitte and White Research, Final Review EIT Digital, 2023, p. 32.

⁸³ Institutionalised partnership report – EIT Digital, p. 5.

⁸⁴ Institutionalised partnership report – EIT Digital, p. 5.

⁸⁵ Institutionalised partnership report – EIT Digital, p. 16.

⁸⁶ Institutionalised partnership report – EIT Digital, p. 19.

⁸⁷ Institutionalised partnership report – EIT Digital, p. 20.

innovation and entrepreneurship initiatives while also emphasising human-centric and ethical development through various projects under Horizon Europe⁸⁸.

Overall, the KIC has directly addressed societal challenges under Horizon2020 – while the topics of strategic autonomy, sovereignty, industrial competitiveness and digitalisation have grown in importance under Horizon Europe⁸⁹. In addition, while the feedback from interviewees in the survey conducted for the external evaluation⁹⁰ indicated that there were mixed views on the importance of a human-centric approach within EIT Digital’s activities under Horizon2020, the importance of human centricity for EIT Digital increased under Horizon Europe.

9. International positioning

EIT Digital has established 21 offices in 12 EU Member States and additional hubs in San Francisco and London. The KIC aims to play a strategic role at a global level by facilitating systematic engagement with a variety of stakeholders and end users via its offices.

EIT Digital participates in the EIT Global Outreach Programme’s⁹¹ activities and the Strategic Regional Innovations (SRI)⁹². The Programme was established in 2018 and links the EIT’s innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The Programme currently comprises established and successful EIT hubs in Silicon Valley (USA)⁹³, Tel Aviv (Israel)⁹⁴ and London (UK)⁹⁵. Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in the future be expanded to Moldova and potentially Georgia, in line with the EU’s enlargement policy priorities.

EIT Digital’s reach extends far beyond the EU. Besides the hubs mentioned in the previous paragraph, the KIC has established a presence in other third countries, including Bosnia and Herzegovina, Norway, Serbia, Switzerland, Türkiye and the United Kingdom. This global expansion enhances EIT Digital’s ability to address digital challenges on a broader scale.

Comparing Horizon 2020 with Horizon Europe, EIT Digital’s RIS activities have become more pronounced under the current framework programme⁹⁶. A comparison of the share of participants from third countries under Horizon 2020 and Horizon Europe shows that the level of EIT Digital’s international cooperation has increased⁹⁷. The Silicon Valley Hub is one example of a measure to foster international visibility. Its whole objective is to build an EU-USA connection and talent mobility in order to provide collaboration opportunities for research and innovation initiatives as well as support business growth. The Silicon Valley Hub also makes it easier for ventures backed by EIT Digital to enter new markets.

EIT Digital is active in the international community and would therefore benefit from a streamlined and targeted value proposition to international partners. This proposition could be based on the principle of ‘as open as possible and as closed as necessary’. In addition, EIT

⁸⁸ Institutionalised partnership report – EIT Digital, p. 7.

⁸⁹ Institutionalised partnership report – EIT Digital, p. 44.

⁹⁰ Institutionalised partnership report – EIT Digital, p. 44.

⁹¹ <https://go-eit.eu/>

⁹² <https://eit-ris.eu/>

⁹³ <https://go-eit.eu/eit-silicon-valley-hub/>

⁹⁴ <https://go-eit.eu/eit-israel-hub/>

⁹⁵ <https://go-eit.eu/eit-uk-hub/>

⁹⁶ Institutionalised partnership report – EIT Digital, p. 55.

⁹⁷ Institutionalised partnership report – EIT Digital, p. 55-56.

Digital would benefit from dedicated resources and from developing a clear strategic plan to promote international cooperation across its action lines ⁹⁸.

10. Phasing-out preparedness

The EIT Regulation ⁹⁹ defines ‘financial sustainability’ as the EIT KICs’ capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT funding. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT Digital has taken significant steps to enhance its financial sustainability by diversifying income sources and reducing dependency on EIT funding.¹⁰⁰ EIT Digital’s mid-term strategy, which was adopted in 2022, confirmed that EIT Digital will continue to act as a not-for-profit organisation, continuing its activities related to ecosystem-building, innovation and entrepreneurial education, and achieving financial sustainability via balanced public and private financing.¹⁰¹ The KIC has gradually introduced measures to ensure the long-term sustainability of the partnership beyond the EIT funding period. These measures include¹⁰²:

- co-investments from partners and accrual of assets in the form of equity positions (the key drivers of EIT Digital’s long-term financial sustainability);
- increased membership fees;
- a base fee of EUR 36 000 – EUR 60 000 for accessing basic Accelerator services, and an additional success fee after successful access to market or finance;
- increased tuition fees for students and a reduced number of scholarships for EIT Digital Master School programmes; and
- income generation through other activities such as: a) regional and national funding agencies; b) European Digital Innovation Hubs as part of the Digital Europe Programme; c) access to finance and closing the gap between series A and pre-seed support; and d) educational programmes (particularly Master schools).

As the KIC navigates the gradual phasing-out of EIT funding, it faces the challenge of striking a balance between maintaining excellence and market influence, while sustaining its core activities.¹⁰³ The transition process is intricate and involves risks such as potential community changes, legal uncertainties and the need to develop equity investment management skills.¹⁰⁴ This has prompted different opinions from stakeholders about the best approach for this transition period.¹⁰⁵ EIT Digital’s mid-term strategy is intended to maintain this balance and

⁹⁸ Institutionalised partnership report – EIT Digital, pp. 56-57.

⁹⁹ In particular, Articles 2(16) and 6(i) of [Regulation \(EU\) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology](#).

¹⁰⁰ Institutionalised partnership report – EIT Digital, p.7.

¹⁰¹ Institutionalised partnership report – EIT Digital, p.52.

¹⁰² Institutionalised partnership report – EIT Digital, p.52.

¹⁰³ Institutionalised partnership report – EIT Digital, p.7.

¹⁰⁴ Institutionalised partnership report – EIT Digital, p.7.

¹⁰⁵ Institutionalised partnership report – EIT Digital, p.7.

EIT Digital has achieved some success in fulfilling this vision.¹⁰⁶ Challenges remain for EIT Digital in achieving long-term financial sustainability, but the diversification of revenue sources and the engagement with EU programmes are positioning the KIC for continued growth.¹⁰⁷ It has a well-defined intellectual property policy to foster open innovation and collaboration.¹⁰⁸ In addition, co-funding rates are aligned with EIT targets. In this regard, the phasing-out principle is seen less as an end to EIT support and more as a transition to other sources of funding, with the aim of ensuring the continuation of the knowledge triangle activities. Stakeholders believe that, depending on the domain, certain activities need to continue thanks to the contribution of new players.¹⁰⁹ EIT Digital's non-profit nature might eventually constitute a risk to the development of sustainable commercial activities, because it would require changes in the legal status of the KIC as well as investment in skills and capacity to develop a strong portfolio management approach for equity investment¹¹⁰.

In this context, EIT Digital has not yet achieved its return on investment (RoI) and equity targets, and digital investment difficulties have been identified. Despite actively investing in start-ups and building up a large portfolio with investments in 286 companies by the end of 2023, EIT Digital had not been generated enough revenue.¹¹¹ This was mainly due to the lack of maturity and small scale of its investments. The KIC's strategy on revenue collection in the future nevertheless seems to be positive¹¹², especially when one takes into account the fact that EIT Digital reported that it had accumulated substantial financial reserves at the end of 2023 (mostly by charging membership fees) and that these could provide a solid basis for sustaining its core activities.

The KIC should nevertheless pay particular attention to the revenue generated from RoI including equity, because this will be one of the most important factors determining its ability to continue operating once EIT funding ends.¹¹³ Without this revenue streams, EIT Digital would face serious issues that could jeopardise its smooth operation.¹¹⁴ Hiring an equity portfolio management specialist and developing a robust revenue plan based on existing and future investments are necessary in order to address this issue.¹¹⁵ EIT Digital should also focus on areas of revenue other than membership fees and education¹¹⁶. Recent developments show that the KIC has taken some necessary steps in the right direction and increased its investment portfolio in return for services provided to start-ups.

Looking ahead to 2025-2027, memoranda of cooperation (MoCs) were signed in 2024 by the EIT with first-wave KICs (including EIT Digital). Under the MoCs, KICs (including their partner organisations) agreed to continue to undertake knowledge triangle integration activities aligned with their strategic agendas and thus with the EIT Strategic Innovation Agenda, independent of contributions from the EIT. However, for those activities which could be discontinued because they typically do not bring in revenues for the KICs but rather involve costs (i.e. some education and training or RIS activities), the EIT may decide to allocate a smaller and clearly earmarked grant for 2025.

¹⁰⁶ Institutionalised partnership report – EIT Digital, p.53.

¹⁰⁷ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102

¹⁰⁸ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102

¹⁰⁹ Institutionalised partnership report – EIT Digital, p. 53.

¹¹⁰ Institutionalised partnership report – EIT Digital, p. 53.

¹¹¹ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.

¹¹² Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.

¹¹³ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.

¹¹⁴ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.

¹¹⁵ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.

¹¹⁶ Deloitte and White Research, Final Review EIT Digital, 2023, p. 102.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 23: Evaluation of EIT Food

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Food Knowledge and Innovation Community (the KIC or EIT Food) was established in 2017 as part of the third wave of EIT KICs and in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. Its first operational activities and calls were launched in 2018. Its main goal is to accelerate the transformation of food production, distribution and consumption in order to build a future-fit, healthy and sustainable food system in which Europe becomes the leading engine for food innovation. To achieve its mission, EIT Food received a EUR 305 million grant from the EIT for 2017-2023.

In 2023, EIT Food had over 340 strategic partners, including businesses, higher education institutions and research organisations. EIT Food has collaborated with 4 720 stakeholders overall, has brought together more beneficiaries than other EIT KICs² and has supported more than 60 000 participants in its educational programmes. Data on the participation of stakeholders in EIT Food activities reveals that it has become the world's largest food innovation community and makes a significant contribution to the EU's food system³.

Objectives and achievements

EIT Food's 2021-2027 Strategic Agenda⁴ contains the following strategic objectives: (1) to address low consumer trust in food; (2) to enable healthier and more sustainable individual consumer choice; (3) to build a consumer-centric connected food system across the EU; (4) to enhance sustainability through resource stewardship; (5) to educate, engage, innovate and advance; and (6) to catalyse food sector entrepreneurship and innovation across the EU. EIT Food has made steps in reaching these objectives, with a focus on enhancing consumer trust, promoting sustainability, driving innovation and advancing entrepreneurship in the food sector across the EU while also building a consumer-centric food system.

EIT Food has also contributed to achieving the objectives of the Horizon 2020 and Horizon Europe programmes and particularly when it comes to the creation of innovative technologies and solutions, their deployment on the market as well as training and skills development.

All these strategic objectives are implemented and the results are delivered by applying the concept of integrating the knowledge triangle, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's innovation, business creation and education activities. Table 1 shows EIT Food's achievements in terms of its KPIs in 2020-2023.

¹ [Regulation \(EU\) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology](#) replaced the original regulation, Regulation (EC) No 294/2008.

² European Commission: Directorate-General for Research and Innovation, Schwarz, A. and Wydra, S., *Partnership evaluation report – 'EIT Food' – Horizon Europe and the Green Transition – Interim evaluation support study*, Publications Office of the European Union, 2024, p. 26, <https://data.europa.eu/doi/10.2777/3661526>.

³ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 10, <https://eit.europa.eu/library/seven-year-comprehensive-assessment-report-eit-food>.

⁴ [EIT Food Strategic Agenda 2021-2027](#). Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 72.

Table 1: EIT Food KPI 2018-2023; targets (T) and achieved results (A)

	2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	6	7	30	21	35	31	63	76	65	39	199	174
Designed/Tested innovations*							86	620	100	1	186	621
KIC Supported Start-ups/Scale-ups	33	90	133	127	128	179	392	894	120	239	806	1529
Start-ups created of/for innovation	1	1	2	4	5	1	32	37	18	25	58	68
Start-ups created of EIT labelled MSc/PhD programmes	0	0	0	0	0	0	0	0	15	8	15	8
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)	5	21,8	12,5	91	26,5	170	113	632	50	208	207	1123
Graduates from EIT labelled MSc/PhD programmes	0	0	0	0	0	0	220	92	165	32	385	124
Participants in (non-degree) education and training*							9163	22672	6900	9508	16063	32180

* Reported from 2021 (KPI on designed/tested innovations reports on IPR applications)

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT); data for some years/KPIs not reported/collected due to changes in the KPI system / impact framework.

The figures reported for 2018-2023 show that EIT Food has been continuously on track to achieve the KPIs set in its Strategic Agenda and the related business plans⁵, and that it has achieved most of its targets. EIT Food reported overachievements for most of its indicators for 2021-2022.

As regards education activities, the assessment of the KPIs indicates a combination of accomplishments and areas that demand additional effort⁶. EIT Food has been effective in attracting students to non-degree education and training initiatives, overachieving its target with some 32 000 participants in 2021-2023. However, the low number of start-ups created from EIT-labelled MSc/PhD programmes raises concerns about their effectiveness in fostering entrepreneurship. It is crucial for the KIC to make swift improvements in these areas.

As for innovation activities, EIT Food demonstrated success in marketed innovations, overachieving its target for 2021-2022. In 2018-2022, 135 innovations were launched on the market (including 34 in EIT RIS (Regional Innovation Scheme) countries⁷) but there was a slight decrease in the number of launches in 2023. 621 innovations were designed and tested in 2021-2022 – far more than the target set for that period of 186. The results reveal a positive trend for the creation of start-ups and that the 2021-2023 targets were met.

EIT Food has excelled in supporting entrepreneurial and business creation activities, demonstrating a strong performance in this area. It has notably surpassed the target set for the number of supported start-ups/scale-ups, reaching a total of over 1 500 start-ups in 2018-2023 (almost twice the target number). Similarly, KIC-supported start-ups/scale-ups attracted about five times more private funding than expected (EUR 1 123 million in 2018-2023). This included the creation of 10 new start-ups through the SeedBed incubator as well as support for 280 start-ups in incubation, acceleration and scaling programmes. The KIC provided them with access to the EIT Food network, access to the market through pilot projects with corporate partners, financial support through activities like FoodSparks and connections with

⁵ <https://www.eitfood.eu/businessplan2023-2025>.

⁶ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 69.

⁷ The indicators/numbersE for IT RIS countries refer only to 2021-2022.

the investor community⁸. In 2024, the Financial Times ranked EIT Food (together with four other KICs) among the leading 125 European start-up hubs⁹.

As regards support for businesses and entrepreneurs, EIT Food has been successful due to the composition of the partnership and the comparatively easier access that smaller companies and start-ups have to the KIC¹⁰. EIT Food has been particularly successful in bringing together organisations from higher education (56) and businesses (119)¹¹, considering the number of cross-actor participations compared with the total number of participations by each type of actor. In addition, EIT Food also proved very successful in relative terms in linking cities, regions and NGOs with higher education organisations (146 connections). Conversely, the lowest degree of linkages was between cities, regions and NGOs and businesses (97 connections)¹².

According to the external evaluation report¹³, most KPI targets were achieved during the 2018-2023 period and the KIC is therefore expected to achieve its objectives over the seven-year period outlined in its 2021-2027 Strategic Agenda. However, certain KPIs (particularly those related to financial sustainability and participants in (non-degree) education and training) have not been meeting their intended targets and could improve. One should nevertheless note that EIT Food is making efforts to invest in projects that provide room for equity return and financial return over the long term. This can be seen as a good start and a strong indicator of the KIC's aim to achieve financial sustainability.

Long-term scientific, societal, economic and technological impacts

The following societal impact goals have been identified in the EIT Impact Framework 2022-2027 for the KIC's activities:

- 1) increased public engagement in the food system;
- 2) increased adoption and uptake of innovation in the food system;
- 3) increased intake of foods with healthier nutritional profile;
- 4) reduction in the relative risk (R) of obesity and non-communicable disease (NCD) prevalence in target populations due to known dietary factors;
- 5) improved food safety and security;
- 6) improved environmental impact of agri-food systems;
- 7) products on the market derived from alternative sources;
- 8) reduced food waste and food loss;
- 9) alumni retained in the food system;
- 10) new skills and professions developed in the food sector;

⁸ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 72.

⁹ [Ranking – Europe's leading start-up hubs | Incubator Accelerator Programmes Europe \(ft.com\)](https://ft.com/ranking-europe-start-up-hubs-incubator-accelerator-programmes-europe).

¹⁰ In 2019, 79.5% of businesses in the sector were microcompanies, 16.2% were small companies and 3.4% were medium-sized companies. These three groups together accounted for 41.5% of sectoral value added and 57.7% of sectoral employment, <https://www.fooddrinkEurope.eu/resource/data-trends-of-the-european-food-and-drink-industry-2022/>.

¹¹ European Commission: Directorate-General for Research and Innovation, Dinges, M. and Coatanroch, G., *Horizon Europe and the Green Transition – Interim evaluation support study – Final report ('Phase 2' study)*, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/67934>.

¹² Interim evaluation support study – EIT Food, 2024, p. 26.

¹³ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 80.

11) improvement in the food system's contribution to outcomes under the EU Circular Economy Monitoring Framework;

12) improved efficiency and sustainability of food systems ¹⁴.

The indicators were only introduced in 2021. The assessment therefore focuses on the relevance of the KIC's activities in contributing to achieving these goals rather than on the extent of the impact already achieved.

Based on the external evaluation report ¹⁵, EIT Food has increased public engagement in the food system through a range of initiatives, such as online fora, thematic storytelling and collaboration with the European Commission and the United Nations. The number of participants in promotion activities in 2021-2023 was 56 780 according to the KIC's data – so the targets set in the KIC's Strategic Agenda of 12 000 by 2024 and 20 000 by 2027 ¹⁶ were more than met. In addition, the KIC has engaged 212 000 individuals in initiatives to promote healthier and more sustainable behaviours, with 20 000 additional participants in co-creation activities. The KIC has also established an education team, which achieved 6.3 million engagements in social media and 13 925 followers on LinkedIn, Facebook and Instagram. As described in the 2022 KIC report, EIT Food's consumer engagement activities included the expansion of the Citizen Participation Forum, as well as the organisation of FoodUnfolded dialogues during the 2021 United Nations food System Summit and the 2022 Future of food conference in Brussels. The KIC's communication efforts in 2021-22 led to 14 million engagements in social media and 1.5 million website visits. FoodUnfolded generated over 1 million visits to social media and 13.5 million interactions in social media. The Future of Food Conference gathered over 1 000 policymakers, EIT Food partners, research, and innovation stakeholders and agri-food experts. EIT Food's public engagement portfolio facilitated the engagement of over 40 000 citizens through surveys and focus groups. These efforts indicate a proactive approach to involving the public ¹⁷.

EIT Food has promoted innovation in the food system by offering comprehensive support to innovators and promoting new initiatives. According to data from Dealroom ¹⁸, 34 digital solutions were already achieved in 2023, thus clearly more than meeting the targets of 10 by 2024 and 20 by 2027. EIT Food's overall performance is consistent with its agenda, even if partner survey results ¹⁹ suggest that there is still further room for improvement (especially in product commercialisation). These innovations have been further mapped to six impact indicators in order to track progress towards meeting the targets in the 2021-27 Strategic Agenda. Table 1A shows the progress made to date:

¹⁴ [EIT Impact Framework 2022-2027](#), pp. 14-16.

¹⁵ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, pp. 47-49.

¹⁶ This section uses data from Dealroom, an open-access platform that tracks start-ups supported by EIT Health. These data were last updated in November 2024.

¹⁷ EIT Food TrustTracker® is an annual evidence-based questionnaire that measures consumer trust in the EU's food system. The data have been tracked since 2018 in order to monitor developments and compare trust levels over time. It provides valuable insights that are used to enhance consumer trust in the food value chain. The KIC's Consumer Observatory studies and other targeted interventions add to this base number every year. More information regarding the TrustTracker® and Consumer Observatory reports can be found [here](#). For details on the participants, see [Citizen Participation Forum – EIT Food](#) and the [Food Expert Advisory Board – EIT Food](#).

¹⁸ The data are extracted from the start-up database DealRoom and are used to track investment and employment at start-ups supported by the KIC.

¹⁹ Deloitte and White Research, *7-Year Review of EIT Food Final Report*, 2024, p. 47.

Table 1A

	Use of guidance	Improved nutritional profile	Reduction in CO ₂	Use of waste / side streams	Alternative sources of protein	Digital tools for supply chain
2018-23	63 120 people	30	41	20	26	34
Target by 2024	20 000 people	12	15	15	15	10

As regards the goal of increasing the intake of healthier foods, EIT Food supported 63 120 consumers in 2023 and launched 26 innovations on the market to improve dietary choices. Systemic barriers in consumer behaviour nevertheless remain challenging.

EIT Food has reduced the risk of obesity and non-communicable diseases (NCDs) by involving 9 000 consumers in personalised diet initiatives, and has also introduced 25 digital solutions for supply chain improvement. It has thus more exceeded the 2024 and 2027 targets of 2 000 and 4 000 consumers. EIT Food has supported 30 products launched on the market through EIT Food's support (2018-23) with improved nutritional profiles. EIT Food has also surpassed its Strategic Agenda targets of 12 products launched on the market by 2024 and 20 by 2027. The supported products include products with reduced saturated fat and/or levels of salt/sugar, products that use alternative sources of protein, and products that comply with the recommended Food-Based Dietary Guidelines for Europe ²⁰.

EIT Food has successfully improved food safety and security by exceeding its KPI target of 10 products and services placed on the market by 2024 with 34 new digital tools enhancing supply chain efficiency, integrity and transparency in 2018-2023 (as shown in the table 1A). The KIC has also used a comprehensive approach that includes end-to-end food chain modelling, and a global food security initiative to promote collaboration and information exchange.

In relation to the goal of improving the environmental impact of agri-food systems, EIT Food has developed guidelines and focused on circular bio-economy solutions. As part of the impact indicator targets, EIT Food include innovations launched on market that mitigate or reduce CO₂e emissions and innovations that use waste or side streams. EIT Food has so far launched over 41 innovations onto the market that mitigate CO₂e emissions and has supported over 800 start-ups in assessing their contribution to CO₂e emissions mitigation. Completed impact assessments show that EIT Food has so far mitigated 323.9 metric tonnes of CO₂e contributions ²¹. This is already much more than the target of reducing CO₂ emissions by 18 metric tonnes by 2027. It would be equivalent to 40 innovations launched on the market, which was already achieved in 2023 (as stated above). By 2025, we estimate that evidence for mitigation of over 500 metric tonnes of CO₂e emissions will be available and that the KIC will have supported innovations contributing over 1 000 metric tonnes of CO₂e emission mitigation. Looking forward, there are more assessments to complete. For example, one of the KIC's supported start-ups – Mimica – has predicted that emissions of over 1 000 000 metric tonnes of CO₂e will be mitigated.

²⁰ See, for example, the [Salus Optima impact case study](#).

²¹ Initial assessments have identified 1 project of 5.9 metric tonnes and 1 start-up of 5 300 metric tonnes (EIT can claim 318 of this), making a proven total of 323.9 metric tonnes.

EIT Food has made progress in promoting products derived from alternative sources and has exceeded its target, with 26 products on the market (the 2024 target was 15).

EIT Food's initiatives to reduce food waste and food loss have also made progress; 20 new products use revalorised and/or reintegrated food system side streams and waste streams. This already meets the 2024 target of 15 products and is a substantial improvement. However, partner survey results show a need for increased impact and broader participation in addressing food waste and loss. According to the results of the external evaluation survey²², 46% of respondents who participated in activities related to the reduction of food waste and food loss reported a strong to medium impact. This emphasises the importance of initiatives to promote healthier eating. 36% reported a weak to zero impact in their efforts. 18% stated that their activities are unrelated to this area.

The results of the graduate survey conducted for the external evaluation²³ show that 65% of alumni are presently working within the food sector, 32% are not working in the agricultural sector and 3% were uncertain as to whether or not they were working in the food sector. By 2024, the aim would be to retain 85% of alumni of the KIC's education activities in the food sector. An AI tool is being developed to carry out data scraping and determine the career destinations of the over 100 000 education student alumni. The assessment of this exercise will be used to create robust data for this indicator.

EIT Food aims to enhance skills and entrepreneurship in the agriculture sector by offering food system skills to over 10 000 individuals through advanced training programmes and Massive Open Online Courses (MOOCs). As a result, 8 new skills and professions were developed in 2023, thus achieving the 2024 target of 8. Much of the core skills development focuses on entrepreneurial skills and the mindset of those currently in the education system. However, the KIC also facilitates MOOC programmes aimed at the general public through the Futurelearn platform²⁴, which can encourage participants to move into nutrition-related careers. In addition, EIT Food offers professional training to promote skills for those already working in the sector²⁵. Some of the KIC's supported start-ups and funded projects are supporting the move from manual labour (e.g. weeding) on farms to more focused tech-based and digital-based careers, such as those shown in the [Digital Agriculture for Sustainable Food Systems](#).

EIT Food's 'FoodConnects Assistant' programme aims to promote the contribution of the food system to the EU Circular Economy Monitoring Framework. Progress has been made in developing products from food system side streams and waste streams. 20 products (5 more than the targeted 15) were available on the market by 2023. No data are available for new entrepreneurs and start-ups.

EIT Food's focus on improving the efficiency and sustainability of food systems is shown through the completion of the first in a planned series of SROI assessments that provide evidence that, for every EUR 1 invested by EIT Food in its core business creation programmes, EUR 13 is created within a 15-year period²⁶. The target by 2024 was a SROI greater than or equal to 1:1.

²² Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 43.

²³ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 44.

²⁴ Further information on the courses offered via FutureLearn can be found [here](#).

²⁵ [EIT Food launches new Learning Services to support food sector employers – EIT Food](#).

²⁶ In 2024, EIT Food commissioned an independent impact assessment of its three key entrepreneurship programmes: the Seedbed Incubator Programme (SEED), the EIT Food Accelerator Network (FAN) and

The external evaluation report²⁷ concluded that EIT Food had taken steps to address the societal challenges it was designated to address. Through support for initiatives like EU Skills for the Future, Connecting Food, and Great Taste, Zero Waste allows development by engaging people and increasing transparency in the food supply chain in order to improve public health and global food systems in the long term. EIT Food's activities have contributed to a more sustainable and healthier food system that addresses the critical challenges faced by society.

EIT Food has also identified a number of long-term economic impact goals. These are defined in the EIT Impact Framework 2022-2027 as follows:

- the contribution to the revenue growth of organisations trading in or employing innovations developed with KIC support;
- the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceases;
- new jobs created in start-ups/scale-ups;
- the impact on employment growth as a result of the company being engaged with KICs;
- the number and type of jobs in existing businesses that are sustained through innovations;
- the number and type of skill gaps and/or skill shortages filled, by KIC sector;
- new visible innovation ecosystems;
- the share of indicated innovation ecosystems that covers RIS countries²⁸.

The currently available evidence²⁹ indicates that EIT Food's impact on revenue growth has not been significant enough for most start-ups. 28% of respondents reported an influence between 5% and 50%; and 30% of respondents reported that EIT Food's support had a less than 5% influence on their revenue growth. This may indicate a continuing need for a re-evaluation of EIT Food's funding approach to start-ups (e.g. a greater emphasis on companies' product commercialisation efforts). It is important to take into account the considerable variance between the programmes and start-ups in terms of technology readiness level, and thus the availability of revenues through new innovations launched to market. The 2023 entrepreneurship impact report included³⁰ a revenue uplift assessment.

As regards job creation, 42% of the survey respondents reported that at least one new job had been created due to their participation in EIT Food initiatives³¹. Regarding the number of employees, the supported enterprises created around six new jobs on average in the analysed period, while enterprises from the control group created only one³². This is a huge difference and shows that the EIT KIC's support has relevant job-creating effects. Overall, while it is evident that EIT Food's engagement has boosted employment opportunities for many of the entities involved, it is also apparent that many opportunities for improvement and further

RisingFoodStars (RFS). These programmes have supported 549 promising start-ups and scale-ups since 2018, [Entrepreneurship Impact Report – EIT Food](#).

²⁷ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 35.

²⁸ EIT Impact Framework 2022-2027, pp. 7-11.

²⁹ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 49.

³⁰ [Entrepreneurship Impact Report – EIT Food](#).

³¹ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 54.

³² Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 54.

development remain. The survey responses reveal that 29 entities did not maintain any jobs as a direct outcome of their involvement with EIT Food but that 31 succeeded in preserving jobs and a smaller share increased the number of jobs. The data collected during the start-up survey³³ indicate that a significant number of respondents (50%) believed that their involvement with EIT Food had helped them fill skill gaps and/or skill shortages (particularly in entrepreneurship, innovation, technical expertise, sustainability, creativity and leadership roles). The 2023 entrepreneurship impact assessment estimated that 1 130 new jobs had been created by start-ups supported by EIT Food and that 227 of these were entirely attributable to EIT Food's support (the 2024 and 2027 targets were 149 and 339 respectively).

When it comes to the long-term educational impact on the career growth of participants in EIT-labelled education, the findings³⁴ reflect the diverse career journeys of graduates, and highlight the challenges and opportunities they have encountered in navigating their respective fields. Some graduates in entry-level roles face challenges in advancing to more senior positions, while mid-management positions have seen a constant growth. The number of graduates in senior roles and reaching executive levels indicates a potential shift towards more responsible roles or exploring self-employment. The equal representation of graduates in self-employment in both their current and highest achieved positions reflects differing preferences when it comes to pursuing entrepreneurial careers or transitioning to traditional employment roles at different career stages. Educational impact stories can be found [here](#). In order to evaluate the long-term retention of skills and capacity in the agri-food sector, EIT Food's Education team has hired an AI consultant to examine the career paths of over 9 000 alumni. The sheer number of participants and the time that has elapsed since their participation mean that it was not possible to individually track retention and start-up creation. These data will be available in 2025 and will greatly improve the understanding of the KIC's contribution in this area.

2. Additionality

Table 2 provides the basic financial figures for EIT Food since it started operating in 2017. EIT Food was able to achieve a direct leverage factor³⁵ of 0.23 in 2017-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.34 (if one adds revenues created through KIC activities (EUR 104 million vs the EIT grant of EUR 305 million)). The direct leverage factor increased to 0.45 in the 2021-2022 Horizon Europe period.

Table 2: EIT Food financial figures (in EUR million)

	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	3,3	21,0	39,3	66,1	46,0	57,2	71,7	304,5
Co-funding	1,1	9,7	8,8	12,2	10,4	22,0	6,6	70,8
Revenues		4,3	4,6	5,3	6,8	7,0	4,8	32,9
Activities not funded by EIT		68,1	99,8	116,6	0,0	0,9	1,1	286,4
Co-investment, i.e. investments attracted by start-ups		21,8	91,0	169,7	407,0	224,8	208,3	1122,6

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from three-year business plans.

³³ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 55.

³⁴ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 57.

³⁵ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(Funding rate))-1.

In terms of leverage effects for the EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of the EIT KICs that are directly reinvested back into the KICs activities, but also through the activities not funded by the EIT³⁶ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT Food achieved a leverage factor of 1.28 in 2017-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 1 122 million) are also included, the leverage factor rises to 4.97 over the period of the EIT Food lifecycle to date. This means that, for every euro of EIT funding spent, EIT Food activities have helped to attract close to five EUR in external investment.

3. Transparency and openness

According to the external evaluation report³⁷, EIT Food has made considerable progress in building up a diverse partner community. Its significant efforts to make calls more open and accessible have resulted in clearer criteria for partners.

In 2022, EIT Food had over 340 network partners from all areas of the knowledge triangle (i.e. businesses, universities and research organisations). The network connected 34 countries, including EU Member States, associated countries and third countries. EIT Food especially brought together actors from Belgium, Germany, Spain, Italy and Poland, but also left room for diversifying its partner base to ensure a more balanced representation. According to the external evaluation report³⁸, initiatives to attract partners from countries with lower levels of representation should be implemented with a special focus on Central and Eastern Europe (where the average number of partners is 2 – compared with 40 in Spain and 24 in Germany). In 2022, approximately 120 of the 340 EIT Food partners were SMEs (35% of the total). In terms of financial support, about 30% of the total 2021-2022 EIT Food grant of EUR 103 million was directed to SMEs³⁹. By October 2024, the number of active participations of SMEs under the 2023-2025 EIT grant agreement had increased to 41%, with 11% of the EIT grant going to SMEs⁴⁰.

The transition to the current EIT Strategic Innovation Agenda (2021-2027) saw a major change in EIT Food's partnership model towards greater openness⁴¹. Since 2021, efforts have been made to achieve full inclusivity, maximise engagement and open up opportunities for external organisations to participate in projects⁴². The new membership model also changed

³⁶ Non-EIT financed activities (NEFA) are fully implemented without an EIT grant but must contribute to the KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

³⁷ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, pp. 19-20.

³⁸ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 110.

³⁹ European Commission: Directorate-General for Research and Innovation, SME participation in Horizon Europe – Key figures (and key issues) in the first three years, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/576670>.

⁴⁰ During the implementation of EIT grant agreement 2023-2025, the grant committed to SMEs and the number of SMEs and their participation can still increase in the upcoming months and next year as EIT Food have still calls to open and sign new projects.

⁴¹ Interim evaluation support study – EIT Food, 2024, p. 14.

⁴² Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, pp. 19-20.

the membership fees model to avoid it becoming a barrier to valuable new EIT Food members ⁴³.

As regards the measures to expand the KIC's network, EIT Food has created a task force on partnership management that identifies network development needs, and the co-location centres look out for potential new members. The growth of the partnership is continuously monitored ⁴⁴. The administrative data as well as interview results nevertheless suggest that EIT Food could do more promotion in order to attract new members.

When it comes to transparency, EIT Food's strategic partners can engage in the KIC's leadership and shape its Strategic Agenda as well as its flagship programmes through voting powers in the partners' assembly. In order to ensure transparency, EIT Food shares information about its activities, procedures, governance, strategy, membership and opportunities through partner briefings, open emails and a public website. The partnership also consults and briefs its members through a variety of channels and methods, such as 'town hall' briefings, co-location centres partner groupings and special interest groups on its Food HIVE platform ⁴⁵, which is open to members and other stakeholders ⁴⁶.

4. Efficiency

Table 3 sets out EIT Food's operational budget and administrative expenditures (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditures paid from the EIT grant. This does not include the contribution from EIT Food's partners.

Table 3: EIT Food operational and administrative expenditure

	2018	2019	2020	2021	2022
Operational Expenditures	28 986 982 €	42 531 449 €	71 178 084 €	51 780 142 €	63 038 873 €
Running Costs	2 902 383 €	6 443 434 €	7 864 896 €	5 773 006 €	7 945 758 €
Total budget	31 889 365 €	48 974 882 €	79 042 980 €	57 553 148 €	70 984 631 €

Source: EIT financial data (reported by KICs and validated by EIT); also available in Corda.

Table 3 indicates that the running costs for EIT Food's headquarters and co-location centres (CLCs) for 2018-2022 ranged between 8.6% and 13.1%, at an average of 10.4%. When only the period of Horizon Europe (2021-2022) is considered, these costs constituted 10.75% of the overall operational costs. Taking into account only the administrative costs of EIT Food's headquarters, the average ratio of administrative costs to EIT Food's overall operational budget dropped to 9.94% for the Horizon Europe period.

The EIT KICs are pan-European networks with many offices across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to the KICs, set maximum thresholds for the EIT-funded share of the KICs' administrative costs, depending on the KICs' maturity. The values range from 18% and 15% in the first and second years of a KIC respectively to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules

⁴³ Interim evaluation support study – EIT Food, 2024, p. 33.

⁴⁴ EIT Food Partnership policy,

https://www.eitfood.eu/media/documents/20211108_EIT_Partnership_Policy_Booklet_update_V1.pdf, p. 7.

⁴⁵ FoodHIVE is an online membership community platform where individuals and organisations in the broader EIT Food community can connect (EIT Food 2020).

⁴⁶ Interim evaluation support study – EIT Food, 2024, p. 32.

of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and in regions, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

In addition to its headquarters in Leuven in Belgium, EIT Food comprises five CLCs: Central, North-East, North-West, South and West. Each CLC caters to a specific set of constituent countries. Moreover, CLC South and CLC North-East have specific responsibility for implementing the EIT Regional Innovation Scheme (RIS), which has involved a further network of 15 EIT Food hubs since 2023. CLC North-West and CLC West were amalgamated as CLC Central in 2023 as part of an organisational restructuring initiative to simplify external engagement and realise business efficiencies.

A recent evaluation considered that the KIC's community, with its geographic core locations in several EU Member States, is an important efficiency factor, particularly for business creation support. The EIT KICs' pan-EU *modus operandi* means that companies have direct access to the EU market and research infrastructures⁴⁷.

2023 data indicate that the average time-to-grant for calls launched by EIT Food was two months.

5. Coherence and synergies

According to the external evaluation report⁴⁸, EIT Food has developed partnerships and connections with other relevant education, research and innovation initiatives to enhance synergies at regional, national and EU levels. It has set up a range of mechanisms to enhance collaboration with the regional and national authorities as well as with EU programmes and networks, in order to better exploit synergies and complementarities.

EIT Food has ensured consistency and complementarity with EU policies and has been constantly involved in the most relevant policy areas⁴⁹. EIT Food's objectives are aligned with the two most relevant policy frameworks in the field of sustainable food systems (i.e. the EU's Farm-to-Fork Strategy and the United Nations' Sustainable Development Goals (SDGs))⁵⁰.

The alignment with EU priorities and the commitment to encouraging research and innovation make EIT Food an essential player in addressing societal challenges. The EIT Food Policy Advisory Board facilitates close cooperation with various services of the Commission in order to coordinate EIT Food's activities and contribute to the most relevant political initiatives (including Food 2030).

EIT Food has sought synergies with other EU programmes (particularly the European Innovation Council (EIC)) in order to help scale up companies with societal and economic impact. 20 of the 65 successful companies in the 2021 EIC Accelerator call had previously been supported by EIT KICs⁵¹.

⁴⁷ PPMI et al., *Evaluation study H2020*, 2023, <https://op.europa.eu/s/zXjR>.

⁴⁸ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 92.

⁴⁹ Interim evaluation support study – EIT Food, 2024, p. 23.

⁵⁰ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 34.

⁵¹ EIT Food, *Horizon Europe and the Green Transition: interim evaluation support study: partnership evaluation report*, p. 25; <https://op.europa.eu/s/zXjV>.

When it comes to synergies with other EU partnerships and Missions within Horizon Europe, the EIT KICs community is clearly the most active – as highlighted in the Biennial Monitoring Report 2024⁵². EIT Food contributes to Horizon Europe’s work, particularly through missions. It has signed the EU Mission Soil Manifesto, underlining the need to increase soil protection and restoration globally and demonstrating its ongoing commitment to working to improve soil health and the importance of future-proofing the food system. EIT Food runs a range of programmes focused on training, resources and farming practices that prioritise soil regeneration by minimising artificial production inputs and working in harmony with nature⁵³. EIT Food also works with the Horizon Europe Mission on cancer. EIT Food and the Partnership on Circular bio-based Europe have carried out joint activities to help SMEs overcome the challenge of finding sufficient investment for ideas to evolve into business⁵⁴.

In addition to exchanges with policymakers, EIT Food also reaches out to other stakeholders, such as consumers, national innovation agencies, local authorities, farm networks, European technology platforms and international organisations⁵⁵. The EIT Food Consumer Observatory regularly prepares research reports and studies on consumer perceptions on food. Platforms such as Agri Marketplace and Get Wasted are already facilitating the matching of supply and demand for specific agri-food markets in order to make the process of buying and selling agri-food products easier, more efficient and more transparent – reducing waste in the process. As highlighted in the external evaluation report⁵⁶, the fact that EIT Food has a dedicated pillar for engaging with its audience indicates the significance that EIT Food attributes to fertile exchanges with a wide range and large number of stakeholders.

As regards internal coherence, EIT Food’s shift towards greater impact orientation (particularly via its mission-led approach) has helped to better connect their different activity pillars.

The EIT KICs have established a number of EIT Community initiatives, thereby fostering synergies with other KICs. EIT Food has actively participated in EIT Community activities, leading the Water Scarcity and Food for Health projects, and participating in 10 other EIT Community projects⁵⁷. Structural collaboration between EIT Food and EIT Health is ensured through the Food4Health initiative. Its main objective is to establish a sustainable connection between the two EIT KICs, leveraging the strengths of both partnerships, building on their core activities and developing an innovation programme in citizen-oriented health and well-being through improved nutrition and behavioural support. The EIT Food Strategic Agenda identifies a range of thematic crossovers with other EIT KICs, including in health systems (EIT Health), urban food systems (EIT Urban Mobility), digital solutions systems (EIT Digital), environmental systems (EIT Climate-KIC) and resilient systems (EIT Raw Materials).

⁵² European Commission: Directorate-General for Research and Innovation, *Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe*, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

⁵³ <https://www.eitfood.eu/news/signature-eu-mission-soil-manifesto>.

⁵⁴ <https://www.eitfood.eu/projects/mpowerbio-online-platform-to-help-smes-in-the-bio-based-industry-overcome-the-challenge-to-find-investment>.

⁵⁵ Interim evaluation support study – EIT Food, 2024, p. 23.

⁵⁶ Interim evaluation support study – EIT Food, 2024, p. 23.

⁵⁷ Interim evaluation support study – EIT Food, 2024, p. 23.

6. EU added value

According to the external evaluation report⁵⁸, EIT Food has made significant strides in creating EU added value, particularly with regard to building a pan-EU sustainable innovation ecosystem through the integration of the knowledge triangle. The KIC has also proved its ability to address the overarching societal challenges (particularly in the domain of food sustainability) by building a resilient and sustainable food system that is consistent with Europe 2020's objectives and its climate, energy, employment, innovation and education targets⁵⁹.

EIT Food's CLCs enable not only the emergence of R&I networks on an EU scale, but also the tailoring of activities to regional needs. The evidence from the external evaluation⁶⁰ indicates that EIT Food's regional outreach mechanisms enabled the transfer and upscaling of successful solutions that emerged in one particular region to and in other regions (e.g. through the transfer of successful business models or innovation platforms). The evaluation also indicates that this transfer potential has tended to be overlooked and that EIT Food should vigorously promote success stories as well as the solutions developed, so that they can better complement EU structural funds at regional level and link their services accordingly⁶¹.

EIT Food provides clear added value in terms of shaping R&I policy at EU level – not only through its main activities, but also thanks to its regional anchoring and its food-systemic and people-centric perspective. This is particularly relevant in the EU agri-food sector, where the proportion of private R&I investments is negligible (see also Chapter 7). This indicates a general need for public investment in future-proof food systems⁶². EU funding is best placed to help overcome the focus of national R&I funding on primary production and thus help bring in a truly systemic and pan-EU perspective, which is still largely missing⁶³. EIT Food's activities are more market-oriented than R&I funding under Horizon Europe's Pillar II. They are also tailored at earlier stages of the innovation lifecycle (lower Technology Readiness Levels – TRLs) than the funding from the European Innovation Council (EIC) under Pillar III. This is particularly relevant to the activities of EIT Food, because the EU agri-food sector is dominated by micro, small and medium-sized enterprises that have limited resources to conduct R&I, adopt innovations on a large scale and drive transitions in general. The EU agri-food sector's average ratio of private R&I investment to total output is only 0.23% and access to finance is a major bottleneck for innovative EU-based firms that are active in food technology⁶⁴. In this context, the external evaluation findings⁶⁵ confirm EIT Food's significant added value by providing EU-wide funding for innovation activities in the underinvested agri-food business sector. However, further reflection on the added value for academic partners of engaging with EIT Food is necessary because its financial attractiveness

⁵⁸ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 59.

⁵⁹ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 60.

⁶⁰ Interim evaluation support study – EIT Food, 2024, p. 29.

⁶¹ Interim evaluation support study – EIT Food, 2024, p. 29.

⁶² Interim evaluation support study – EIT Food, 2024, p. 28.

⁶³ Interim evaluation support study – EIT Food, 2024, p. 28. See also European Commission: Directorate-General for Research and Innovation, Chandler, C., Figueiredo, D., Francisco, I., Franke, J. et al., *Food systems – Research and innovation investment gap study – Policy report*, Publications Office of the European Union, 2023, <https://data.europa.eu/doi/10.2777/888905>.

⁶⁴ Food system policy report, 2023.

⁶⁵ Interim evaluation support study – EIT Food, 2024, p. 21.

seems to be limited for them because they are likely to be more interested in other types of R&I than in the higher TRL activities linked to bringing new technologies to the market ⁶⁶.

7. Relevance

The external evaluation findings ⁶⁷ show that EIT Food has been relevant to achieving the objectives of Horizon Europe as well as to EU priorities – particularly boosting economic growth, strengthening the Member States’ innovation capacity, and fostering innovation and entrepreneurship through initiatives such as EU Skills for the Future, Connecting Food and the Great Taste Zero Waste project. EIT Food has focused on building innovation capacity, but has also contributed to the sustainable growth of supported start-ups and entrepreneurs ⁶⁸ (see Chapter 1) and entered into active collaboration with international partners in order to achieve food security and improved nutrition, and promote sustainable agriculture, good health and well-being, as well as responsible production and consumption ⁶⁹. EIT Food has also contributed to meeting the relevant Sustainable Development Goals (SDGs). This is consistent with the EU’s overarching objective of improving education, creating job opportunities and fostering global cooperation ⁷⁰.

The Commission’s Food 2030 policy and Farm-to-Fork Strategy have set the stage for addressing the most relevant challenges in the agri-food area. These challenges include greenhouse gas emissions, decreasing biodiversity and soil erosion. The fact that EIT Food’s six strategic objectives are very closely aligned with the Farm-to-Fork Strategy’s goals (see Chapter 5) shows the high relevance of EIT Food’s objectives to the EU’s ambitions under the green transition. This alignment is significant because the EIT KICs’ primary objective is to build a successful innovation ecosystem ⁷¹.

EIT Food has proven to be flexible in improving its organisational structures and in adapting to changing political and economic requirements. For example, at the start of Horizon Europe, EIT Food developed an intervention logic with a set of specific impact pathways that are aligned with Horizon Europe’s. It also limited its calls accordingly, tailoring them to the identified needs and objectives and thus increasing effectiveness. The external evaluation interviews ⁷² suggested that EIT Food quickly reacted to the COVID-19 pandemic by adapting its activities (e.g. via its COVID-19 Bridge Fund).

8. Directionality

EIT Food has demonstrated its commitment to delivering results for the EU and its citizens. As the Biennial Monitoring Report (BMR) survey data of 2023 indicate, EIT Food plans to spend 100% of its total partnership budget on activities linked to the Green Deal objectives. The partnership has taken up the challenge to contribute to the fundamental need to future-proof the EU’s food system. Partners are asked to innovate within the EU context of strategic

⁶⁶ Interim evaluation support study – EIT Food, 2024, p. 21.

⁶⁷ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 15.

⁶⁸ Enterprises supported by EIT Food generated an average of three more jobs than the control group companies.

⁶⁹ EIT Food serves as secretariat for the Food System Pavilions at the UN Climate Change Conference’s COP27 and COP28. Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 15.

⁷⁰ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 34.

⁷¹ Interim evaluation support study – EIT Food, 2024, p. 20.

⁷² <https://www.eitfood.eu/projects/covid-19-bridge-fund>. Interim evaluation support study – EIT Food, 2024, p. 21.

autonomy and technological sovereignty. In the agri-food sector, this means tackling key issues like food security⁷³.

EIT Food activities are implemented systemically. This means that people's needs as well as the planet's are put at the centre stage of their activities. In order to facilitate a food system transition, EIT Food explicitly seeks to achieve multistakeholder engagement through the principle of knowledge triangle integration. EIT Food occupies a crucial niche in the Horizon Europe programme, because it seeks to use existing knowledge, technology and know-how to develop a vibrant ecosystem that is composed of different types of stakeholders. EIT Food thereby facilitates types of cooperation that typically do not occur under the other Horizon Europe R&I instruments. The KIC thus complements other Horizon Europe instruments, which tend to focus on lower TRLs or on start-ups at a later stage. In line with this, EIT Food makes it possible for beneficiaries to apply to other EU funding schemes (e.g. for the EIC funds)⁷⁴.

EIT Food's success in supporting entrepreneurs is particularly relevant to the agri-food system, due to its weakness in private R&I investment (see Chapter 6)⁷⁵.

9. International positioning

The intrinsic nature of the globalised food system means that many of EIT Food's activities have a global dimension. EIT Food seeks to tap into markets for EIT Food innovations abroad, as well as to allow new ideas from around the world to stimulate innovation in the EU⁷⁶.

EIT Food participates in the EIT Global Outreach Programme's⁷⁷ activities and the Strategic Regional Innovations (SRI)⁷⁸. The Programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The Programme currently comprises established and successful EIT Hubs in Silicon Valley (USA)⁷⁹, Tel Aviv (Israel)⁸⁰ and London (UK)⁸¹. Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in future expand into Moldova and potentially Georgia, in line with the EU's enlargement policy priorities.

EIT Food is working to internationalise its activities, because this is another way of creating revenue, and thus helping to achieve EIT Food's objective of reaching financial sustainability (e.g. via franchising, partnerships or direct delivery models). EIT Food is seeking to improve its chances of successfully internationalising by becoming more visible outside Europe and presenting itself as a technology bridge, which provides know-how that is also relevant to other parts of the world⁸².

⁷³ Interim evaluation support study – EIT Food, 2024, p. 31.

⁷⁴ Interim evaluation support study – EIT Food, 2024, p. 31.

⁷⁵ Interim evaluation support study – EIT Food, 2024, p. 31.

⁷⁶ Interim evaluation support study – EIT Food, 2024, p. 31

⁷⁷ <https://go-eit.eu/>.

⁷⁸ <https://eit-ris.eu/>.

⁷⁹ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁸⁰ <https://go-eit.eu/eit-israel-hub/>.

⁸¹ <https://go-eit.eu/eit-uk-hub/>.

⁸² European Commission, *Interim evaluation support study – EIT Food*, 2024, p. 31.

In order to attain international status and visibility, EIT Food participates in relevant international events, such as the UN Climate Change Conference's COPs. It also engages abroad with the support of partners who have overseas offices, for example organising high-level business meetings with government agencies or engaging in activities with a political dimension. EIT Food works with the EU's institutions and international organisations to identify and exploit innovation opportunities in food-critical regions and countries such as Ukraine, Africa, the Americas and major Asian markets⁸³. It is also involved in innovation labs throughout South Asia and has already involved a Brazilian partner in an EU project. EIT Food has established collaboration with key international organisations, such as the United Nations, as well as with international donors to attract new business partner organisations, researchers and students from all over the world and to develop cooperation with third-country organisations⁸⁴. According to BMR data, 5% of the overall budget is planned for collaboration with non-European actors⁸⁵.

EIT Food acknowledges that cooperation with international partners and associated countries has proven crucial because it adds valuable know-how. It also provides EIT Food partners with valuable chances to develop their own capabilities.

⁸³ Interim evaluation support study – EIT Food (2024) p. 31

⁸⁴ Interim evaluation support study – EIT Food (2024) p. 31

⁸⁵ EIT Food BMR-Survey Data, 2023.

10. Phasing-out preparedness

The EIT Regulation⁸⁶ defines ‘financial sustainability’ as the EIT KICs’ capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT funding. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT Food’s co-funding rates and financial sustainability measures demonstrate its clear commitment to operate sustainably and despite the EIT grant gradually reducing over time⁸⁷.

EIT Food started to address the issue of financial sustainability relatively early on, with the aim of developing into a multifunding organisation that draws on diverse global budget sources, such as investments, foundations or NGOs⁸⁸. Since 2021, financial sustainability has played an increased role both in EIT Food’s Strategic Agenda and in its multiannual business plans. Each EIT Food project has a financial sustainability clause that includes a clarification on financial remuneration to be paid back to the KIC by partners participating in a project. EIT Food has introduced financial sustainability agreements for its various activities to ensure that the concept is embedded in all its core activities.

EIT Food has demonstrated steady revenue growth over the years⁸⁹. Membership fees have been a primary source of income. EIT Food has also succeeded in attracting alternative funding from both the public and the private sectors. Its financial performance has consistently met or exceeded expectations. It has overperformed in several revenue areas, such as membership fees, alternative funding sources, and service and consulting fees. EIT Food is facing challenges in generating revenue from equity investments and recognises the need to structure its equity portfolio for future revenue streams. The recruitment of venture capital specialists should address this issue.

Evidence from the external evaluation suggests⁹⁰ that EIT Food scored well overall in terms of financial sustainability, with some revenue streams developing better than others. In particular, EIT Food’s extensive investment in entrepreneurship support has started to take effect. The partnership creates significant equity value through its support to start-ups with prospects of making a profit through a sale at a later stage. At the end of 2023, its investment portfolio included investments acquisitions of equity in 26 companies to a total value of EUR 11.2 million. EIT Food had also concluded 10 revenue-sharing agreements and implemented 10 educational investments, and both of these groups were generating revenues. Moreover, for 2023 it reported that it had accumulated substantial financial reserves which could provide a solid basis for sustaining its activities in the future.

⁸⁶ In particular, Articles 2(16) and 6(i) of [Regulation \(EU\) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology](#).

⁸⁷ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 24.

⁸⁸ Interim evaluation support study – EIT Food, 2024, p. 34.

⁸⁹ Deloitte and White Research, *7-Year Review of EIT Food – Final Report*, 2024, p. 125.

⁹⁰ Interim evaluation support study – EIT Food, 2024, p. 35.

Conversely, EIT Food's annual reports⁹¹ state that EIT Food did not generate sufficient revenues from its innovation and business creation activities. One reason for this was a mismatch with the relevant KPI. Whereas the KPI looks at continuous streams of income from many different innovation activities, EIT Food tends to generate income from a small number of highly successful food innovations. Similarly, the partnership's strategy of monetising its start-up equity rather late in order to maximise profit runs counter to the constant returns principle – but does fit the specificities of start-up financing. In addition to entrepreneurial returns, EIT Food is also working on a 'Membership Plus' model with chargeable added value services, such as access to EIT Food core capabilities and features⁹².

In 2021-2022, EIT Food's biggest share (over 70%) of revenue came from membership fees. The partnership nonetheless reported a financial sustainability coefficient⁹³ for the same period of 12-13%, which was slightly above the target. In 2023, the KIC already presented a much more diversified revenue composition and the share of membership fees was only at 33%, while the revenues from services and consulting had increased significantly and had already contributed 25%. In addition, already in 2019, the partnership reported an overachievement in terms of financial sustainability⁹⁴.

The interviews carried out as part of the external evaluation⁹⁵ indicated possible trade-offs between the goals of (1) making KICs financially sustainable and (2) maintaining the public-good character of some of its activities. For example, reaching out to citizens and involving them in the food system transformation is desirable from a political and public-good perspective, but the related activities may create cost rather than generate income for EIT Food. This means that if the partnership were to become fully financially sustainable, there would be an incentive to cut back on public-good activities that are not commercially beneficial⁹⁶.

In sum, EIT Food has diversified its revenue sources and has created a solid basis to achieve financial sustainability beyond the 15 years of EIT funding.

⁹¹ <https://reporting.eitfood.eu/annual-reporting-data-2022>.

⁹² Interim evaluation support study – EIT Food, 2024, p. 35.

⁹³ Financial sustainability coefficient (FS coefficient) is the ratio of KICs own revenues to its EIT grant in a given year.

⁹⁴ Interim evaluation support study – EIT Food, 2024, p. 35.

⁹⁵ Interim evaluation support study – EIT Food, 2024, p. 36.

⁹⁶ Interim evaluation support study – EIT Food, 2024, p. 36.



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EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 24: Evaluation of EIT Health

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Health Knowledge and Innovation Community ('KIC' or 'EIT Health') was established in 2015 as part of the second wave of the EIT KICs, in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. The first operational activities and calls were launched in 2016. The KIC's main goal is to promote entrepreneurship and develop innovations in healthy living and active ageing across Europe, enabling people to lead healthier lives and contribute to a sustainable health economy. To achieve its objectives, for the 2017-2022 period, EIT Health received an EIT grant of EUR 452 million.

EIT Health is formed by a vibrant community that includes some of the world's leading health innovators². The KIC has a presence across the EU, with more than 200 core and associate partners and more than 200 project partners involved from 2016 to 2021 across different healthcare sectors.

Objectives and achievements

EIT Health's 2021-2027 Strategic Agenda³ has set the following three objectives: (1) promoting better health for all; (2) strengthening healthcare systems in Europe; and (3) contributing to a sustainable health economy in Europe. To achieve this, EIT Health is pursuing a three-fold mission: i) developing new innovations; ii) accelerating promising ventures; and iii) creating agents of change through entrepreneurship education and training. In doing so, EIT Health has helped achieve the objectives of both the Horizon 2020 and the Horizon Europe programmes.

All of these strategic objectives are being implemented, and the results are delivered by integrating the knowledge triangle, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's activities in innovation, business creation and education. Table 1 shows EIT Health's achievements in terms of KPIs for 2017-2023.

Table 1: EIT Health 2017-2023 KPIs; targets (T) and achieved results (A)

	2017		2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	21	9	46	20	25	8	27	28	36	24	20	10	175	99
Designed/Tested innovations*									18	35	19	6	37	41
KIC Supported Start-ups/Scale-ups	101	101	307	321	282	415	335	501	420	703	154	450	1599	2491
Start-ups created of/for innovation	2	0	10	7	19	6	3	1	8	6	3	19	45	39
Start-ups created of EIT labelled MSc/PhD programmes	0	0	4	1	9	1	5	0	8	2	8	10	34	14
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)	2,5	27,9	10	50,6	20,6	170	73	363	354	889	199	286	659,1	1787
Graduates from EIT labelled MSc/PhD programmes	0	0	65	35	76	53	77	54	150	127	50	79	418	348
Participants in (non-degree) education and training*									17116	19783	3640	27156	20756	46939

* KPI reported from 2021 only (designed/tested innovations reports on IPR applications).

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT).

EIT Health has been remarkably effective in supporting start-ups and scale-ups operating in the healthcare sector, consistently overachieving its targets. Since 2017, the KIC has supported 2 491 start-ups and scale-ups, well above its target of 1 599. Between 2017 and 2023, start-ups supported by EIT Health attracted EUR 1 787 million in investments, more than double the target that was set at EUR 659.1 million). An increase in support to start-ups

¹ Regulation (EU) 2021/819 of the EIT (2021) replaced the original regulation, Regulation (EC) 294/2008.

² Deloitte and White Research, [7-Year Review of 2nd Wave KICs: EIT Health - Final Report](#), March 2022, p. 10.

³ [EIT-Health-Strategic-Agenda-Synopsis-2021-27.pdf \(eithealth.eu\)](#).

and scale-ups in recent years can also be observed, as in 2021-2023 the number of supported companies tripled. In 2023, EIT Health was named the world's leading public-private business accelerator by UBI Global ⁴, and in 2024, the Financial Times ranked EIT Health (together with four other KICs) among the top 125 of Europe's leading start-up hubs ⁵. In addition, 43.5% of all attracted private investments went to companies based in countries supported by the EIT Regional Innovation Scheme (RIS) ⁶.

However, challenges remain when it comes to supporting entrepreneurship and creating start-ups based on innovation and education activities. The number of start-ups created from innovation projects has been low compared to the goals set, even if there was a significant increase in 2023, as Table 1 shows. Also, between 2017 and 2023, only 39 start-ups were created as a result of innovation projects against an intended target of 45. Furthermore, according to the external evaluation report⁷, EIT Health struggles to increase entrepreneurship resulting from its EIT-labelled programmes. According to available data ⁸, only 3% of graduates joined start-ups after graduation in 2019-2022 and only 14 start-ups were created as a result of EIT-labelled education programmes, not meeting the intended goal of 34.

The KIC has underperformed in supporting the creation of healthcare solutions and their introduction into the market. However, even though EIT Health helped launch only 99 innovations on the market between 2017 and 2023 (compared to the target of 175), it supported highly promising innovations, providing funding at critical stages of the market introduction process. EIT Health's support in certification and validation processes has been deemed as especially effective, considering that the innovation portfolio fills a gap in the European healthcare market that has previously been difficult to address ⁹.

Even though several targets have not been met, the KIC is deemed to have made positive contributions to innovation activities. As highlighted in the external evaluation report ¹⁰, the reasons for this are: i) the complexities of the healthcare sector and the long time it takes to place innovations on the market; ii) lengthy pre-release processes; iii) differing rules in Member States; and iv) insufficient communication with beneficiaries after their support has finished. Based on the EIT Governing Board's recommendations, EIT Health has put in place specific measures to improve the impact of its innovation activities and therefore achieve the multiannual targets set in the 2021-2027 Strategic Agenda. These measures include supporting only the most impactful projects with more mature solutions and shorter timelines as well as improving the post-funding monitoring of projects and programmes.

As regards EIT Health's education activities, while the number of graduates from EIT-labelled MSc and PhD programmes has risen steadily from 35 graduates in 2018 to 127 graduates in 2021-2022 and 79 in 2023, EIT Health has failed to meet the target of 150 graduates set for 2021-2022. However, when it comes to graduates in RIS countries, EIT

⁴ [EIT Health recognised as world's leading public-private business accelerator by UBI Global | ScienceBusiness \(sciencebusiness.net\)](https://sciencebusiness.net).

⁵ [Ranking - Europe's leading start-up hubs | Incubator Accelerator Programmes Europe \(ft.com\)](https://ft.com).

⁶ European Commission: Directorate-General for Research and Innovation, Denham, S., Nikinmaa, J., Conde Jimenez, R., Price Phillips, H. et al., European partnership for EIT health – Evaluation support study on Horizon Europe's contribution to a resilient Europe, Denham, S.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/049770>, p.20. According to the European Innovation Scoreboard, EIT RIS countries are modest and moderate innovator countries. They are: Bulgaria, Croatia, Czechia, Estonia, Greece, Spain, Italy, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia, Slovakia, Montenegro, North Macedonia, Serbia, Türkiye and Ukraine.

⁷ Partnership report – EIT Health (2024) p. 20.

⁸ Partnership report – EIT Health (2024) p. 20.

⁹ Partnership report – EIT Health (2024) p. 21.

¹⁰ Partnership report – EIT Health (2024) p. 22.

Health is performing well; between 2019 and 2022, 44% of EIT Health graduates were nationals of an RIS country. As shown in Table 1, EIT Health's non-degree education and training programmes are performing better than expected. Almost 47 000 students and professionals finished their programmes in 2021-2023 against the target of 20 000 ¹¹.

EIT Health is also effective in widening its geographical scope and narrowing the gap between countries with higher and lower innovation capacities through the RIS ¹². Similarly, it was effective in launching products and services in different countries, with the number of countries where a technology, product, or service was commercialised or put into operation increasing from 5 to 31 between 2021 and 2022 ¹³.

Long-term scientific, societal, economic and technological impacts

According to the external evaluation report ¹⁴, EIT Health has developed a wide range of programmes and activities aimed at producing positive societal, economic and technological impacts through various interventions focusing on creating better access to health for everyone, promoting a more competitive health economy and creating more sustainable healthcare systems.

In particular, the following societal impact indicators have been identified in the 2022-2027 EIT Impact Framework for the KIC's activities:

- 1) citizens and patients involved in seeking solutions for multi-morbid and chronic conditions;
- 2) citizens and patients benefiting from EIT Health products and services;
- 3) sustainable healthcare systems created;
- 4) structured processes created to step up implementation and scale up innovations, using digital tools ¹⁵.

As highlighted in the external evaluation report ¹⁶, the KIC has been making progress towards meeting its impact indicators, even though they were only introduced in 2021. However, the assessment focuses on the relevance of the KIC's activities in helping to achieve these goals, rather than on the extent of the impact already achieved.

From 2016 to 2023, directly reported data shows that EIT Health activities involved 65 480 citizens, surpassing the target of 25 600 set for 2024 in the KIC's 2021-2027 Strategic Agenda. In addition, at least 7 000 more citizens are expected to engage in the KIC's activities in 2024-2025 ¹⁷.

The number of citizens and patients benefiting from products and/or solutions created with the KIC's involvement has exceeded the 2018-2020 targets, reaching 393 627 individuals against the target of 115 062 ¹⁸.

Directly reported data for 2021-2023 reveals that 522 640 citizens and/or patients benefited from solutions developed or implemented in projects or which resulted from training programmes.

¹¹ Partnership report – EIT Health (2024), p. 46.

¹² EIT Health Business Plan 2021-2022 and 2023-2025; EIT Health Grant Assessment data 2021-2022.

¹³ Partnership report – EIT Health (2024), p. 61.

¹⁴ Partnership report – EIT Health (2024), p. 8.

¹⁵ [EIT Impact Framework 2022-2027](#), pp. 16-17.

¹⁶ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 39.

¹⁷ For this section, data reported directly by the EIT is sourced from Dealroom, an open-access platform tracking EIT Health-supported start-ups. The latest update is from November 2024.

¹⁸ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 37.

The indicator for sustainable healthcare systems is linked to the KPI ‘number of upscaled projects’ that shows efficiency gains, as set in the KIC’s Strategic Agenda. Dealroom data show that between 2022 and 2023 EIT Health had 48 innovation projects, exceeding the targets set for 2024 and 2027 of 12 and 21 projects, respectively.

When it comes to structured processes created to accelerate implementation and scale up innovations using digital tools, the indicator is also linked to the KPI ‘number of upscaled projects’, contributing to the agility of health through digitised process (speed, reach). This was linked to the number of high value care projects, which have high system and organisational change elements that contribute to cost efficiency gains. In 2022-2023, 48 innovation projects were identified through direct reporting.

To measure the extent of the impact of the KIC’s activities, a survey was conducted during the external evaluation¹⁹ among EIT Health-supported ventures. The survey helped attain a general overview of the KIC’s impact across all social impact sub-indicators.

On the involvement of citizens and patients in solutions for multi-morbid and chronic conditions: i) between 25-30% of respondents reported a high impact; ii) between 15-20% indicated a medium impact; and iii) around 10% indicated a weak impact.

As regards citizens and patients benefiting from EIT Health products and services: i) between 30-35% reported a high impact; ii) between 25-30% indicated a medium impact; and iii) between 5-10% indicated a weak impact.

On the creation of sustainable healthcare systems: i) between 25-30% reported a high impact; ii) between 25-30% indicated a medium impact; and iii) around 15% indicated a weak impact.

Finally, on the creation of structured processes to accelerate implementation and scale up innovations using digital tools: i) between 25-30% reported a high impact; ii) between 15-20% indicated a medium impact; and iii) between 5-10% indicated a weak impact.

As concluded by the external evaluation²⁰, EIT Health activities and results have added to the process of dealing with the above-defined societal challenges. EIT Health has proven it can stay on track and react to the emerging issues and challenges in the healthcare sector, for example, by a swift response to the constraints brought by the COVID-19 crisis. Therefore, the KIC’s ability to contribute effectively to tackling the outlined societal challenges can be viewed as positive.

EIT Health has also identified a number of economic long-term impact goals. These are defined in the 2022-2027 EIT Impact Framework:

- contribution to the revenue growth of organisations trading or employing innovations developed with the KIC support;
- the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceases;
- new jobs created in start-ups / scale-ups;
- the impact on employment growth as a result of companies being engaged with KICs;
- the number and type of jobs in existing businesses sustained through innovations;
- the number and type of skill gaps and/or skill shortages filled by the KIC sector;
- new visible innovation ecosystems;

¹⁹ Deloitte and White Research, 7-Year Review – Final Report (2022) pp. 37-38.

²⁰ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 39.

- the share of indicated innovation ecosystems that covers regional innovation scheme (RIS) countries ²¹.

Findings from the external evaluation ²² have indicated that EIT Health's activities have helped increase the revenue growth and profitability, even if it generally takes a minimum of two to three years, and 10 years on average, for the products, services and start-ups in the healthcare market to start generating revenue. On the survey conducted for the external evaluation ²³, 48% of respondents reported generating revenue of up to EUR 0.5 million, and 6% reached between EUR 0.5 to 1 million from innovations developed and launched on the market with the KIC's support. In addition, according to the survey's results ²⁴ on supported companies' revenue one year after the KIC support finished, 50% reported reaching less than EUR 0.5 million, 5% indicated that they reached between EUR 0.5 and 1 million, and 45% reported no that revenue was made. According to the Dealroom platform data, the number of EIT Health start-ups supported until 2021 that are still trading three years later has reached 1 198 with a total revenue of EUR 2 259 100 183.

As regards job creation, the KIC directly helped create 1 373 jobs in new businesses between 2017 and 2022 by implementing innovation projects and supporting small businesses. In addition, based on data provided from the Dealroom platform, the external evaluation in 2022 pointed to 13 500 jobs being created since 2017 as a result of the impact of KIC's activities, e.g. the support it provided to start-ups ²⁵. The targets set in the KIC's Strategic Agenda for job creation in start-ups or scale-ups – 1 704 by 2024 and 3 023 by 2027 – have been surpassed. Data from Dealroom on start-ups that were supported until 2021 reveal that 20 817 jobs in existing businesses have been sustained through innovations by EIT Health.

Based on the previous findings and particularly on the overperforming KPI of investments attracted, according to the external evaluation ²⁶, it can be reasonably assumed that the KIC's support contributed to the employment growth, as the investments are mostly linked to the hiring of new staff in the start-ups. If the employment growth is evaluated after the end of EIT Health support, the number of employees of EIT Health-backed SMEs has grown from 1 600 employees in 2018 to 15 700 in 2023 as per data from Dealroom. Moreover, data from Dealroom on start-ups supported until 2021 show that the employment growth thanks to the KIC's support has reached 79.77%.

Finally, according to the survey conducted for the external evaluation ²⁷, 86% of the start-ups / scale-ups claimed that EIT Health helped fill skill gaps and shortages, mostly related to innovation skills and competencies (67%), but also working with computers/IT skills (38%) and creativity skills and competencies (29%). According to the results of the survey involving EIT-labelled students and graduates²⁸, around 70% of respondents who graduated claimed to be an employee, with most of them working as entry level staff while 30% of respondents who graduated have joined a start-up.

²¹ [EIT Impact Framework 2022-2027](#) pp. 7-11.

²² Deloitte and White Research, 7-Year Review – Final Report (2022) p. 40.

²³ Deloitte and White Research, 7-Year Review – Final Report (2022) pp. 40-41.

²⁴ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 41.

²⁵ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 43.

²⁶ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 43.

²⁷ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 44.

²⁸ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 86.

2. Additionality

Table 2 provides the basic financial figures for EIT Health since it started operating in 2015. EIT Health was able to achieve a direct leverage factor²⁹ of 0.26 in 2015-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.40 (if one adds revenues created through KIC activities (EUR 183 million vs the EIT grant of EUR 452 million)). The direct leverage factor increased to 0.46 in the 2021-2023 Horizon Europe period.

Table 2: EIT Health financial figures (in EUR million)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	3,3	18,9	32,7	50,0	81,0	97,3	54,6	56,8	57,1	451,8
Co-funding	0,3	11,6	12,6	10,4	13,5	20,6	17,0	22,0	10,9	119,0
Revenues		6,6	6,6	7,0	8,1	8,4	10,5	10,0	6,6	63,7
Activities not funded by EIT		65,0	117,9	139,4	284,0	183,5	7,0	7,0	0,0	803,8
Co-investment, i.e. investments attracted by start-ups			28,0	50,6	167,0	363,3	825,0	64,1	286,3	1784,3

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT grant 2023 figures are derived from three-year business plans

In terms of leverage effects for the EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KICs activities, but also through the activities not funded by the EIT³⁰ as well as the co-investments attracted by the companies supported through the EIT.

Based on EIT Health's grant assessment data for 2021-2022, EIT funding amounted to EUR 112 million. Other sources of funding, mainly from EIT Health partners, amounted to EUR 40.2 million. The EIT grant funding of 73.5% in 2021-2022 is below the average (79.3%) for 2016-2020, indicating that EIT Health attracted other sources of funding beyond the EIT.³¹

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT Health achieved a leverage factor of 2.2 in 2015-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 1 784 million) are also included, the leverage factor rises to 6.15 over the period of the EIT Health lifecycle to date. This means that, for every euro of EIT funding spent, EIT Health activities have helped to attract over EUR 6 in external investment.

3. Transparency and openness

EIT Health's partnership is one of the most balanced in the EIT Community. The three different pillars (education, research and business) seem to be well-represented, and cross links between them are visible, according to the external evaluation³². In 2016, the EIT Health partnerships consisted of 134 core and associate partners in 15 EU Member States (and Switzerland). By 2021, EIT Health had managed to attract partners from 18 EU Member States. The number of core and associate partners gradually grew to 148 by 2021. At the same

²⁹ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(Funding rate))-1.

³⁰ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to the KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

³¹ European Framework Programmes for a Resilient Europe – Evaluation study (2023).

³² Deloitte and White Research, 7-Year Review - Final Report (2022) p. 55.

time, the KIC was able to attract a significant number of project and network partners (more than 250 by 2021).

EIT Health is open to new participants, including industry players, which is further confirmed by interview evidence³³. Some conditions for participation, such as membership fees and equity stakes, have sometimes been considered a barrier that limits the willingness to participate in EIT Health's activities³⁴. The KIC has made progress in improving how it communicates new opportunities and has published the criteria for becoming a partner on its website. It is also targeting SMEs as part of its efforts to become a more attractive partner for them³⁵. According to the external evaluation report³⁶, further efforts to address openness and transparency are still needed to further open up its activities to external partners.

Between 2016 and 2021, EIT Health grew steadily, attracting new partners (176 in 2017, 38 in 2018, 27 in 2019, 208 in 2020, and 80 in 2021) with only 37 partners leaving the KIC. Based on EIT Health's grant assessment data for 2021-2022, EIT Health had 560 active partners over that period, of which 110 were core partners, 155 were associate partners and 24% were SMEs. The strong trend of supporting SMEs has continued, with EIT Health supporting 326 SMEs in 2021 and 377 in 2022. An example of how EIT Health provides support to SMEs is the creation of the Venture Centre of Excellence (VCoE), which acts as an intermediary to connect investors with European health SMEs. Since the VCoE was founded in 2020, it has brought together 21 VC Funds and corporate investors and added around 130 organisations to its co-investment universe. The VCoE works hand-in-hand with the European Investment Fund (EIF) in identifying potential SMEs and start-ups to connect them with investors. The VCoE has opened up several new intervention paths for SMEs and start-ups in the partnership. In addition to helping achieve short-term public goals (e.g. the need of a specific medicine), the VCoE is also helping achieve short-term private goals (helping with recruitment), long-term private goals (future R&I outlooks), and long-term public goals (general EU goals)³⁷.

As of October 2024, the number of SMEs participation under the implementation of the EIT grant agreement 2023-2025 was 22% with EUR 25.5 million grants going to SMEs, which represents 15% of the total EIT grant³⁸.

In terms of transparent processes for consulting relevant stakeholders, EIT Health engages in an open consultation process involving relevant stakeholders in individual programmes and uses mechanisms to periodically reassess its goals and objectives. Stakeholders' annual inputs help assess the state of EIT Health as well as the future trends and needs that could help the KIC maximise its strengths. Therefore, EIT Health has practices in place to ensure that relevant stakeholders help identify priorities³⁹. For the VCoE, bespoke programmes and advice are given to each SME and start-up through an extended introductory process. This method contributes to the financial success of the VCoE, as relevant stakeholders are engaged at every level. This not only increases the transparency of the programmes, but also keeps them aligned with public and private goals. The VCoE has demonstrated that public funds

³³ Partnership report - EIT Health (2024) p. 30.

³⁴ Partnership report - EIT Health (2024) p. 30.

³⁵ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 55.

³⁶ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 55.

³⁷ Partnership report – EIT Health (2024) p. 33. See case study on Contribution of EIT Health towards supporting the Venture Centre of Excellence and WorkInHealth Foundation.

³⁸ During the implementation of the 2023-2025 EIT grant agreement 2023-2025, the grant committed to SMEs and the number of SMEs and their participation can still increase in the upcoming months and next year because EIT Health still has calls to open and new projects to sign.

³⁹ Partnership report – EIT Health (2024), p. 31.

alone are not enough to provide adequate support to SMEs, industry groups and investors, but that bespoke engagement at each level and point of involvement (e.g. throughout the entire investment process rather than just before or after the point of contact between investor and SME) is in itself a crucial investment ⁴⁰.

EIT Health is also active in citizen engagement, raising awareness among a wider array of stakeholders of the KIC's mission and programme. Rather than interacting with industry partners and direct consumers exclusively, EIT Health has made efforts to include citizens and patients in its portfolio: it expanded the number of citizens and patients involved from 3 480 in 2021 to 5 044 in 2022. EIT Health also increased the number of citizens and patients involved at the point of service, raising the number of trained citizens and patients from 4 101 in 2021 to 4 830 in 2022. Furthermore, EIT Health recorded 362 768 citizens and patients benefiting directly from solutions developed or implemented through EIT Health activities between 2021 and 2022, significantly higher than the target of 79 546 set in the Business Plan ⁴¹.

4. Efficiency

Table 3 sets out EIT Health's operational budget and administrative expenditure (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditure paid from the EIT grant. This does not include the contribution from EIT Health's partners.

Table 3: EIT Health operational and administrative expenditures

	2016	2017	2018	2019	2020	2021	2022
Operational Expenditures	19 054 607 €	38 526 524 €	54 901 843 €	85 804 328 €	110 828 217 €	63 503 739 €	69 192 022 €
Running Costs	6 765 099 €	821 736 €	1 099 232 €	2 650 154 €	3 180 424 €	2 796 979 €	2 676 058 €
Total budget	32 433 011 €	45 913 954 €	62 551 075 €	95 954 482 €	121 783 640 €	73 300 718 €	78 868 080 €

Source: EIT financial data reported by KICs and validated by the EIT.

Table 3 indicates that the running costs covering EIT Health's headquarters and co-location centres (CLCs) for 2016-2022 ranged between 1.8% and 3.8%, with an average of 2.7%. When considering only the period of Horizon Europe (2021-2022), these costs constituted 3.6% of the overall operational costs.

The EIT KICs are pan-European networks with many offices on the ground across Europe ⁴². These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to the KICs, set maximum thresholds for the EIT-funded share of the KIC's administrative costs, depending on the KIC's maturity. The values range from 18% and 15% in the first year and second year of a KIC, respectively, to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations, rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and in regions, it would be more

⁴⁰ Partnership report – EIT Health (2024), p. 31.

⁴¹ EIT Health – Business Plan 2021-2022.

⁴² EIT Health has a pan-EU representation via seven CLCs in Austria, Belgium-Netherlands, France, Germany, Scandinavia (Denmark, Estonia, Finland, Norway and Sweden), Spain and Ireland-UK. In addition, the InnoStars CLC covers Hungary, Italy, Poland and Portugal. EIT Health RIS scheme covers 14 hubs in 13 countries across Europe (for example, in Croatia, Czechia, Greece, Latvia, Lithuania, Slovakia, Slovenia, Romania).

appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

In 2021-2022, EIT Health had active partners in all Member States, except for Malta. Spain had the highest number of partners (96), followed by France (87) and Germany (54). In addition, EIT Health had active partners in six Horizon Europe associated countries (Israel, Montenegro, Norway, Serbia, Türkiye and Ukraine) ⁴³. EIT Health increased the number of active partners from EIT RIS countries in 2021-2022 to 225 (45% of the total).

The grant assessment data for 2021-2022 reveal that EIT Health can be considered efficient and cost-effective when it comes to supporting start-ups and scale-ups as well as running education programmes – both EIT-labelled degree programmes and non-degree programmes. However, the EIT Health seven-year review report noted that challenges remained as regards some of the KIC's KPIs, such as innovations launched on the market, graduates from EIT-labelled programmes or start-ups created by graduates. The cost-effectiveness of the results achieved was relatively low and unbalanced, and the overall cost-effectiveness of EIT Health was difficult to assess, mainly due to the health sector's specific characteristics as some results take longer to be achieved ⁴⁴. Given its underachievement in terms of meeting some KPI targets in the areas of education and innovation and based on the EIT Governing Board's strategic recommendations, EIT Health has put in place specific measures to improve the impact of its programmes. These measures include funding only the most impactful projects with more mature solutions and shorter timelines, taking into account best value for money considerations, launching labelled fellowships schemes and improving the post-funding monitoring of projects and programmes.

2023 data indicate that the average time-to-grant for calls launched by EIT Health is 3 months.

⁴³ EIT Health Grant Assessment 2022 – Partners data.

⁴⁴ Deloitte and White Research, 7-Year Review – Final Report (2022).

5. Coherence and synergies

According to the external evaluation study⁴⁵, EIT Health has forged synergies with other EU programmes, in particular the European Innovation Council (EIC) and the EIF. EIT Health's collaboration with the EIC specifically involves: (1) strengthening start-up network capabilities through access to stakeholders and expertise; (2) mobilising start-up access to finance and the Dealflow platform⁴⁶; and (3) creating further opportunities and organising joint events⁴⁷. Under the Horizon 2020 programme, EIT Health and EIC created an EIT-EIC CollabPilot that aimed to strengthen Europe's innovation and breakthrough technologies in healthcare⁴⁸. EIT Health has also standardised the application process to make it more similar to Horizon Europe programmes⁴⁹. In the case of the EIF, EIT Health's synergies lie within its VCoE programme, a public-private co-investment programme that aims to empower SMEs through mentoring and access to investment⁵⁰.

When it comes to synergies with other European partnerships and missions within Horizon Europe, the EIT KICs community is clearly the most active, as highlighted in the 2024 Biennial Monitoring Report⁵¹. EIT Health particularly stands out when analysing the number of times a partnership was selected by counterparts for synergies⁵². The analysis of the grant assessment data and the interviews with leaders and coordinators of innovation projects supported by EIT Health have shown that the KIC's projects and activities complement and work well with other parts of the Horizon Europe programme⁵³. Based on interviews from the external evaluation study⁵⁴, there is nevertheless still room for improvement, particularly in creating logical support pathways across the different pillars under Horizon Europe and simplifying reporting. However, EIT Health and the Innovative Health Initiative (IHI) have recently united to drive entrepreneurship and innovation in healthcare by creating collaborative innovation ecosystems⁵⁵. In addition, EIT Health is involved in the Partnership for Personalised Medicine as one of three EU-level partners next to the European Commission and the European Research Infrastructure for Biobanking, providing services to accelerate personalised medicine development and roll it out in public healthcare⁵⁶.

Furthermore, EIT Health has also forged synergies with the Digital Europe programme, through its active involvement in the TEF Health project that has been creating an environment where developers, researchers and industry players can unite to tackle the challenges of integrating AI and robotics into healthcare. This helps minimise the gap

⁴⁵ Partnership report – EIT Health (2024) p. 16.

⁴⁶ <https://dealflow.eu/eu-services/>

⁴⁷ European Commission: Directorate-General for Research and Innovation, Performance of European Partnerships – Biennial Monitoring Report (BMR) 2022 on partnerships in Horizon Europe, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2777/144363>.

⁴⁸ [EIT-EIC CollabPilot: Elevating European Healthcare innovator ecosystems through integrated access to sector-specific market expertise.](#)

⁴⁹ [EIT Health. Opening of the Flagships Call: September 2022. Communications Pack.](#)

⁵⁰ BMR (2022), p. 365.

⁵¹ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

⁵² BMR (2024), p. 59.

⁵³ Partnership report – EIT Health (2024), p. 16.

⁵⁴ Partnership report – EIT Health (2024), p. 16.

⁵⁵ [EIT Health and IHI unite to drive healthcare innovation.](#)

⁵⁶ Services include: co-design and co-management of innovation calls, hackathons, matchmaking events, round tables, education landscape analysis, education and training programmes, fast-track accelerator calls, venture-builder cycles, twinning calls, and engagement of patients, citizens and professional associations. Partnership report – EIT Health (2024), p.16.

between lab testing and real-world application, increases the robustness and reliability of the solutions, and speeds up the adoption of these AI and robotics solutions in healthcare. By exploiting its wide network of innovation actors, EIT Health contributes as a platform builder and a matchmaker linking academics with users ⁵⁷.

Moreover, EIT Health's entrepreneurial portfolio is efficient in supporting internal coherence, with 28% of supported companies having participated in more than one EIT Health programme, even if transitioning from a start-up to a scale-up operation presents challenges ⁵⁸.

The EIT KICs have established a number of cross-KIC activities, thereby forging synergies with other KICs. Since the COVID-19 pandemic, EIT Health has expanded its participation to provide stakeholders with a more interdisciplinary and unique experience ⁵⁹. EIT Health is active through various EIT Community initiatives, including the Cross-KIC Strategic Regional Innovations (SRI), the EIT Regional Executive Academy and the EIT Jumpstarter ⁶⁰. For example, EIT Health has a structural collaboration with EIT Food that is ensured through the 'Food4Health' initiative. Its main objective is to establish a sustainable connection between the two KICs, leveraging the strength of the individual partnerships, building on their core activities and developing an innovation programme in citizen-oriented health and well-being through improved nutrition and behavioural support.

However, in 2021-2022, there were no reported instances of EIT Health attracting funding from the European Structural and Investment Funds (ESIF) ⁶¹ and, according to the external evaluation report ⁶², further steps could be taken to help organisations and EIT Health partners from RIS countries attract ESIF funding in line with the regional smart specialisation strategies and the EIT Health Strategic Agenda.

6. EU added value

EIT Health's ability to foster and establish collaborations with different actors within the healthcare industry across Europe is its main source of added value, as highlighted in the external evaluation ⁶³. Most innovation capacity projects supported by EIT Health achieve good levels of cooperation across European borders, in particular by attracting regional cluster partners and interlinking them with other clusters across European borders (e.g. with healthcare professionals, entrepreneurs and citizens), offering them new collaboration opportunities and shared resources ⁶⁴. Interviewees confirmed that EIT Health's ability to tap into its pan-European network to find suitable partners is particularly useful for its project promoters or start-ups. Also, viewed as generating added value is EIT Health's availability and readiness in terms of communication with external stakeholders in many countries.

⁵⁷ [EIT Health TEF Health: Testing and Experimentation Facilities for Health AI and Robotics.](#)

⁵⁸ European Framework Programmes for a Resilient Europe – Evaluation study (2023).

⁵⁹ EIT Health Grant Assessment data for 2021-2022. KPI ActOutput24, Cross-KIC collaboration.

⁶⁰ The EIT Jumpstarter is a pre-accelerator programme led by EIT Health. It provides fundamental entrepreneurial skills training to support teams that are building a business model around their innovative service or product idea and launching their business. Six EIT Communities (EIT Health, EIT Food, EIT RawMaterials, EIT Innoenergy, EIT Urban Mobility and EIT Manufacturing) are jointly running the programme by mobilising their networks and jointly upskilling the talent pool in EIT RIS.

⁶¹ EIT Health Grant Assessment data for 2021-2022. One of the EIT's core KPIs is organisations from RIS countries attracting funding from the ESIF with support from the KIC.

⁶² Partnership report – EIT Health (2024) p. 37.

⁶³ Partnership report – EIT Health (2024), p. 24.

⁶⁴ Deloitte and White Research, 7-Year Review – Final Report (2022).

In particular, the VCoE programme provides additional value at European level. As a public-private fund directing resources from both the European Commission and private venture capital funds, the VCoE establishes a binding agreement between investors and corporate players that enables greater trust between stakeholders than public funds or private consortia involved in VC funds. Part of this added value comes from the unique market effects of the EU investment itself, insofar as it acts as a signal to promote public trust in markets important to the EU. The synergies between the VCoE and the European Commission are an example of how added value is created, as the investments through the VCoE seek to improve Europe's ability to respond to continental or global health emergencies ⁶⁵.

According to the external evaluation report ⁶⁶, most interviewees find that EIT Health provides services which could not be met through traditional Horizon Europe calls. This relates especially to EIT Health's capacity to bring together relevant partner organisations and individuals and create networks, which enable effective cooperation and knowledge sharing across Europe. This is relevant for the capacity to test and market innovations and products as well as start-up and scale-up services beyond national borders. While the support of EIT Health was fundamental to helping innovation projects to mature, several aspects of EIT Health's support made it less attractive for companies when compared to national and regional funding programmes, for example, the requirements to only partner up with entities already associated with EIT Health, or to allow EIT Health to take equity in a participating firm. However, this was highly dependent on the medical field and the size of the company supported, and smaller ventures regarded EIT Health's support to be equally as relevant as national and regional funding ⁶⁷.

7. Relevance

EIT Health helps achieve the key impacts needed under Horizon Europe, in particular by addressing EU policy priorities through R&I, generating innovation-based growth, leveraging investments in R&I and creating more and better jobs. Therefore, EIT Health is relevant concerning the challenges and needs of both Horizon 2020 and Horizon Europe, especially as regards resilience ⁶⁸.

The 2022 Biennial Monitoring Report indicates that EIT Health has significantly contributed to both the green and the digital transitions, especially the latter ⁶⁹. The KIC's non-degree education programmes, which address the digital dimensions of the healthcare industry, feature prominently in EIT Health's education activities. For example, the Science4Pandemics online game – a digital platform for collective intelligence in pandemics – had 4 226 participants in 2022 alone. The programme targets adolescents using gamification and artificial intelligence to increase public understanding on how to prevent and manage

⁶⁵ See case study on Contribution of EIT Health towards supporting the Venture Centre of Excellence and WorkInHealth Foundation. Partnership report – EIT Health (2024), p. 24.

⁶⁶ Partnership report – EIT Health (2024), p. 24.

⁶⁷ European Commission: Directorate-General for Research and Innovation, Denham, S., Stančiauskas, V., Dėlkutė-Morgan, R., Kazlauskaitė, D. et al., Evaluation support study on Horizon Europe's contribution to a resilient Europe – Final report phase 2, Denham, S.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/797281>. Partnership report – EIT Health (2024) p. 27.

⁶⁸ See the Biennial Monitoring Report (2022), European Commission: Directorate-General for Research and Innovation, Stančiauskas, V., Brozaitis, H., Notten, A., Hollanders, H. et al., Study to support the monitoring and evaluation of the framework programme for research and innovation along key impact pathways – Indicator methodology and metadata handbook, Stančiauskas, V.(editor), Brozaitis, H.(editor), Notten, A.(editor), Hollanders, H.(editor), Papageorgiou, H.(editor), Manola, N.(editor), Zagame, P.(editor) and Le-Mouel, P.(editor), Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2777/44653>.

⁶⁹ Biennial Monitoring Report (2022).

pandemics. Similar non-degree education programmes include AIProHealth, HelloAI and Basics of Digital Health ⁷⁰.

EIT Health is also relevant when it comes to supporting those SMEs that contribute to technologies for the digital transition. Out of 1 201 companies supported, 832 (69%) have produced technologies that are relevant to the digital transition. Furthermore, 581 companies (48%) have produced deep tech innovations⁷¹ in line with the priorities of the New European Innovation Agenda.

Moreover, EIT Health helps achieve the Sustainable Development Goals (SDGs), especially in the area of good health and well-being. It also facilitates collaboration across different countries, supports the creation of new knowledge and technologies (the latter in particular through its innovation portfolio), and helps create jobs, upscale skills, promote industrial competitiveness as well as optimise the impact of investment within the European Research Area (ERA). From the ERA's perspective, EIT Health operates 14 EIT hubs in 13 RIS countries⁷² to foster closer interaction among local innovation actors and link local innovation ecosystems to the EIT's pan-European innovation ecosystem. EIT Health RIS hubs also contribute to the general visibility of the EIT Health community ⁷³.

EIT Health aims to 'improve the quality of life of 4.8 million of Europeans' according to its 2021-2022 Business Plan ⁷⁴. All projects and activities supported and orchestrated by EIT Health have focused on this, either directly (through developing innovative solutions and products) ⁷⁵ or indirectly (through improving health and data management systems) ⁷⁶. The goal of promoting better health for citizens has been further strengthened in the EIT Health's 2023-2025 Business Plan, which aims to support innovations tackling the challenges faced by an ageing population ⁷⁷. It focuses on designing, testing, and prototyping new products, services and solutions in order to introduce them into the market. In this respect, EIT Health has pursued innovation projects that enable better responses to pandemics, improve the effectiveness of treatments and, in particular, fight chronic and multi-morbid conditions ⁷⁸, therefore tackling relevant societal challenges as case study findings show ⁷⁹. The support actions have mainly focused on oncology, neurology (primarily neurovascular accidents) and metabolic disorders, in addition to clinical decision support systems, which, by virtue of their diagnostic and preventive nature, cover a wide range of chronic diseases. Interviewees regarded EIT Health's efforts as relevant in the overall fight against cancer, diabetes as well as neurodegenerative and cardiovascular diseases. Regarding Horizon Europe's Cancer Mission, case study findings indicate that the overall contributions provided by EIT Health's activities in the fight against cancer, while indirect, are adequate since EIT Health provides

⁷⁰ EIT Health evaluation study (2024), p. 13.

⁷¹ [EIT Health Startup Database](#).

⁷² [EIT Health. EIT Regional Innovation Scheme](#).

⁷³ Deloitte and White Research. 7-Year Review, Final Report (2022).

⁷⁴ EIT Health Business Plan 2021-2022.

⁷⁵ European Framework Programmes for a Resilient Europe - Evaluation study (2023), Case study on the Contributions of EIT Health in the Fight Against Chronic and Multi-Morbid Conditions; 31% of the EIT's business support budget was specifically targeting cancer, neurodegenerative diseases, cardiovascular and cerebrovascular conditions and diabetes. Over 60% of the EIT's health budget on innovation has been dedicated to targeting cancer, neurodegenerative diseases or conditions, cardiovascular and cerebrovascular conditions and diabetes.

⁷⁶ As an example, within the Cancer Prevention Europe framework, the KIC invested in empowering people to be active in their own well-being and further innovations were supported.

⁷⁷ EIT Health Business Plan 2023-2025.

⁷⁸ EIT Health Business Plan 2021-2022.

⁷⁹ Partnership report - EIT Health (2024), p. 13. See also [Resilient Europe Evaluation Study \(2024\)](#).

relevant and necessary support towards the development of innovations that help diagnose and treat cancer.

As regards flexibility, EIT Health monitors its activities periodically and reorients its portfolio annually. Based on this assessment, the activities are continued or phased out. The goal of such periodic consultations is to evaluate future trends and needs that could maximise the strengths of EIT Health, after which potential areas of intervention are identified. In 2023, this process helped identify three areas: digital health, promoting the optimal secondary use of health data, and promoting solutions that can be replicated across different healthcare models.

EIT Health's flexibility in updating its approach was confirmed by a previous evaluation, which showed that during Horizon 2020, EIT Health progressively updated and reviewed its portfolio of activities to better fit the demands and needs of businesses, investors and consumers in the healthcare sector⁸⁰. The flexible approach to address new challenges as they arise has also been demonstrated by the KIC's response to the COVID-19 crisis. In 2020, EIT Health supported 36 solutions to help deal with the crisis. EIT Health also set up a COVID-19 rapid response programme, which provided around EUR 7 million of funding to 15 projects in the fields of biotechnology, diagnostics, digital health and med tech. It included projects like: i) the Digital Control Centre for COVID-19, which helped implement data and AI solutions in hospitals across Europe; ii) a platform for remote patient monitoring and management; and iii) Viru-Shield, a self-disinfecting, globally available reusable mask⁸¹. EIT Health has also helped to address challenges such as the validation and reimbursement processes in the diverse European regulatory health environment⁸². To address these specific issues, EIT Health has taken several measures, e.g. promoting the harmonisation of validation procedures across the EU to bridge the gap regarding medical devices, particularly for digital solutions, and promoting a fast-track model to process reimbursements that is expected to be implemented across the EU.

8. Directionality

According to the external evaluation report⁸³, interview findings indicate that EIT Health is making progress towards achieving its strategic vision thanks to it aligning its policies, goals and approaches with the European Commission's priorities more closely.

To strengthen the effectiveness of its key impact pathways and improve its impact targets, EIT Health has regrouped its portfolio of activities into a flagship concept in its Business Plan for 2023-2025⁸⁴. The flagships aim to get innovations to higher stages of maturity that can secure market integration and meet KPIs. According to the business plan, the flagship topics are defined yearly, with the first wave of flagships being implemented in 2023⁸⁵.

According to the partnership report⁸⁶, the KIC faces significant challenges linked to the fact that the healthcare sector requires a longer time to fully introduce innovations and products into the market due to its need for long and thorough certification and validation processes. However, interviewees noted that the process would be more difficult without EIT Health's involvement.

⁸⁰ Deloitte and White Research, 7-Year Review – Final Report (2022) p. 14.

⁸¹ <https://eithealth.eu/covid-spotlight-special-edition/>

⁸² See also [European Framework Programmes for a Resilient Europe - Evaluation study \(2023\)](#)

⁸³ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 27.

⁸⁴ EIT Health Business Plan 2023-2025.

⁸⁵ EIT Health Business Plan 2023-2025.

⁸⁶ Partnership report – EIT Health (2024), p. 27.

9. International positioning

EIT Health is predominantly EU-oriented, which is reflected in its network of partners. At the same time, it has a significant number of partners from the United Kingdom (43) and Switzerland (15). The KIC also has partners from Israel, Norway, Serbia, Montenegro, Türkiye and Ukraine, which are associated with the Horizon Europe programme, as well as from the United States, Costa Rica and Kenya.

EIT Health participates in the EIT Global Outreach Programme's ⁸⁷ activities and the SRI ⁸⁸. The Programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The Programme currently comprises established and successful EIT hubs in Silicon Valley (USA) ⁸⁹, Tel Aviv (Israel) ⁹⁰ and London (UK) ⁹¹. EIT Health is actively involved in these activities, and it is also leading the EIT Community Global Platform that was established in 2023 to expand the reach of the EIT to new locations.

The Global Outreach innovation hubs, as well as the Global Platform, implement various activities worldwide that correspond to the various stages of the technology development lifecycle. The programmes include: i) open innovation programmes for corporates; ii) go-to-market programmes for start-ups and scale-ups looking to penetrate new global markets; iii) lab-to-market educational programmes for researchers aiming to create start-ups with their ground-breaking technology; iv) ecosystem immersion for ecosystem leaders; v) matchmaking around Horizon Europe open calls; and vi) training for innovation-focused European diplomats in outreach locations.

Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. In the future, these will expand to Moldova and potentially Georgia, in line with the EU's enlargement policy priorities.

As regards visibility, EIT Health is attracting new international visibility through different pathways. The education pathway helps attract relevant talent to Europe through EIT Health MSc or PhD programmes. 27% of all graduates from EIT Health-labelled programmes were international students and nearly half of them studied in RIS countries. The business creation and support pathway also contributes to international visibility. EIT Health-supported companies are able to attract additional funding from other parts of the world, particularly from North America: approximately 16% of EIT Health-supported companies have received additional investments from North America ⁹².

10. Phasing-out preparedness

The EIT Regulation ⁹³ defines 'financial sustainability' as the EIT KICs' capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year

⁸⁷ <https://go-eit.eu/>

⁸⁸ <https://eit-ris.eu/>

⁸⁹ <https://go-eit.eu/eit-silicon-valley-hub/>

⁹⁰ <https://go-eit.eu/eit-israel-hub/>

⁹¹ <https://go-eit.eu/eit-uk-hub/>

⁹² EIT Health Grant Assessment 2021-2022 data. Partnership report – EIT Health (2024), p. 28.

⁹³ In particular Article 2, (16) and Article 6 (i). [Regulation \(EU\) 2021/819 on the European Institute of Innovation and Technology, 2021.](#)

period of EIT funding. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT Health has prepared a plan to ensure financial sustainability through: 1) the financial contributions of its network members via fees; 2) the delivery of EIT Health's portfolio of services in exchange for fees; and 3) returns on investments from start-ups that have been supported or other revenues from projects (such as products or services developed through EIT Health that are then sold on the market). EIT Health aims to have EUR 30.4 million in financial sustainability revenues by 2027 ⁹⁴.

In its early years, EIT Health was strongly dependent on membership fees and achieved modest results in generating alternative income between 2016 and 2020 ⁹⁵. EIT Health's financial sustainability coefficient ⁹⁶ decreased from 20% to 9% between 2017 and 2020, even though revenues increased from EUR 6.6 million to EUR 8.4 million in this same period. In 2021-2022, EIT Health continued to increase its revenues, which reached EUR 20.5 million (generating an average annual revenue of EUR 10.3 million), but more importantly, the financial sustainability coefficient improved again and reached 18.33%. Given the phase of the EIT Health lifecycle, these figures indicate that EIT Health is performing well in terms of financial sustainability.

However, membership fees remained EIT Health's main source of revenue in 2021-2022: EUR 8.3 million was received from core partners and EUR 4.6 million from associate partners for a total of EUR 12.9 million, representing 63% of total revenue. National and regional funding brought in EUR 1.5 million and a grant from the EIC brought in EUR 1.4 million. The first data from 2023 ⁹⁷ provided by EIT Health shows further national or European funding already attracted for the period 2023-2030. This indicates that the prospects for achieving financial sustainability at the end of EIT Health's funding lifecycle are good. Also, for 2023, EIT Health reported substantial financial reserves (e.g. in the form of current assets and equity shares in its investment portfolio or cash and cash equivalents). These could provide a solid basis for sustaining its core activities in the future.

In the education portfolio, the EIT Health Academy Platform generated revenue of EUR 4 143 from participation fees. EIT Health reported no revenue from returns on investment and equity, although it received a success fee coming from the Gold Track programme amounting to EUR 2.5 million. Moreover, nine EIT Health-supported start-ups completed their financing rounds, with the KIC charging a percentage on the invested funds. These activities brought in EUR 3.8 million (19% of total revenue). Product-based services generated EUR 185 000. While this indicates that revenue streams are becoming more diverse, further diversification could help ensure that EIT Health is not too reliant on membership fees.

Overall, the current figures and the interview evidence show that EIT Health is moving from a model of fixed participation fees to a model of lower fees for the services provided. This has earned support from private pharmaceutical and medical service providers as well as local managing directors. Nevertheless, several interviewees flagged that it is rather unrealistic to

⁹⁴ Partnership report – EIT Health (2024), p. 35.

⁹⁵ Deloitte and White Research, 7-Year Review – Final Report (2022), p. 67.

⁹⁶ Financial sustainability coefficient (FS coefficient) is the ratio of KICs own revenues compared to EIT grant in a given year.

⁹⁷ EIT Health Data provided in relation to the final results of the financial allocation for 2024 – EIT Health –

achieve financial sustainability without the public sector participating, specifically the European Commission, due to the specific nature of healthcare and the healthcare market⁹⁸. They also highlighted that EIT Health is a reliable partner and a promoter of the EU's objectives in healthcare. Furthermore, the life sciences and biotech sectors are among the most highly funded sectors for venture capital. At the same time, average investment tickets for start-ups and other innovation funding in this sector tend to be high. As such, the tech environment that EIT Health works within has highly specific conditions and a highly specific structure for both innovation and business creation funding.

EIT Health is increasing its efforts and applies a strong focus in the relevant areas of activities in order to achieve its goal of becoming financially sustainable. Overall, the KIC is on track in relation to phasing-out preparedness.

⁹⁸ Partnership report - EIT Health (2024) p. 35



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 25: Evaluation of EIT InnoEnergy

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT InnoEnergy Knowledge and Innovation Community ('KIC' or 'EIT InnoEnergy') was established in 2009 in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹, with its first activities and calls launched in 2010. As part of the first wave of KICs, it is currently in the phasing-out stage. The KIC's main goal is to connect people and resources across the world in order to accelerate the green energy transition in Europe. In line with the European Green Deal, EIT InnoEnergy concentrates its activities on the following key areas: energy storage, energy efficiency, energy for transport and mobility, energy for the circular economy, smart electric grids and renewable energy. Its main focus is on reducing energy costs, increasing energy security and reducing greenhouse gas emissions. To achieve its objective, for the 2010- 2024 period, EIT InnoEnergy received EUR 760 million in grants from the EIT.

Over the past 15 years, EIT InnoEnergy has become the largest sustainable energy innovator in the world. Its network comprises over 1 200 partners.

Objectives and achievements

EIT InnoEnergy's 2021-2027 Strategic Agenda² has set the following objectives: (1) becoming the preferred trusted knowledge ecosystem, the 'go-to' for impact-minded innovators in the EU and the US; (2) becoming financially independent; (3) expanding geographically to the US; (4) having 100+ supported venture landings in the EU and the US building strategic alliances; (5) securing long-term strategic sustainability by enabling three strategic European value chains (batteries, hydrogen, and solar photovoltaics); (6) establishing 10 products/companies as world leaders; (7) securing a culture of systemic innovation based on individuals (game changers); and (8) maintaining a network of local operational EIT InnoEnergy Hubs³.

The KIC is helping achieve the objectives of the previous Horizon 2020 programme and the current Horizon Europe programmes as well as contributing to EU policies, by identifying promising innovators, supporting start-ups financially and providing entrepreneurship support services.

All of these strategic objectives are implemented and the results are delivered by integrating the knowledge triangle, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's activities in innovation, business creation and education. Table 1 shows EIT InnoEnergy's achievements in terms of KPIs for 2014-2023.

¹ [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#) replaced the original Regulation, Regulation (EC) 294/2008.

² [EIT InnoEnergy 2021-2027 Strategic Agenda](#).

³ The EIT Regional Innovation Scheme (EIT RIS) is designed for EU Member States and Horizon 2020 Associated Countries in Europe who are modest and moderate innovators, and where Innovation Communities have few or no partners. Strategically, the scheme is an additional offer to these countries to help them engage with the EIT Innovation Communities.

Table 1: EIT InnoEnergy 2014-2023 KPIs; targets (T) and achieved results (A)

	2014		2015		2016		2017		2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	15	12	8	16	25	22	12	20	26	28	21	22	19	21	116	149	60	68	302	358
Designed/Tested innovations*	98	58	54	91	62	93									71	90	40	93	325	425
KIC Supported Start-ups/Scale-ups							68	80	75	100	76	127	92	92	154	187	90	106	555	692
Start-ups created of/for innovation							1	0	2	2	0	0	2	2	6	3	3	3	71	76
Start-ups created of EIT labelled MSc/PhD programmes	15	21	19	23	23	22	2	4	2	3	4	7	16	9	13	14	6	6	43	43
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)							10	32	20	20	118	1416	105	662	1000	1206	800	2388	2053	5724
Graduates from EIT labelled MSc/PhD programmes	149	121	145	132	168	155	190	201	229	230	252	275	225	205	155	425	275	188	1788	1932
Participants in (non-degree) education and training*															51410	101410	50000		101410	101410

* Reported from 2021 (the KPI on designed/tested innovations reports on IPR applications from 2021).

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT); data for some years/KPIs not reported/collected due to changes in the KPI system / impact framework

Overall, EIT InnoEnergy's performance highlights its positive impact on the energy and innovation sectors. The KIC is on track to achieve the objectives and expected results as outlined in its Strategic Agenda. Any deviation from the agenda has been justified, approved by the EIT and has ultimately led to the KIC's impact being maximised.⁴ By creating a sustainable operational framework among the three actors of the knowledge triangle (education, research and business), EIT InnoEnergy has become the leading engine for innovation and entrepreneurship in sustainable energy. EIT InnoEnergy was ranked second among the world's most active investors in energy in 2023 by PitchBook on 1 March 2024. This recognition adds to the listings that acknowledges EIT InnoEnergy's leading position as investor since 2021.⁵

As regards its effectiveness in terms of technology and innovation, EIT InnoEnergy helps reduce time-to market, scale up, de-risk the business case, and replicate new technologies and innovations to decarbonise Europe. EIT InnoEnergy's approximately 200 portfolio companies have filed over 290 patents (by mid-2024 the portfolio stood at 159 companies after 32 exited). The partnership has a clear focus on technological innovation and hardware solutions. EIT InnoEnergy activities are centred around specific thematic areas that are highly relevant for the energy transition: i) energy efficiency; ii) renewable energies; iii) sustainable buildings and cities; iv) smart electric grids; v) energy storage; vi) energy for the circular economy; and vii) energy for transport and mobility. To transform a technology into a marketable product, EIT InnoEnergy assesses its potential and patentability, identifies and tracks possible competitors, and ensures the intellectual property is protected. EIT InnoEnergy supports prototype improvement, product development and pilots, and provides access to expertise and R&D infrastructure. For 2021-2022, EIT InnoEnergy reported 90 patent applications, exceeding the target of 71 for this period. However, these patent filings are concentrated in a small number of countries: of the 13 patenting partner countries in EIT InnoEnergy, the top five account for 76% of the patents. The achievements in launching innovations onto the market for 2021-2023 also reveal a remarkable growth trend, as shown in Table 1.

According to the external evaluation report⁶, EIT InnoEnergy has been extremely successful in terms of business creation. From 2013 onwards, the KIC's performance against its Business Plan targets improved, although some delays and problems were encountered. In 2015, it was

⁴ Deloitte and White Research, Final review EIT InnoEnergy (2023), p.9

⁵ [Global ranking: EIT InnoEnergy second most active investor in energy in 2023 | EIT](#)

⁶ European Commission: Directorate-General for Research and Innovation, Paier, M. and Gasser, M., Partnership evaluation report – EIT InnoEnergy partnership – Horizon Europe and the Green Transition – Interim evaluation support study, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/5626827>, p. 27.

reported that ‘the business creation area is in the current state a success within the KIC’⁷. EIT InnoEnergy seeks to invest in companies that aim for a positive impact with scalable business models and/or disruptive technologies to: i) reduce costs in the energy value chain; ii) reduce CO₂ emissions; iii) ensure the energy system is operable; iv) create sustainable growth; v) create jobs; and vi) improve competitiveness⁸. From 2010-2020, EIT InnoEnergy supported more than 480 companies, and by the end of 2023 this figure reached almost 700 companies. As of 2020 the KIC has claimed to have one of the largest sustainable energy investment portfolios worldwide, with more than 250 investee companies⁹. Since its inception in 2010, EIT InnoEnergy has screened more than 7 000 start-ups. Furthermore, more than 350 products have been launched on the market. EIT InnoEnergy has invested in 200 portfolio companies which are expected to generate EUR 72.8 billion in revenue and save 1.1 gigatons of CO₂ annually by 2030. 90% of the start-ups supported already work with global brand names including ABB, BMW, EDF, Engie, Volkswagen, Galp, Schneider Electric and Naturgy. In terms of geographical distribution, the investments attracted are concentrated in a small number of countries: Sweden, Norway, Germany, France, the Netherlands and Spain.

According to the external evaluation study¹⁰, interviewees described the investment of EIT InnoEnergy and other support measures (such as access to its network) as highly valuable. Significantly, support was made available at a very early stage of the start-up process. In the growth phase, investment from third parties is an indicator for the business success of green start-ups. EIT InnoEnergy was able to help its partners attract substantial amounts of private investment (a total of EUR 4.5 billion in 2021-2023). Four of the supported start-ups have become unicorns.

Risk investments imply the possibility of failure, especially in key energy sectors with tough global competition. This means that some of the companies that EIT InnoEnergy has supported had to suspend production or even file for bankruptcy, as occurred in November 2024 with the unicorn, Northvolt (allowing it to access USD 145 million in cash, in addition to USD 100 million in private financing)¹¹.

The external evaluation report reveals¹² that through its education activities EIT InnoEnergy is able to develop talent that will be urgently needed in the future sustainable energy sector. The latest available EIT InnoEnergy annual review from 2021 highlights that since 2019, the KIC has successfully connected more than 120 students with placements each year. The number of graduates from EIT-labelled programmes has continuously increased since 2014, as presented in Table 1, reaching over 400 students in 2021-2022, which is almost three times its target. The EIT InnoEnergy Master School has attracted students from almost 100 countries and produced more than 1 900 graduates¹³.

EIT InnoEnergy has experienced impressive growth in revenue over the years, with a substantial increase from 2017 to 2018, primarily driven by returns on investment and equity. EIT InnoEnergy's RIS strategy is effective in supporting innovation and entrepreneurship in

⁷ Partnership evaluation report – EIT InnoEnergy (2024), p. 27.

⁸ Partnership evaluation report – EIT InnoEnergy (2024), p. 28.

⁹ [InnoEnergy Impact Report 2020](#).

¹⁰ Partnership evaluation report – EIT InnoEnergy (2024), p. 28.

¹¹ While subsidiaries in Germany and North America, are financed separately and will continue operating as usual outside of the restructuring process. See: <https://sifted.eu/articles/peter-carlsson-leaves-bankrupt-northvolt-news>

¹² Partnership evaluation report – EIT InnoEnergy (2024), p. 29.

¹³ The EIT InnoEnergy PhD School & Innovation Doctorate Programme is no longer accepting new candidates. Instead, professional learning courses are provided. According to the external evaluation support study, interviewees indicated concerns about the PhD school having a lower rate of success compared with the Master's programmes. Partnership evaluation report – EIT InnoEnergy (2024), p. 30.

moderate or modest innovator regions, aiming to bridge innovation gaps. It encompasses elements such as training, support for start-ups, promotion of collaboration, and access to resources, leading to successes in renewable energy and related fields. EIT InnoEnergy also participates in initiatives such as the EIT Jumpstarter, contributing to entrepreneurship and the evolution of intellectual property in RIS regions.

Long-term scientific, societal, economic and technological impacts ¹⁴

From education and business incubation to innovation and start-up support, EIT InnoEnergy has achieved significant success in driving growth, knowledge transfer, and technological advancements ¹⁵.

The following societal impact goals have been identified in the EIT Impact Framework 2022-2027 for the KIC's activities:

- 1) reduced CO₂ emissions;
- 2) decreased energy costs;
- 3) increased availability of innovative energy;
- 4) stable workforce in the InnoEnergy field;
- 5) gender balance promoted in the InnoEnergy field;
- 6) increased access to innovative energy;
- 7) resources leveraged for InnoEnergy sector's growth ¹⁶.

In the EIT InnoEnergy Impact Report for 2022 the following values for the impact indicators were presented:

- i. 1.1 Gtn of CO₂ saved by 2030, accounting for a quarter of the CO₂ emissions in the EU;
- ii. EUR 9.1 billion of savings in energy costs;
- iii. 616 TWh generated from clean energy.

Despite the indicators only being introduced in 2021, EIT InnoEnergy has made significant progress towards meeting these goals. Significantly, it has reduced greenhouse gas emissions by supporting sustainable energy initiatives and generating 831 terawatt-hours of clean energy expected by 2030. This considerable volume of clean energy not only helps curb CO₂ emissions, but also bolsters the shift towards sustainable energy solutions on a global scale. When it comes to CO₂ emissions, EIT InnoEnergy forecasts a potential contribution of 2.1 Gtn of CO₂ saved by 2030, by aggregating the KIC's portfolio-submitted inputs ¹⁷.

Moreover, EIT InnoEnergy helps reduce energy costs, with reductions of EUR 1 800 million targeted for 2025, to be achieved by means of backing innovative start-ups and leading industrial alliances in key sectors. It is estimated that by 2023, EIT InnoEnergy helped save up to EUR 12.8 million by substituting InnoEnergy assets for existing technologies ¹⁸.

¹⁴ An impact study is planned for 2025, which will measure EIT InnoEnergy's contribution against the 2024 targets set in the KIC's Strategic Agenda.

¹⁵ Deloitte and White Research, [Final review of the 1st wave KICs: EIT InnoEnergy – Final Report](#), November 2023, p.97.

¹⁶ [EIT Impact Framework 2022-2027](#), PP. 17-18.

¹⁷ Last updated figure is from EIT InnoEnergy Impact Report 2022, p.41.

¹⁸ Last updated figure is from EIT InnoEnergy Impact Report 2022.

The KIC has also increased the availability of innovative energy solutions by supporting over 500 start-ups and building a trusted and interconnected innovation ecosystem of over 1 200 partners. Thanks to EIT InnoEnergy's deployed assets, 503 000 households in developing countries had access to energy in 2021-2022, which is equivalent to 2 014 460 people, as reported by the KIC and confirmed by the external evaluation report ¹⁹. The targets for 2025 and 2027, set at 180 000 and 324 000, respectively, have already been significantly surpassed.

In addition, EIT InnoEnergy is leading the way in three key industrial strategic supply chains, namely battery storage, green hydrogen and solar photovoltaics. By cooperating with critical stakeholders that span government, industry and academia, EIT InnoEnergy is forging new markets for sustainable energy. EIT InnoEnergy has advanced substantially in mobilising resources to propel growth within the energy sector, through its network, resource mobilisation and the promotion of collaboration within the energy sector, as concluded by the external study ²⁰.

With a track record of over 1 900 graduates from their Master's programme, EIT InnoEnergy is preparing the next generation by providing it with the knowledge and expertise required to foster sustainable economic growth and contribute to the energy transition, therefore ensuring a stable workforce in the InnoEnergy field.²¹

Furthermore, the KIC received positive feedback on its gender-related measures, even if there is still room for improvement ²². The EIT InnoEnergy has been monitoring relevant updates since 2022. According to the EIT InnoEnergy Impact Report 2022, the KIC had 1 914 women entrepreneurs by 2022 ²³.

EIT InnoEnergy promotes social and environmental sustainability, fosters competitiveness in European value chains, and facilitates knowledge exchange between academia, industry, and research institutions. As the main conclusions of the external evaluation report highlight ²⁴, EIT InnoEnergy's strategic, operational and financial sustainability practices underscore its mission-driven focus and impact-driven investment strategy. Overall, the KIC's efforts are aligned with its goal of advancing the energy transition and creating a more sustainable world.

EIT InnoEnergy has also identified several economic long-term impact goals. These are defined in the EIT Impact Framework 2022-2027 as follows:

- contribution to the revenue growth of organisations trading or employing innovations developed with the KIC support;
- the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceases;
- new jobs created in start-ups and scale-ups;
- the impact on employment growth as a result of companies being engaged with KICs;
- the number and type of jobs in existing businesses sustained through innovations;
- the number and type of skill gaps and/or skill shortages filled by KIC sector;
- new visible innovation ecosystems;
- the share of indicated innovation ecosystems that covers RIS countries ²⁵.

¹⁹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p.50.

²⁰ Deloitte and White Research, Final review EIT InnoEnergy (2023), p.52.

²¹ Deloitte and White Research, Final review EIT InnoEnergy (2023), pp. 50-51.

²² Deloitte and White Research, Final review EIT InnoEnergy (2023), pp. 51-52.

²³ [EIT InnoEnergy Impact Report 2022](#)

²⁴ Deloitte and White Research, Final review EIT InnoEnergy (2023), p.9.

²⁵ EIT Impact Framework 2022-2027, pp. 7-11.

EIT InnoEnergy has also performed very well in economic-impact KPIs ²⁶. By 2022, the KIC had created 39 112 direct and indirect jobs ²⁷, surpassing the target of 30 000 set for 2025 in the KIC's 2021-2027 Strategic Agenda. EIT InnoEnergy has driven sustainable energy innovation to such an extent that it now aims for a market value of EUR 390 billion by 2025 ²⁸.

Employment outcomes for EIT-labelled education programme graduates have been noted ²⁹. For example, 50 000 learners were trained by the end of 2023 for the battery value chain with EIT label non-degree programmes and over 32 000 professionals have been reskilled. Over 4 million jobs have been created as part of the battery industry value chain ³⁰.

The revenue generated by supported start-ups shows mixed results ³¹. Based on a survey conducted for the external evaluation ³², six respondents reported no revenue growth directly linked to the KIC's support, four respondents reported minimal revenue growth of less than 5%, and 19 respondents reported revenue growth of between 5% and more than 50%. While some saw substantial revenue growth, others experienced minimal to no growth. Factors such as how effectively the funding is utilised, market conditions, and the start-up's own strategy and execution likely contribute to these differences in outcomes. Moreover, the survey responses show that 10 start-ups did not sustain any jobs as a result of their involvement with the KIC. However, 19 entities were able to sustain jobs, with eight respondents reporting that they sustained 10 or more jobs. In addition, the data from the survey also indicates that 19 respondents believe that the involvement with EIT InnoEnergy has helped fill skill gaps and/or shortages, while three respondents disagreed, and seven were unsure. Among the skill gaps and shortages that were addressed as a result of engagement with EIT InnoEnergy, entrepreneurship skills and competencies appear to be the most prominent.

When it comes to the education long-term impact on career growth of participants in EIT-labelled programmes, there appears to be a general trend of graduates not moving from internships to more stable and advanced roles, with a reasonable number of individuals maintaining their positions within entry-level, intermediate and executive levels. The stability in senior staff is a good sign. However, individual circumstances and external factors can greatly influence these trends, and further insights could be gained by considering factors such as industry, location and economic conditions ³³.

According to the EIT InnoEnergy Impact Report from 2022, 94% of students are employed within 6 months of graduation ²⁴ and according to the EIT Impact Report for 2023, it takes 2.5 months on average to start a job after graduation. In addition, 83% of graduates are employed in Europe and eight EIT InnoEnergy alumni have been listed in the Forbes 30 under 30 list.

In conclusion, according to the external evaluation ³⁴, EIT InnoEnergy's impact is multifaceted, with varying outcomes across different aspects. The data underscores the importance of tailoring support and strategies to the unique needs of start-ups and actors in the knowledge triangle within the sector, e.g. start-ups, industry, universities, etc. to maximise positive effects on revenue, employment, skills, and career development.

²⁶ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 10.

²⁷ EIT InnoEnergy Impact Report 2022.

²⁸ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 10.

²⁹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 10.

³⁰ EIT InnoEnergy Impact Report 2022, p.26.

³¹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 10.

³² Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 53.

³³ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 60.

³⁴ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 61.

2. Additionality

Table 2 provides the basic financial figures for EIT InnoEnergy since it started operating in 2010. EIT InnoEnergy was able to achieve a direct leverage factor ³⁵ of 0.38 in 2010-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.62 (if one adds revenues created through KIC activities (EUR 454 million vs the EIT grant of EUR 738 million).

Table 2: EIT InnoEnergy financial figures (in EUR million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	6,2	21,7	32,3	40,5	52,6	67,3	71,6	75,9	80,8	89,7	88,4	38,6	47,6	25,2	738,3
Co-funding	0,0	5,8	10,3	8,1	6,4	9,5	11,5	8,1	7,5	17,8	25,4	50,2	79,6	42,6	282,7
Revenues							4,3	4,9	11,0	18,7	23,8	34,8	33,0	41,1	171,7
Activities not funded by EIT	20,4	54,4	73,4	186,6	311,5	254,2	227,8	385,9	134,6	61,3	135,8	3,9	11,9	91,7	1953,4
Co-investment, i.e. investments attracted by start-ups								32,0	20,1	1416,3	662,4	690,2	516,3	2387,5	5724,7

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from three-year business plans.

In terms of leverage effects for the EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KICs activities, but also through the activities not funded by the EIT ³⁶ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT InnoEnergy achieved a leverage factor of 3.26 in 2010-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 5.7 billion) are also included, the leverage factor raises to 11 over the period of EIT InnoEnergy's lifecycle to date. This means that for every euro of EIT funding spent, EIT InnoEnergy's activities have helped to attract EUR 11 in external investment.

The partnership provides significant added value in various ways, helping to achieve the European Green Deal objectives. EIT InnoEnergy provides: i) market intelligence; ii) access to key players and commercially viable technologies; iii) advice on technical and business matters; iv) insights on new regulations; v) access to training and skills development; and above all, vi) business support for start-ups, giving them access to finance for growth and own equity investments, which also makes it an important venture capital firm. EIT InnoEnergy reports that its portfolio of investments comprises 200 companies and that it is ranked among the most active investors in the energy and transportation sectors in Europe.

Additionality can also be attributed to the investments (both public and private) attracted by EIT InnoEnergy's beneficiaries and partners. Over the last four years, a small set of very large investments stand out. At the same time, there is a broad spread of investments across countries, which underlines the impact of EIT InnoEnergy's services and investments in terms of value creation. Likewise, large sums of co-funding provided to partners for the KIC's activities could be achieved, mainly in innovation-intensive countries like France, Germany, Sweden and the Netherlands. But in other countries, like Latvia, high leverage factors in terms of attracted co-funding have been documented.

³⁵ Ratio of direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(funding rate))-1.

³⁶ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to the KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

In addition, EIT InnoEnergy creates significant added value through its established structures and networks, e.g. the European Battery Alliance. For firms involved in its activities, the European Battery Alliance provides valuable opportunities for networking and has a knowledge centre that provides a broad perspective of the whole battery value chain across the EU. Such a perspective allows firms and other stakeholders to make investment decisions in a better-informed manner.

Significantly, EIT InnoEnergy is also active in the US, which enables projects to be set up abroad. This is of value for start-ups and innovators who appreciate the access to finance as well as to a global network and other forms of support ³⁷.

3. Transparency and openness

According to the external evaluation report ³⁸, EIT InnoEnergy adheres to the EIT's Good Governance Principles, ensuring operational transparency and openness to new members, through open calls, transparent processes and making relevant documents available to ensure stakeholder awareness and participation. The KIC's openness to new members is indicated by the strong increase in the number of associate and project partners over time as well as the high number of members within industrial alliances ³⁹. However, project evaluations could be improved by considering further rules on data protection, ethics, and diversity ⁴⁰. While EIT InnoEnergy encourages new partners to join the partnership, it now prioritises well-established, promising projects, adopting a profit-oriented and risk-averse approach.

EIT InnoEnergy's impact on the European energy landscape is driven by its extensive ecosystem. Its network covers 23 EU Member States and includes key stakeholders across the energy value chain, with a diverse range of organisations at European and national levels, including EU institutions, governmental bodies, industries, universities and SMEs, which represent half of the partnership. The KIC has succeeded in integrating the knowledge triangle of education, research and business. However, there has been a shift towards greater representation from industry partners, leading to an imbalance. Recognising this imbalance as a challenge, EIT InnoEnergy plans to address it in the future ⁴¹.

EIT InnoEnergy has over 1 200 associate and project partners, including several partners from RIS countries. These partners include shareholders and project partners that are aligned with the KIC strategic objectives in the energy sector, focusing on innovation, sustainability and the UN Sustainable Development Goals (SDGs). The European Battery Alliance, led by EIT InnoEnergy, brings together more than 800 industrial and innovation actors. EIT InnoEnergy has been effective in integrating RIS countries into its strategy, allocating significant resources to these regions. However, there are concerns about the financial sustainability of the RIS hubs after the KIC Partnership Agreement ends ⁴². The network, with its strong emphasis on SMEs, has had a positive impact on the KIC's targets. As of October 2024, the number of SMEs that take part in implementing the EIT grant agreement for 2023-2024 reached over 36% of all

³⁷ Partnership evaluation report – EIT InnoEnergy (2024) pp. 31-32.

³⁸ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 99.

³⁹ Partnership evaluation report - EIT InnoEnergy (2024), p. 38.

⁴⁰ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 98.

⁴¹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 99. NB. the cap table in Q3 of 2023 (after six new partners were added) shows that universities and RTOs (Research and Technology Organisations) still own 40% of InnoEnergy, as noted in the EIT Governing Board Rapporteur visit report of 2023. In October 2024, the KIC reported that it is exploring: i) geographic expansion of academic partnerships; ii) continuity of a strategy and business model where education plays a central role; and iii) ways to capitalise on its Skills Institute (the host of its two accompanying academies: Battery and Solar PV).

⁴² Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 99.

active partners with EUR 8.3 million going to SMEs, which represents 16% of the total EIT grant ⁴³.

When it comes to transparent consultation processes, EIT InnoEnergy conducts outreach activities to create links with other European countries not currently in the partnership, especially widening countries ⁴⁴. End users and the private sector, particularly SMEs, are targeted with public consultations, open dialogues, city panels, webinars, etc. Regular open brokerage events are organised for stakeholders and potential beneficiaries. Activities such as matchmaking events, the annual business booster event, the Battery 2030+ conference, and other events organised by industrial alliances are announced on the website and are highly valued by stakeholders.

In terms of transparency, the partnership has a well-established online presence, providing an overview of its vision, objectives, governance and main activities ⁴⁵. Transparency could be improved by providing clearer data on the partnership's shareholder structure and updated performance metrics.

4. Efficiency

Table 3 sets out EIT InnoEnergy's operational budget and administrative expenditures (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditures paid from the EIT grant. This does not include the contribution from EIT InnoEnergy partners.

Table 3: EIT InnoEnergy's operational and administrative expenditures

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Operational Expenditures	49 836 574 €	66 960 109 €	72 984 993 €	73 238 810 €	79 499 385 €	97 414 780 €	108 195 737 €	88 271 287 €	115 556 540 €
Running Costs	12 205 152 €	10 848 599 €	11 156 683 €	11 490 685 €	10 988 960 €	11 471 589 €	10 821 283 €	891 273 €	11 642 514 €
Total budget	62 041 726 €	77 808 708 €	84 141 676 €	84 729 495 €	90 488 345 €	108 886 369 €	119 017 020 €	89 162 560 €	127 199 054 €

Source: EIT financial data reported by KICs and validated by the EIT.

Table 3 indicates that the running costs covering EIT InnoEnergy's headquarters and co-location centres (CLCs) for 2014-2022 ranged between 9.1% and 19.6%, with an average of 10.8%. When considering only the period of Horizon Europe (2021-2022), these costs constituted 5% of the overall operational costs.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to KICs, set maximum thresholds for the EIT-funded share of the KIC's administrative costs, depending on the KIC's maturity. The values range from 18% and 15% in the first and second years of a KIC, respectively, to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and in regions, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

⁴³ During the implementation of the 2023-2025 EIT grant agreement, the grant committed to SMEs and the number of SMEs, and their participation can still increase in the upcoming months and next year because EIT InnoEnergy still has calls to open and new projects to sign.

⁴⁴ Widening countries are less performing in terms of research and innovation with respect to the EU-27 average.

⁴⁵ Partnership evaluation report – EIT InnoEnergy (2024) p. 34.

One lesson learned from the evaluation of EIT InnoEnergy is that it is very important that the partnership has very stable management and leadership. According to interviewees, EIT InnoEnergy is perceived as an EIT success story and, supervised by EIT Headquarters, it now serves as a role model for other KICs. During the partnership's dynamic transformation process, whereby it fostered its business orientation, the management and leadership helped keep EIT InnoEnergy's business strategy consistently directed towards financial sustainability. However, the partnership still lacks a gender balance in managerial positions.

EIT InnoEnergy, the most business-oriented of the EIT KICs, has achieved a high level of financial sustainability, implying a high level of cost-effectiveness. In terms of project implementation, EIT InnoEnergy shows considerable flexibility. The partnership adapted its activities quickly to internal developments, such as its organisational transformation reducing its dependence on public funds and external developments, such as the REPowerEU plan, and a shift in policy priorities. Despite the changing needs of the market and a changing political landscape, interviewees stressed their satisfaction with the efficient administration of the partnership. While interviewees described EIT InnoEnergy's regional innovation hubs and education activities as successful in terms of the social value created, some expressed concerns about some of these activities possibly being discontinued due to a lack of direct financial returns and EU funding ⁴⁶.

5. Coherence and synergies

The main conclusion from the external evaluation report ⁴⁷ is that EIT InnoEnergy has consistently played a vital role in contributing to and shaping the European energy landscape. It has aligned itself with key initiatives such as the clean energy package, the European Green Deal and Horizon Europe, actively participated in energy policy development and promoted sustainability and innovation.

The KIC is proactively building numerous synergies and complementarities with various EU programmes and global initiatives. In particular, it has successfully engaged with prominent EU institutions, including the European Investment Bank (EIB), the European Investment Fund (EIF) and the European Innovation Council (EIC) ⁴⁸.

The alignment of EIT InnoEnergy with EU policies is evident. It has been involved in the evolving landscape of energy policies and initiatives within the EU. The launch of the European Green Deal, the COVID-19 pandemic, and the subsequent Recovery Plan for Europe in 2020 have all shaped the dynamics in the EU energy sector. The European Green Deal, aiming to make Europe the first climate-neutral continent, resonates well with EIT InnoEnergy's objectives. EIT InnoEnergy aligns itself with the ambition of the European Green Deal by contributing directly to activities in seven out of eight priority areas, including reducing greenhouse gas emissions, promoting clean and secure energy, and boosting industrial growth. Also, the Recovery Plan for Europe, which links economic recovery with the green and digital transitions and makes the European Green Deal its cornerstone, is closely aligned with the EIT InnoEnergy's objectives ⁴⁹.

Moreover, the KIC pursues strong collaborations with relevant actors in the European Commission, joint technology initiatives, energy intensive industries and the European Energy Research Alliance. The type of EIT InnoEnergy's activities and their focus can be clearly

⁴⁶ Partnership evaluation report – EIT InnoEnergy (2024), p. 37.

⁴⁷ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 67.

⁴⁸ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 67.

⁴⁹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 66.

distinguished from activities carried out under other parts of the Framework Programme. The KIC was identified as the preferred ‘market uptake’ promoter in the communication package of the Strategic Energy Technology Plan in September 2015 ⁵⁰.

In addition, EIT InnoEnergy contributes to the Clean Energy for all Europeans Package, actively participating in the practical implementation of this transformative energy revolution. The significance of these pursuits extends to the Mobility package, which addresses critical measures for promoting clean mobility. EIT InnoEnergy also aligned with the revision of the Renewable Energy Directive and the Energy Efficiency Directive, which involves upgrading emission reduction targets for 2030, from 40% to 55%.

EIT InnoEnergy supports the EU’s industrial policy and focuses on industries of strategic importance for Europe. According to the external evaluation findings ⁵¹, interviewees described EIT InnoEnergy as a pioneer in setting up industrial alliances. Positioned as a pivotal contributor to the Green Deal, the KIC plays a core role in advancing strategic value chains, particularly in batteries, photovoltaics and green hydrogen. Indeed, EIT InnoEnergy has been mandated to run the European Battery Alliance (EBA) and the European Solar Photovoltaic Industry Alliance and is a driving force behind the European Green Hydrogen Acceleration Centre (EGHAC) ⁵². EIT InnoEnergy’s role in the EBA is to provide background data and set out key questions, recommendations and actions. EIT InnoEnergy has also helped establish a European battery ecosystem by holding EBA workshops, a meeting place for key stakeholders along the entire value chain ⁵³. The EBA Academy offers training and development for workers, employers and communities ⁵⁴. Moreover, the EGHAC was set up by EIT InnoEnergy and Breakthrough Energy. It aims to build a EUR 100 billion-a-year green hydrogen economy by 2025. Its most urgent priority is to close the price gap between carbon-emitting technologies and green hydrogen. In addition, the European Solar Initiative aims to redevelop a strong photovoltaic (PV) manufacturing industry in Europe across the entire value chain, from raw materials to recycling. EIT InnoEnergy is joined by SolarPower Europe and the European Solar Manufacturing Council on the alliance’s steering committee. The alliance aims to accelerate solar PV deployment in the EU by scaling up to 30 GW of annual solar PV manufacturing capacity in Europe by 2025, facilitating investment, derisking sector acceleration and helping achieve EU decarbonisation targets.

When it comes to synergies with other European partnerships and missions within Horizon Europe, the EIT KIC community is clearly very active, as highlighted in the 2024 Biennial Monitoring Report 2024 ⁵⁵. EIT InnoEnergy’s main focus of cooperation has been on climate neutrality and intelligent cities, as well as batteries and solar initiatives. These initiatives, including the EBA Academy, are also aligned with EU-funded projects, such as the Blueprint Alliances ALBATTIS (training development for battery production) under the Erasmus+ programme, and the DRIVES project (training development for car production) under the European Social Fund ⁵⁶.

⁵⁰ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 65.

⁵¹ Partnership evaluation report – EIT InnoEnergy (2024), p. 25.

⁵² Partnership evaluation report – EIT InnoEnergy (2024), p. 25.

⁵³ The EBA’s goal is to build a strong pan-European battery industry to capture a new market worth EUR 250 billion a year in 2025. EBA is an independent meeting place: more than 700 members throughout the value chain have joined EBA. The members come from the industrial, academic, and financial worlds, from mining to recycling. Partnership evaluation report – EIT InnoEnergy (2024), p. 22.

⁵⁴ Partnership evaluation report – EIT InnoEnergy (2024), p. 24.

⁵⁵ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

⁵⁶ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 67.

The KIC's synergy-driven relationships – also within the EIT itself – underscore its commitment to producing positive societal and economic impacts in line with the broader objectives outlined in the EIT's Strategic Innovation Agenda. In collaboration with EIT Raw Materials, the KIC supports the Commission in implementing the EU raw materials strategy. This involves focusing on raw materials for batteries and other critical components, as well as coordinating efforts with relevant entities like the European Commission, the EIF, and the European Bank for Reconstruction and Development. Furthermore, the EIT KICs have established several EIT Community initiatives, thereby forging synergies with other KICs. EIT InnoEnergy is involved in various cross-KIC cluster activities including shared services, strategic education, strategic regional innovations and strategic synergies, including artificial intelligence, as well as access to finance. At the same time, there is room for improvement. In particular, EIT InnoEnergy's strategic approach to planned synergies is not explicitly detailed in its latest Strategic Agenda for 2021-2027. Also, the collaboration with EIT Climate-KIC and EIT Digital needs to be strengthened, following a thorough mapping of activities to support progress towards financial sustainability⁵⁷.

Under Horizon Europe, EIT InnoEnergy has successfully created synergies between Pillar III (Innovative Europe) and Pillar II (Global Challenges and European Industrial Competitiveness), primarily in Cluster 5: Climate, Energy and Mobility where there is a close thematic connection.

6. EU added value

According to the external evaluation report⁵⁸, EIT InnoEnergy has become a significant player and highly regarded participant in EU policies. As a pivotal collaborator, the KIC is assuming various roles: i) it has positioned itself as grant recipient; ii) it is a beacon of insightful thought leadership; iii) it acts as a catalyst for risk reduction in project pipelines; and it performs as a facilitator of deal flow.

In particular, the KIC has successfully created significant European added value through its activities for critical industrial value chains, such as the EBA, the EGHAC, and the EU Solar PV Industry Alliance. Through these initiatives, the KIC spearheads the creation and growth of new markets. For example, in the battery sector, when the EBA was initiated in 2017, Europe held a marginal position in production. By 2022, Europe's investment in batteries amounted to EUR 160 billion, resulting in substantial growth⁵⁹. EIT InnoEnergy also plays a role in reskilling and upskilling the labour force. An example is the recently launched InnoEnergy Skills Institute, that builds on the EBA Academy and a European master's programme made up of seven thematic programmes that are set up in collaboration with partner universities. These educational programmes are run across Europe on a commercial basis and have gained substantial recognition. They are also widely considered a breeding ground for young entrepreneurs in the field⁶⁰.

Furthermore, the KIC stands as a reputable and effective innovation ecosystem and powerhouse in Europe: EIT InnoEnergy has cultivated a network of over 1 400 partners and affiliated entities spanning academia, research, industry, investors (both equity and debt) and regulatory bodies. The substantial leverage of this trustworthy ecosystem empowers EIT InnoEnergy to increase start-up success rates, step up the expansion of scale-up businesses, and assist strategic

⁵⁷ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 67.

⁵⁸ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 33.

⁵⁹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 33.

⁶⁰ Partnership evaluation report – EIT InnoEnergy (2024), p. 31.

stakeholders in reducing the risks associated with their innovation strategies. The intrinsic value of this pan-European ecosystem was appraised at over EUR 1 billion by Start-up Genome⁶¹.

EIT InnoEnergy has created added value beyond what could be achieved through national or regional support: it provides a stamp of approval for large-scale investors and contributes to effective commercialisation within a pan-European context. Therefore, according to the external evaluation report⁶², the partnership enables the scaling up of investments, clearly going beyond the regional and national level, and enables knowledge circulation and transfer to increase. According to interviewees consulted for the external evaluation⁶³, the established partnership structure and its systemic approach enable EIT InnoEnergy to be very quick in implementing its wide-ranging activities in the field of investments, education, business creation and acceleration, as well as innovative projects. On such a big scale, this European network is unique.

Moreover, EIT InnoEnergy focuses on supporting innovation and entrepreneurship in RIS countries through the EIT RIS, therefore expanding its successful innovation ecosystems to less innovative countries and regions. Since 2021, the KIC has continued its impactful work by launching several education activities and innovation projects across many RIS countries, furthering the EIT's objective, and contributing to Europe's innovation ecosystem⁶⁴.

7. Relevance

According to the external evaluation findings⁶⁵, EIT InnoEnergy has proven to be highly relevant for the objectives of Horizon Europe and EU priorities, in particular contributing to the European Commission Green Deal and the UN SDGs on energy, climate, sustainability and economic growth, therefore driving innovation and transformation in the area of sustainable energy across Europe.

As stated in Chapter 5, EIT InnoEnergy contributes to activities under several priority areas of the Green Deal. The EU 2030 Climate Target Plan is linked to the activities of EIT InnoEnergy and underlines the relevance of the KIC's objective on achieving the EU ambition to reduce greenhouse gas emissions to at least 55% below 1990 levels by 2030 and achieve climate neutrality by 2050. Moreover, EIT InnoEnergy's activities are strongly aligned with the measures under the REPowerEU plan, which respond to the urgency of ending the EU's dependence on Russian fossil fuels and tackling the climate crisis. They include energy savings, diversification of energy supplies and accelerated roll-out of renewable energy. EIT InnoEnergy follows a systemic approach embedded in a long-term strategy that addresses the societal challenges outlined in the high-level policy objectives of the Paris Agreement on Climate Change (2015) and the 2030 Agenda for Sustainable Development (2015), as described in EIT InnoEnergy's 2021-2027 Strategic Agenda⁶⁶.

Another reason why EIT InnoEnergy is relevant is that it continues to tackle major structural weaknesses in the innovation capacities in the EU, such as the limited entrepreneurial culture, a low level of cooperation between industry and academia, and insufficient development of people's skills and human capital⁶⁷.

⁶¹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 33.

⁶² Partnership evaluation report – EIT InnoEnergy (2024), p. 30.

⁶³ Partnership evaluation report – EIT InnoEnergy (2024), p. 30.

⁶⁴ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 97.

⁶⁵ Partnership evaluation report – EIT InnoEnergy (2024), p. 23.

⁶⁶ Partnership evaluation report – EIT InnoEnergy (2024), p. 24.

⁶⁷ Partnership evaluation report – EIT InnoEnergy (2024), p. 23.

The KIC has made significant progress in boosting economic growth, increasing innovation capacity, and promoting innovation and entrepreneurship. However, it recognises areas for improvement and is taking initiatives to strengthen its alumni network. The KIC remains committed to stepping up education, supporting start-ups, and enriching the innovation landscape while addressing challenges in order to create a sustainable future. Through its data-driven approach, it makes a positive impact overall across economic, social, and environmental dimensions, tackling societal challenges such as climate change and sustainable energy ⁶⁸.

As regards flexibility, EIT InnoEnergy has significantly transformed from being 100% based on public funds towards being a strategic investor in clean tech start-ups. It has updated its 2021-2027 Strategic Agenda accordingly ⁶⁹.

8. Directionality

According to the external evaluation ⁷⁰, EIT InnoEnergy contributes very strongly towards meeting EU objectives in priority areas. The partnership has reached its investment targets in line with both the European Commission Green Deal and the resilience objectives. By contrast, 30% of the partnership's planned investments are reported as relevant for the EU digitalisation objectives – a target that was fully reached in H2020, and already one third of the Horizon Europe target has been reached.

EIT InnoEnergy's partnership activities are clearly helping achieve that objectives set, therefore delivering results for the EU citizens. EIT InnoEnergy consistently implements the EIT strategy in order to play an integrative role in the knowledge triangle (education, research and business) and follow a dedicated business direction at the same time. EIT InnoEnergy considers the energy autonomy of the EU a core aspect of overall strategic autonomy and technological sovereignty. Securing the green transition is considered paramount for the EU's long-term competitiveness. In this vein, the partnership identifies and creates champions on a European scale, which enables ecosystems to be subsequently created. Furthermore, the geographical distribution of EIT InnoEnergy's partners span almost all EU Member States while the partnership's outreach extends to the US, Israel and Türkiye ⁷¹.

9. International positioning

The activities of EIT InnoEnergy's partnership are mainly focused on Europe, since most stakeholders are European, and the partnership's overall objective and vision is to create jobs and boost innovation in Europe. While under Horizon 2020, the partnership did not envisage any outreach activities overseas, under Horizon Europe it plans to invest 0.5% of its total budget on collaboration outside Europe. According to the external evaluation ⁷², the perception of interviewees is that EIT InnoEnergy significantly supports European industry as regards dealing with worldwide competition. This is substantiated most prominently in its industry alliances, the EBA and the Solar PV Industry Alliance.

EIT InnoEnergy participates in the EIT Global Outreach Programme's ⁷³ activities and the Strategic Regional Innovations (SRI) ⁷⁴. The Programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global

⁶⁸ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 97.

⁶⁹ Partnership evaluation report – EIT InnoEnergy (2024), p. 24.

⁷⁰ Partnership evaluation report – EIT InnoEnergy (2024), p. 32.

⁷¹ Partnership evaluation report – EIT InnoEnergy (2024), p. 32.

⁷² Partnership evaluation report – EIT InnoEnergy (2024), p. 33.

⁷³ <https://go-eit.eu/>.

⁷⁴ <https://eit-ris.eu/>.

innovation leaders and creating significant value for the European economy as well as local ecosystems. The Programme currently comprises established and successful EIT hubs in Silicon Valley (USA) ⁷⁵; Tel Aviv (Israel) ⁷⁶ and London (UK) ⁷⁷. Under the SRI, activities are currently being developed in the Western Balkans, in Türkiye and in Ukraine. These will in the future expand to Moldova and potentially Georgia, in line with the EU's enlargement policy priorities.

EIT InnoEnergy has a prominent internationalisation strategy, which involves participating in international industry alliances outside the EU, international education programmes and international matchmaking events. EIT InnoEnergy actively looks for connections and gains international visibility through its diverse range of international activities, and through its innovation hubs and offices, for example its US office in Massachusetts. The success stories of various start-ups and the possibility to work with global brand names increase the partnership's visibility and attractiveness for new stakeholders ⁷⁸. The KIC's success and the involvement of internationally recognised European industries as shareholders have also substantially helped increase international visibility ⁷⁹. Focus is given to countries that play a critical role in the strategic value chains linked to the three European industrial alliances in batteries, green hydrogen and solar PV ⁸⁰.

Furthermore, EIT InnoEnergy also supports start-ups that have a more international focus and that target international markets.

10. Phasing-out preparedness

The EIT Regulation ⁸¹ defines 'financial sustainability' as the EIT KICs' capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal through by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT funding. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

Therefore, financial sustainability has been a priority for EIT InnoEnergy since it was established. According to the external evaluation report ⁸², the EIT InnoEnergy partnership is well prepared financially for phasing out EIT funding as the KIC has achieved a high level of financial sustainability.

The EIT InnoEnergy partnership's activities consist of investment activities, educational activities (such as the EIT InnoEnergy Master School, career services and the InnoEnergy Skills Institute), ecosystem services (networking activities and facilitation of knowledge streams, e.g. through regional hubs), and industry alliances (focused particularly on batteries, hydrogen and solar PV).⁸³ EIT InnoEnergy underwent a transformation process from being based 100% on

⁷⁵ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁷⁶ <https://go-eit.eu/eit-israel-hub/>.

⁷⁷ <https://go-eit.eu/eit-uk-hub/>.

⁷⁸ Partnership evaluation report – EIT InnoEnergy (2024), p. 37.

⁷⁹ Partnership evaluation report – EIT InnoEnergy (2024), p. 36.

⁸⁰ Partnership evaluation report – EIT InnoEnergy (2024), p. 37.

⁸¹ In particular, Article 2, (16) and Article 6 (i). [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#).

⁸² Partnership evaluation report – EIT InnoEnergy (2024), p. 35.

⁸³ Partnership evaluation report – EIT InnoEnergy (2024), p. 38.

public funding to becoming a strategic investor, while providing supplementary services and additional activities.⁸⁴

Overall, the partnership's portfolio of activities creates systemic value (the Master School and the EIT InnoEnergy Skills Institute, ecosystem services and industrial alliances). However, according to interviewees, some of the activities (such as ecosystem services, especially in eastern Europe) lack direct financial returns.⁸⁵ While interviewees described both EIT InnoEnergy's regional innovation hubs and education activities as successful in terms of the social value that is created, some expressed concerns about their possible discontinuation once EIT funding ends.⁸⁶

Even if the partnership appears to be well prepared for the phasing-out of EIT funding, developing a clear strategy for continuing and financing some of the partnership's activities that are perceived as valuable for the ecosystem (but not as financially sustainable) is critical considering the strong business orientation of the partnership.⁸⁷ The EIT Consolidated Annual Activity Report for 2020 stated that EIT InnoEnergy risks becoming exclusively commercially focused without continuing its other activities that address knowledge triangle integration. For example, the PhD programme was not financially sustainable and was therefore discontinued.⁸⁸

Overall, EIT InnoEnergy has successfully fulfilled the EIT's requirements for financial sustainability and is well-positioned to remain sustainable even after the end of the EIT's support.⁸⁹ As described in Chapter 1, EIT InnoEnergy has experienced impressive growth in revenue over the years. This growth reflects the KIC's ability to generate financial assets contributing to its financial sustainability.⁹⁰ The EIT has recognised and commended the KIC for its remarkable performance in this regard, characterising it as a continuously growing entity with a strong financial sustainability outlook.⁹¹ The use of the financial sustainability coefficient, which measures the KIC's ability to attract revenues and other financing sources, indicates that EIT InnoEnergy has not only met but exceeded its target, underscoring its effective financial management.⁹²

EIT InnoEnergy's intellectual property (IP) policy is well-structured and plays a crucial role in protecting and leveraging outcomes from innovations within its ecosystem, aligning with the EIT's aim to boost the EU's competitiveness and innovation capacity. The KIC's IP policy is characterised by 14 principles that apply to all its activities, ensuring proper management and dissemination of IP rights.⁹³

EIT InnoEnergy's planned co-funding rates have been reported and are perfectly aligned with the specified targets. This commitment to maintaining appropriate co-funding rates underscores the KIC's strategic financial management, aligning with its long-term sustainability goals as outlined by the EIT⁹⁴.

⁸⁴ Partnership evaluation report – EIT InnoEnergy (2024), p. 38.

⁸⁵ Partnership evaluation report – EIT InnoEnergy (2024), p. 39

⁸⁶ Partnership evaluation report – EIT InnoEnergy (2024), p. 39

⁸⁷ Partnership evaluation report – EIT InnoEnergy (2024), p. 39

⁸⁸ Partnership evaluation report – EIT InnoEnergy (2024), p. 39

⁸⁹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 17.

⁹⁰ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 17.

⁹¹ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 17.

⁹² Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 17.

⁹³ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 17.

⁹⁴ Deloitte and White Research, Final review EIT InnoEnergy (2023) p. 17

Overall, EIT InnoEnergy's strong financial performance and robust IP policy position it well for future growth and sustainability.⁹⁵

Looking ahead to 2025-2027, memoranda of cooperation (MoCs) were signed in 2024 by the EIT with first-wave KICs. Under the MoCs, KICs (including their partner organisations) agreed to continue to undertake knowledge triangle integration activities aligned with their Strategic Agendas and thus with the EIT Strategic Innovation Agenda, independent of contributions from the EIT. However, for those activities which could be discontinued because they typically do not bring in revenues for the KICs but rather involve costs (i.e. some education and training or RIS activities), the EIT may decide to allocate a smaller and clearly earmarked grant for 2025.

⁹⁵ Deloitte and White Research, Final review EIT InnoEnergy (2023), p. 95.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 26: Evaluation of EIT Manufacturing

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Manufacturing Knowledge and Innovation Community (the ‘KIC’ or ‘EIT Manufacturing’) was established in 2019 as part of the fourth wave of EIT KICs and in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. Its first operational activities and calls were launched in 2020. EIT Manufacturing was established to develop a competitive and sustainable manufacturing production in the European Union and to lead manufacturing innovation globally. To achieve its objective, for the 2019-2023 period, EIT Manufacturing received an EIT grant of EUR 149 million.

EIT Manufacturing’s partnership network includes stakeholders representing the entire manufacturing product lifecycle. It has more than 200 partners, including leading industry players, universities and research institutes.

Objectives and achievements

EIT Manufacturing’s 2021-2027 Strategic Agenda² set the following five objectives are: (1) competitive manufacturing skills and social sustainability; (2) powerful manufacturing innovation ecosystems; (3) globally competitive and resilient manufacturing; (4) environmentally sustainable manufacturing; and (5) manufacturing fit for the digital age. However, the Strategic Agenda was revised in July 2024 and, the number of strategic objectives was reduced to three: (1) put people at the centre of manufacturing, (2) accelerate green manufacturing and (3) foster sovereignty and competitiveness.

EIT Manufacturing ensures consistency between its Strategic Agenda and the EU’s policy priorities, including the European Green Deal, the New Circular Economy Action Plan and A Europe Fit for the Digital Age. In line with the Next Generation EU recovery plan, EIT Manufacturing supports manufacturing industry in developing a humancentric, sustainable and resilient approach. The KIC is thus and fully aligned with Horizon Europe and the European Commission’s top priorities.

All these strategic objectives are implemented and the results are delivered by the knowledge triangle integration concept, which brings together education, science and business. The EIT Impact Framework has defined several key performance indicators (KPIs) for the KICs activities in innovation, business creation and education. Table 1 shows EIT Manufacturing’s achievements in terms of KPIs for 2020-2023.

¹ [Regulation \(EU\) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology](#) replaced the original regulation, Regulation (EC) No 294/2008.

² [EIT Manufacturing’s revised Strategic Agenda 2021-2027](#).

Table 1: EIT Manufacturing KPI 2020-2023; targets (T) and achieved results (A)

	2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A
Innovations launched on the market	28	15	60	72		22	88	109
Designed/Tested innovations*			21	55		21	21	76
KIC Supported Start-ups/Scale-ups	30	62	301	471	73	332	404	865
Start-ups created of/for innovation	4	1	18	36		3	22	40
Start-ups created of EIT labelled MSc/PhD programmes	0	0	0	0	0	0	0	0
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)	0	0	13,3	68	22	45,8	35,3	113,8
Graduates from EIT labelled MSc/PhD programmes	0	0	0	0	111	26	111	26
Participants in (non-degree) education and training*			642	10555	2566	16302	3208	26857

* KPI reported only from 2021 (designed/tested innovations reports on IPR applications).

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT).

EIT Manufacturing only started operating in 2020, so it is difficult to assess its contribution to achieving the strategic objectives at this point in time. A very positive trend can nevertheless be observed in the KIC's performance in 2021-2023 with most targets met, as shown in Table 1. As the external evaluation highlighted ³, although it can be argued that the targets set seem quite modest, the KIC has managed to overperform in some areas, surpassing expectations for a KIC in its start-up phase.

In particular, EIT Manufacturing has performed well in the entrepreneurial activities and business creation KPIs. From 2020 to 2023, there was a remarkable growth in the number of KIC-supported start-ups and scale-ups to a total of 865 supported companies, more than double the target of 404. EIT Manufacturing similarly demonstrated its ability to attract investment in 2021-2023, achieving over EUR 113 million, more than triple the target of EUR 35,3 million.

When it comes to innovation activities, the KIC has supported the creation of 40 new start-ups, almost double the target of 22. Table 1 shows that particularly good progress was made in 2021-2022, when 36 companies were created (as opposed to just 1 in 2020 and 3 in 2023). In addition, between 2020 and 2023, EIT Manufacturing launched 109 products and services onto the market, exceeding the target of 88, and designed and/or tested 76 innovations also over the target of 21.

Nevertheless, as regards the education activities, EIT Manufacturing has failed to reach some targets. According to the external evaluation study ⁴, the KIC has managed to create education programmes and trainings specifically designed for businesses. As shown in Table 1, the KIC has supported 26 857 participants in (non-degree) education and training programmes compared with the target of 3 208. However, this has not yielded any concrete results since the number of start-ups created of such trainings is still 0. In addition, only 26 students graduated from the EIT-labelled programmes in 2023 compared with the target of 111.

³ Deloitte and White Research, *Three-year Interim Review of 4th Wave KICs: EIT Manufacturing – Final Report*, September 2023, p.55

⁴ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p.55

Long-term scientific, societal, economic and technological impacts

EIT Manufacturing has identified a number of societal long-term goals. They are defined in the EIT Impact Framework as follows:

- 1) Strong European workforce with skill levels that make the industry competitive on a global scale,
- 2) Strong female impact on the European manufacturing innovation and start-up arena,
- 3) Increased attractiveness of manufacturing as the go-to-job for creative and innovative people of all ages, gender and physical capabilities,
- 4) Attractive open, regional arenas, empowering ideas that satisfy industry needs and allow venture capital to flow into emerging and growing companies,
- 5) European industry is the global innovation hotspot for manufacturing technology and solutions and a core engine of societal growth and persistence,
- 6) Europe's manufacturing industry is a role model in circular product design,
- 7) Worldwide, Europe has the highest share of production facilities with a net-zero carbon footprint,
- 8) European manufacturing companies make extensive use of industrial data and digital business platforms and manage their supply chains and customers in digital eco-systems⁵.

As the KPIs were only introduced in 2021, the assessment focuses on the relevance of the KIC's activities in contributing to achieving these goals rather than on the extent of the impact already achieved. Since EIT Manufacturing was launched as part of the fourth wave of the EIT KICs, with its first operational activities and calls launched in 2020, the assessment of its long-term impact is challenging.⁶ A more accurate assessment of the KIC's impact will be conducted during the seven-year comprehensive review starting in 2025, as done with the first three waves of KICs. As regards the KIC's contribution to achieving a strong EU workforce that will make EU industry globally competitive, the percentage of highly qualified employees with generic and flexible skills in the manufacturing sector has reached 26%. Progress has therefore been made towards the EIT Manufacturing target of 30% by the end of 2027 (up from 24% in 2017)⁷. EIT Manufacturing contributes to the increase of a strong, European workforce through its programmes to foster innovation and promote skills development, as well as supporting initiatives that enhance the adaptability of the European workforce. By encouraging educational opportunities, supporting SMEs and driving strategic collaborations, EIT Manufacturing contributes to nurturing a skilled workforce capable of meeting the evolving demands of the manufacturing sector, making industry competitive on a global scale.

When it comes to a strong female impact on EU manufacturing innovation and start-ups, the share of female scientists and engineers aged 25-64 in the manufacturing sector reached 22% in 2022, up from the starting baseline of 20% in 2018⁸, with the aim to achieve at least 30% by 2027. EIT Manufacturing has indirectly contributed to this progress through its initiatives to promote gender diversity, support skills development and promote inclusive innovation. For

⁵ EIT Impact Framework 2022-2027, pp. 18-19.

⁶ The Three-year review report covers a very narrow set of years (2020-2022) and as it is highlighted in the report, the KIC's impact targets and achievements are still in a very early stage to be completely assessed against their original purpose. Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 50

⁷ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

⁸ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

example, EIT Manufacturing contributes to the ‘Girls Go Circular’ activity, which is an EIT Community initiative that has equipped more than 40 000 schoolgirls aged 14-19 across the EU with digital and entrepreneurial skills through an online learning programme on the circular economy. This growth reflects ongoing efforts to promote gender equality and leadership diversity in the sector. In addition, the percentage of female board members in manufacturing increased from a starting baseline of 31.2% in 2020 to 36% at the beginning of 2024⁹ – and has therefore made progress towards EIT Manufacturing’s target of over 40% by the end of 2027. Through initiatives supporting female leadership and equitable representation (e.g. the Leaders Programme, WomenTech EU and STRADA), EIT Manufacturing is continuing to push for an increased female presence in decision-making roles in management teams and board representation within manufacturing companies.

EIT Manufacturing supports the European industry to make it a global innovation hotspot by promoting innovation, improving competitiveness and enhancing the productivity of manufacturing activities, which all contribute to strengthening the sector’s share of the EU’s GDP. The share of manufacturing value added to GDP increased from a starting baseline of 14% in 2018 to 15% in 2023, which represents progress towards EIT Manufacturing’s 16% target by the end of 2027¹⁰. This reflects the manufacturing sector’s growing contribution to the EU economy.

The circular material-use rate in the manufacturing sector increased slightly from 11% in 2014 to 11.5% in 2022¹¹. Progress has been made, but this modest rise indicates a need for further efforts to promote circular practices within the sector. EIT Manufacturing is continuing to support initiatives and strategies to drive sustainable and green manufacturing and more efficient use of materials in order to boost progress towards the circularity goal and achieve a 15% circular material-use rate by the end of 2027. EIT Manufacturing has been funding innovation projects that directly target that goal over the last few years. Examples of these projects include Rheplace, which focuses on ensuring the stable quality of plastics made from recycled material, and aProMag, which produces 3D-printed magnets made from recycled material.

EIT Manufacturing contribution to a net-zero carbon footprint concretises in supporting technologies, innovations and strategies to further reduce greenhouse gas emissions within the manufacturing sector in order to achieve the EU’s climate goals. Greenhouse gas emissions in non-ETS (Emissions Trading System) industry fell by 12% in 2021, so progress has been made towards EIT Manufacturing’s target of at least 25% by the end of 2027¹². This indicates some improvement, but there is still a significant way to go. Innovation activities such as DPGSM (reduction of CO₂ emissions from the production of rebar steel for the construction industry) and Stilride (a new process for bending sheet metal that reduces the amount of steel used in car production) are having a direct impact on this long-term KPI. EIT Manufacturing has also turned to activities such as Demo4Green to support SMEs and start-ups from Regional Innovation Scheme (RIS) countries in order to bring their green technologies to the market.

EIT Manufacturing has also identified a number of long-term economic impact indicators. These are defined in the EIT Impact Framework 2022-2027 as follows:

- 1) contribution to the revenue growth of organisations trading in or employing innovations developed with KIC support;

⁹ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

¹⁰ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

¹¹ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

¹² EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

- 2) the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceased;
- 3) new jobs created in start-ups/scale-ups;
- 4) impact on employment growth as a result of the company being engaged with KICs;
- 5) number and type of jobs in existing businesses sustained through innovations;
- 6) number and type of skill gaps and/or skill shortages filled, by KIC sector;
- 7) visible innovation ecosystems not previously in existence;
- 8) share of indicated innovation ecosystems that cover RIS countries ¹³.

From 2020 until the dates for which the most recent data are available (mainly 2023) ¹⁴, the revenue of organisations trading in or deploying innovations developed with the KIC's support grew by an average of 21%. Similarly, the number of staff employed by companies engaged with EIT Manufacturing increased by an average of 9%. This indicates that EIT Manufacturing's support has had a positive impact in fostering job creation within its community. EIT Manufacturing's lifelong learning programme has effectively addressed key technical skills gaps in the main areas (i.e. advanced manufacturing, automation and robotics, digital transformation, and sustainable manufacturing). The lifelong programme was implemented via the online Skills.move platform and together with the EIT Manufacturing partners, who carried out blended training. In 2023, 16 302 learners successfully completed their courses. 73 distinct categories of cutting-edge technologies were covered, including robots/cobotics, generative AI and additive manufacturing. 15 essential transversal skills gaps (e.g. design thinking and leadership) were also identified and addressed. 7 200 EIT Manufacturing courses have been delivered to over 5 200 learners and more than 60 000 learning units were consumed via online learning platforms in 2021-2023. Over 230 courses are currently available. These skill gaps are further addressed by the KIC's masters and PhD programmes, in fields such as data science and AI for competitive manufacturing, human-robot interaction for sustainable manufacturing, and smart systems for resilient manufacturing.

EIT Manufacturing is one of the KICs launched in the fourth wave in 2020. Due to the KIC's lack of maturity so information on the long-term impact of EIT-labelled programmes on participants' career growth is not yet available. This will be part of the seven-year assessment that will start in January 2025.

2. Additionality

Table 2 provides the basic financial figures for EIT Manufacturing since the start of its operations in 2019. EIT Manufacturing was able to achieve a direct leverage factor ¹⁵ of 0.32 in 2019-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.47 (if one adds direct revenues created through KIC activities (EUR 70 million vs the EIT grant of EUR 149 million)).

¹³ [EIT Impact Framework 2022-2027](#), pp. 7-11.

¹⁴ EIT Administrative data (data reported by KICs and validated by EIT), October 2024.

¹⁵ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(Funding rate))-1.

Table 2: EIT Manufacturing financial figures (in EUR million)

	2019	2020	2021	2022	2023	Total
EIT grant	3,5	29,2	29,5	44,5	42,9	149,6
Co-funding	0,0	5,7	11,3	14,3	16,5	47,7
Revenues		4,6	5,7	6,0	6,7	23,1
Activities not funded by EIT		69,0	0,1	0,1	14,0	83,2
Co-investment, i.e. investments attracted by start-ups		0,0	3,5	64,6	45,8	113,9

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from three-year business plans

In 2021-2022, the funding rate of EIT Manufacturing activities was 76% and 24% was co-funding from partners ¹⁶. The funding distribution varied according to the activity: innovation, education and business creation activities were funded with EIT funding at the rates of 59%, 92% and 94% respectively.

In terms of leverage effects for EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KIC's activities, but also through the activities not funded by the EIT ¹⁷ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT Manufacturing achieved a leverage factor of 1.03 in 2019-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 113 million) are also included, the leverage factor rises to 1.79 over the period of the EIT Manufacturing lifecycle to date. This means that, for every euro of EIT funding spent, EIT Manufacturing activities have helped to attract close to EUR 2 in external investment.

The high degree of openness of calls in Horizon Europe prompted EIT Manufacturing to initiate a strategic transition and introduce additional advisory services so that it becomes not only a funding provider, but also a community with an attractive portfolio of services. This new strategy seems to be successful. For example, CLC East had a budget of EUR 1.7 million in 2022, of which EUR 700 000 was external revenue earned by advising start-ups and training programmes. Overall, 4.5% of EIT Manufacturing's total budget was mobilised from complementary and cumulative (national and regional) funding and 1.5% from the EU's Recovery and Resilience Facility.

¹⁶ European Commission: Directorate-General for Research and Innovation, Neuberger, S., Boekholt, P. and Strauka, O., *Horizon Europe and the digital & industrial transition – Interim evaluation support study – Phase 2 – Horizon Europe – Institutionalised partnership report – EIT Manufacturing*, Boekholt, P.(editor) and Strauka, O.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/58516> p. 23.

¹⁷ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

3. Transparency and openness

EIT Manufacturing has made progress in building a diverse partner community and including a wide range of stakeholders.¹⁸ As regards openness to new partners, EIT Manufacturing has made substantial progress in addressing previous shortcomings. The KIC is open to new members. Information on accession and exit criteria have been published on its website¹⁹.

According to the external evaluation report²⁰, EIT Manufacturing has implemented several measures to attract new partners. Between 2020 and 2022, the KIC grew steadily, covering 24 EU Member States and 5 non-EU countries²¹. By 2022, EIT Manufacturing had reached more than 270 stakeholders (67% industry, 14% universities, 15% Research and Technology Organisations- RTOs and 4% others), of which 170 are core and associate partners²². The KIC has achieved a well-balanced representation across the manufacturing ecosystem, albeit with a slight bias towards industry due to sector-specific aspects²³. The EIT Manufacturing partnership was mainly composed of large industry members (55%). In order to increase the participation of SMEs in the partnership, membership fees were reduced and the KIC engaged with relevant stakeholders through co-location centres (CLCs) and the RIS Hubs. In 2022, 103 of the 273 EIT Manufacturing partners were SMEs (38% of the total). In terms of financial support, about 27% of the total 2021-2022 EIT Manufacturing grant of EUR 74 million was directed to SMEs. By October 2024, the number of SMEs participating in the implementation of the 2023-2025 EIT Grant Agreement had increased to 43% of all active partners. EUR 43 million had been directed to SMEs (42% of the total EIT grant)²⁴.

As part of EIT Manufacturing's growth strategy, the KIC has started piloting a wider variety of calls, including some with reduced complexity and lower funding. The calls have been promoted through relevant channels and accompanied by clear selection criteria. 38.8% of the 135 organisations selected through calls in 2023 had not previously been associated with the KIC. However, according to the external evaluation report²⁵, EIT Manufacturing has been expanding at a slower pace than anticipated. In addition, the impact of the COVID-19 pandemic reduced organisations' interest in joining the network and this has slowed growth.

As highlighted in the Partnership report²⁶, EIT Manufacturing was successful in establishing agreements with 15 universities: 10 for master's degree programmes and 7 for doctorate programmes (2 fall into both categories). However, with the transition to Horizon Europe, EIT Manufacturing temporarily halted admitting new universities until the accession criteria could be clarified. EIT Manufacturing has since been welcoming new partners to the degree programmes, offering a wide variety of activities.

When it comes to transparent consultation processes, EIT Manufacturing organises events on AGORA, which is an open platform for manufacturing stakeholders. In 2021, EIT Manufacturing hosted its first consultation process on AGORA, called 'Shape It'. The event was open to all partners and aimed to gather the EU manufacturing community together to

¹⁸ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 45.

¹⁹ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 62.

²⁰ Partnership report – EIT Manufacturing, p. 38.

²¹ The Member States not covered by the partnership are Cyprus, Luxembourg and Malta. Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 65.

²² Partnership report – EIT Manufacturing, p. 4.

²³ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 61.

²⁴ During the implementation of the 2023-2025 EIT grant agreement, the grant committed to SMEs and the number of SMEs and their participation can still increase in the upcoming months and next year because EIT Manufacturing still has calls to open and new projects to sign.

²⁵ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 61.

²⁶ Partnership report – EIT Manufacturing, p. 38

identify future focus areas for the next calls for proposals. The consultation process lasted 11 weeks and four final topics were identified for the 2023 call: (1) automation for human-centred factories; (2) collaborative robots and solutions for flexible manufacturing; (3) smart technologies for circular and green manufacturing; and (4) AI and digital twins for manufacturing systems ²⁷.

EIT Manufacturing is a young KIC and is still investing in visibility measures to raise the awareness of the industry and the public. It has demonstrated that it can use corporate communication strategies and branding for specific activities effectively. It reaches out to stakeholders via several channels (e.g. monthly newsletters sent to the KICs community). Regarding the selection of projects, three external evaluators participated in the assessment of the calls for proposals for 2022 and 2023, and the KIC's final scoring was transparently documented ²⁸.

4. Efficiency

Table 3 sets out EIT Manufacturing's operational budget and administrative expenditures (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditure paid from the EIT grant. This does not include the contribution from EIT Manufacturing's partners.

Table 3: EIT Manufacturing operational and administrative expenditure (in euro)

	2020	2021	2022
Operational Expenditures	31 794 288 €	38 438 811 €	53 518 947 €
Running Costs	3 480 738 €	3 134 808 €	5 219 189 €
Total budget	35 275 025 €	41 573 618 €	58 738 136 €

Source: EIT financial data (reported by KICs and validated by the EIT; also available in Corda).

Table 3 indicates that the running costs for EIT Manufacturing's headquarters and CLCs for 2020-2022 ranged between 7.5% and 9.9%, at an average of 8.7%. When only the period of Horizon Europe (2021-2022) is considered, these costs constituted 8.2% of the overall operational costs. Taking into account only the administrative costs of EIT Manufacturing's headquarters, the average ratio of administrative costs to EIT Manufacturing's overall operational budget dropped to 1.9% for the Horizon Europe period. The impact of the CLCs network on the administrative expenses is therefore obvious, because the administrative costs decreased considerably once the costs related to the CLCs are excluded.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to the KICs, set maximum thresholds for the EIT-funded share of the KICs' administrative costs, depending on the KICs' maturity. The values range from 18% and 15% in the first and second years of a KIC respectively to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations, rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and in regions, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account. EIT

²⁷ Partnership report – EIT Manufacturing, p. 39

²⁸ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 62.

Manufacturing's headquarters are located in Paris. The KIC's activities are supported locally through six CLCs: CLC Central (Germany), CLC East (Austria), CLC North (Sweden), CLC South (Italy), CLC West (Spain) and CLC Southeast (Greece).

The KIC's short implementation period means that it is not yet possible to estimate whether its cost-effectiveness in Horizon Europe has increased with respect to Horizon 2020. EIT Manufacturing has been using cascade funding since 2023 and it is too early to draw conclusions.

2023 data indicate that EIT Manufacturing's average time-to-grant is 2.5 months.

5. Coherence and synergies

The main conclusion from the external evaluation report ²⁹ is that EIT Manufacturing is strongly committed to aligning with EU initiatives, such as the Green Deal, and is making considerable efforts to achieve EU objectives. In order to strengthen coherence and synergies with EU policies and programmes, EIT Manufacturing has set up a policy advisory board that meets the relevant Commission services twice a year. EIT Manufacturing's strategy is to establish collaborations that cover a wide range of industrial sectors and combine capacities to use modern technologies ³⁰.

Since 2023, EIT Manufacturing has been cooperating with the European Innovation Council (EIC) and the COSME programme to provide 'quality approval' for start-ups and scale-ups so that they receive funding (i.e. they are fast-tracked within the EIC) ³¹. Relevant synergies within Horizon Europe can be found – notably with 'innovative SMEs' and 'European Science Cloud'. Additional synergies with other programmes include InvestEU, European Regional Development Fund (ERDF) and Erasmus+ ³².

At the global level, EIT Manufacturing has not yet established itself as a leading community in the manufacturing sector. This is a common trend among early-stage KICs ³³. EIT Manufacturing participates in the EIT Global Outreach programme and collaborates with the World Economic Forum and the World Manufacturing Forum to establish a global network of students that act as EU ambassadors. 1.2% of the total EIT Manufacturing budget goes into creating links and establishing collaborations with international organisations and/or entities in non-EU countries ³⁴.

At national level, the KIC has forged synergies with national initiatives (e.g. in Austria and Slovakia). Several projects funded from other EU, national or regional funds started in 2022 with EIT Manufacturing playing a significant role. Challenges in aligning the EU perspective with national initiatives nevertheless persist, largely due to prioritisation of national interests ³⁵.

When it comes to synergies with other European Partnerships and Missions within Horizon Europe, the EIT KICs community is clearly the most active, as highlighted in the Biennial

²⁹ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 58.

³⁰ Partnership report – EIT Manufacturing, p. 19.

³¹ Partnership report – EIT Manufacturing, p. 20.

³² Directorate-General for Research and Innovation, A4 Partnership Sector, [Report – Coherence and Synergies of candidate European Partnerships under Horizon Europe](#), October 2020.

³³ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 58.

³⁴ Biennial Monitoring Report (BMR) Survey Results (2023). Responses provided by EIT Manufacturing.

³⁵ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 58.

Monitoring Report 2024³⁶. EIT Manufacturing ensures consistency within Horizon Europe, notably with Cluster 4 (digital, industry, and space technologies). The activities of EIT Manufacturing are consistent and complementary with several partnerships in Cluster 4 (e.g. the European Partnership on ‘Key Digital Technologies’ (KDT), which supports the digital transformation of the manufacturing sector³⁷).

Another example is the cooperation agreement that EIT Manufacturing signed with the European Factories of the Future Research Association (EFFRA)³⁸ in 2021. They piloted the ‘Innovate Together’ programme³⁹ together with the Made in Europe Partnership in 2021. The programme launched innovation projects based on successful research projects to accelerate their market deployment. EIT Manufacturing was therefore able to bridge the gap between two different pillars of Horizon Europe and supported successful research consortia to access the market. The first projects were successfully completed at the end of 2022. The joint programme was relaunched in October 2024 with a total budget of EUR 5 million (including contributions from the Commission and EIT Manufacturing).

The EIT KICs have established a number of EIT Community initiatives, thereby fostering synergies with other KICs. EIT Manufacturing took the lead in implementing the Deep Tech Talent Initiative (DTTI). This is one of the flagship initiatives of the new European Innovation Agenda that aims to train 1 million talents in deep tech by 2025. EIT Manufacturing had an important role in conceptualising this EIT Community initiative and aligning it with the EU’s priorities. Other KICs are collaborating through the provision of training programmes⁴⁰. EIT Manufacturing is (along with EIT Climate-KIC, EIT Food and EIT Urban Mobility) also a member of the EIT Community’s NEB initiative. This is an EIT Community activity that was launched in 2021 and supports the exploration, testing and scaling-up of concepts for future ways of living – placing people’s needs at the heart of transformation and encouraging innovative solutions through start-up development, capacity building and citizen-engagement activities.

6. EU added value

EIT Manufacturing’s added value is centred in its network of diverse partners from industry, university and research institutes. This network is the cornerstone of all EIT Manufacturing activities. According to the external evaluation⁴¹, EIT Manufacturing creates clear EU added value thanks to the integration of the knowledge triangle (i.e. innovation, education and business creation) across the EU. Its network makes it possible to address the relevant challenges using a bottom-up approach. The KIC is able to integrate local needs into the development of concrete solutions that extend beyond regional and national borders.

One example of EIT Manufacturing’s ability to strengthen the Member States’ innovation capacity is AGORA. This is a dedicated platform and gateway for manufacturing stakeholders.

³⁶ European Commission: Directorate-General for Research and Innovation, *Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe*, Publications Office of the European Union, 2024, p. 56, <https://data.europa.eu/doi/10.2777/991766>.

³⁷ European Commission: Directorate-General for Research and Innovation, *Impact assessment for institutionalised European partnerships under Horizon Europe*, Publications Office of the European Union, 2020, <https://data.europa.eu/doi/10.2777/295096>.

³⁸ EFFRA is a not-for-profit, industry-driven association that promotes the development of new and innovative production technologies.

³⁹ <https://www.eitmanufacturing.eu/wp-content/uploads/2024/09/eitm-cfp-innovate-together-2024.pdf>.

⁴⁰ For the EIT Deep Tech Talent Initiative, see <https://www.eitdeeptechtalent.eu/> or <https://www.eitmanufacturing.eu/news-events/press-releases/deep-tech-talent-initiative/>.

⁴¹ Partnership report – EIT Manufacturing, p. 29.

which facilitates an innovation network in which stakeholders can exchange ideas, participate in events, and collaborate with peers on issues that matter for the industry sector – from the energy crisis to regional innovations and from sustainable value chains to technology commercialisation. AGORA also provides an opportunity to network with other organisations and to participate in calls for proposals. Another example is the Innovation Funding Catalyst, which is a service introduced by EIT Manufacturing to help partners and innovators in the manufacturing area to apply for EU funding ⁴².

EIT Manufacturing has also created added value by building several innovation ecosystems through its CLCs, which offer unique opportunities to connect within regions and for regions to connect with each other. CLCs are closely connected and can form an EU innovation ecosystem at the pan-EU and even global scales. According to the partnership evaluation study ⁴³, some projects have been developed solely because EIT Manufacturing connected partners in other regions and Member States. In line with the main conclusions of the external evaluation report ⁴⁴, EIT Manufacturing has also performed well in creating innovation ecosystems that did not previously exist, even if there are specific areas that deserve attention to ensure alignment of innovation ecosystems with the societal challenges it addresses.

Finally, EIT Manufacturing's added value lies in providing support when other funding instruments are not applicable (i.e. above TRL6) as well as in connecting universities with industry partners that want to follow up on scientific achievements by bringing new technologies and solutions to the market ⁴⁵.

7. Relevance

EIT Manufacturing has made significant progress in establishing innovation ecosystems and partnerships that are aligned with the goals of strengthening innovation capacity and contributing to sustainable economic growth and competitiveness in the EU ⁴⁶. According to the Partnership's external evaluation findings ⁴⁷, EIT Manufacturing can contribute to global positioning and strategic autonomy; industrial competitiveness; digitalisation; sustainable development; and human-centred ethical innovation. EIT Manufacturing's strategic objectives are therefore aligned with the framework programme and contribute to achieving the EU's objectives. EIT Manufacturing is also aligned with relevant UN Sustainable Development Goals (SDGs), notably those related to clean and affordable energy.

EIT Manufacturing's bottom-up approach has enabled it to identify four focus areas that have become its flagships: (1) flexible production systems for competitive manufacturing; (2) low environmental footprint systems and circular economy for green manufacturing; (3) digital and collaborative solutions for innovative manufacturing ecosystems; and (4) human-machine co-working for socially sustainable manufacturing ⁴⁸. They are intended to help address the most pressing challenges for a greener and more competitive EU manufacturing sector.

EIT Manufacturing has also shown flexibility and responsiveness in adapting to emerging developments, and changing markets and policy needs. In 2022 it revised its business plan to take the COVID-19 pandemic into account. In 2023 it revised its Strategic Agenda in order to

⁴² Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 18

⁴³ Partnership report – EIT Manufacturing, p. 29.

⁴⁴ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 21.

⁴⁵ Partnership report – EIT Manufacturing, p. 29.

⁴⁶ Deloitte and White Research, *Three-year Review EIT Manufacturing – Final Report*, 2023, p. 21.

⁴⁷ Partnership report – EIT Manufacturing, p. 4.

⁴⁸ For EIT Manufacturing – focus areas, see: <https://www.eitmanufacturing.eu/what-we-do/focus-areas-flagships/>. Partnership report – EIT Manufacturing, p. 17

align its strategic objectives with the new challenges in the sector. These included disruptions of global supply chains; the war in Ukraine and the related insecurity of energy prices; the slowdown in the process of global integration; and the rise in protectionism. The main goal of this revision was to better position EIT Manufacturing as a source of knowledge and talent for the transition to a sustainable, humancentric and resilient EU industry.

EIT Manufacturing has also shown flexibility and adaptability by ensuring that its strategic objectives were aligned with the new key EU policy priorities, which focus on putting people at the centre of manufacturing; accelerating green manufacturing; and fostering sovereignty and competitiveness. Consultation of EU Member States showed that EIT Manufacturing was considered relevant to the national policies and priorities of the Member States (85%), for their industry (89%) and for their research organisations, including universities (93%)⁴⁹.

8. Directionality

The Partnership evaluation study found⁵⁰ that EIT Manufacturing could achieve very good results for the goals set by the Strategic Agenda, which include global positioning and strategic autonomy; industrial competitiveness; digitalisation; sustainable development; and human-centred ethical innovation.

EIT Manufacturing started operations during the COVID-19 pandemic, which gives clear reasons for not reaching the goals in some cases⁵¹, but the KIC has made considerable efforts to make progress in implementing its strategic vision. EIT Manufacturing's bottom-up approach has helped it to implement processes to deliver on the KIC's main goals. The Strategic Agenda has been updated to reflect the lessons learned from the first three years of operations. EIT Manufacturing also tailors its programmes to the latest needs and challenges of EU industry. For example, the KIC has established a network of industry and universities to tackle global challenges through education and transferring skills. In addition, an annual teaching factory competition has been created in order to connect challenges with solving teams and to increase the concept's visibility. The teaching factory concept can be scaled up and can be transferred to other settings, and has been selected among the five "good practices of EIT". Several members have already taken up these concepts, including in EIT RIS countries, because they go beyond what calls alone would be able to offer to the regions⁵².

9. International positioning

EIT Manufacturing is predominantly EU-oriented and this is reflected in its network of partners. It is nevertheless making steady progress in its international positioning and international partners are involved in several KIC activities: EIT Manufacturing has 3 partners from Switzerland; 2 each from Norway and the UK; and 1 each from Bosnia and Hercegovina, and North Macedonia.

⁴⁹ Directorate-General for Research and Innovation, *Report on European Partnerships under Horizon Europe: results of the structured consultation of Member States*, <https://www.era-learn.eu/news-events/news/european-partnerships-under-horizon-europe-results-of-the-structured-consultation-of-member-states-1>.

⁵⁰ Partnership report – EIT Manufacturing, p. 34.

⁵¹ Partnership report – EIT Manufacturing, p. 35.

⁵² Partnership report – EIT Manufacturing, p. 35.

EIT Manufacturing participates in the EIT Global Outreach programme⁵³ activities and the Strategic Regional Innovations (SRI)⁵⁴. The programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The programme currently comprises established and successful EIT Hubs in Silicon Valley (USA)⁵⁵, Tel Aviv (Israel)⁵⁶ and London (UK)⁵⁷. Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in the future expand into Moldova and potentially Georgia, in line with the EU's enlargement policy priorities.

EIT Manufacturing collaborates internationally by participating in other EU initiatives, such as the European Factories of the Future Research Association (EFFRA) (e.g. through activities involving international stakeholders, such as high-level groups of manufacturers or working groups set up by the Commission). These synergies support the implementation of Environmental Technology Verification (ETV) and include a collaboration agreement with EFFRA on the Innovate Together programme⁵⁸, in which both EU Member States and associated countries participate.

10. Phasing-out preparedness

The EIT Regulation⁵⁹ defines 'financial sustainability' as the EIT KICs' capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT financial support. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT Manufacturing's financial sustainability strategy was defined at an early stage in its lifecycle. This strategy has been updated to ensure higher financial contributions from external sources. EIT Manufacturing plans to gradually evolve towards a service organisation model that licenses education and training courses, provides access to funding, and provides customer and business intelligence services. These services can be offered at both the central and the CLC levels. However, given that EIT Manufacturing has only been operating since 2020, the coming years will show whether these mechanisms and strategies can be successful.

EIT Manufacturing expects that its financial sustainability coefficient⁶⁰ will continuously increase in the coming years, so as to achieve the 2025 target of 31.1%. In 2021-2022, the targeted financial sustainability coefficient was 21.6% (EUR 17 320 000 revenue). In that period, EIT Manufacturing achieved a coefficient of 16.24%, thus generating a total revenue of

⁵³ <https://go-eit.eu/>.

⁵⁴ <https://eit-ris.eu/>.

⁵⁵ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁵⁶ <https://go-eit.eu/eit-israel-hub/>.

⁵⁷ <https://go-eit.eu/eit-uk-hub/>.

⁵⁸ [Innovate Together 2024 – EIT Manufacturing](#).

⁵⁹ In particular, Articles 2(16) and 6(i) of Regulation (EU) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology.

⁶⁰ The financial sustainability coefficient (FS coefficient) is the ratio of a KIC's own revenues to its EIT grant in a given year.

EUR 12 017 556. EUR 10 325 000 of this came from membership fees; EUR 1 012 045 came from alternative funding sources; and the remainder came from returns on investment (RoI) as well as consultancy fees and education activities ⁶¹.

EIT Manufacturing aims to build on active earned income and passive investment revenue. When applying for funding, proposals are encouraged to consider how the project can contribute to the EIT Manufacturing's financial sustainability. This contribution can take different forms, such as a fixed sum paid at the end of an activity by start-ups entering the KIC business creation portfolio; revenue sharing once the product is commercialised; or equity shares following the support received from the KIC ⁶². As at the end of 2023, EIT Manufacturing reported 10 equity shareholdings in start-ups with a total value of EUR 2.8 million that had been implemented in 2021-2022. It also reported 40 additional initiatives (including revenue sharing agreements, and education and innovation projects).

There is also a financial sustainability strategy for the education pillar that is mainly based on two streams.

1. Masters programmes with a defined fee to make the programme sustainable. This portfolio of digital content will be sold to organisations or individuals. Education managers in the CLCs will support the promotion and selling of education programmes (in partnership with local training providers).
2. Learning Factories and the Skills.Move platform offer more than 100 learning paths. EIT Manufacturing is currently exploring market opportunities and pricing options for the Flexy Enhance programme in order to increase its impact and contribute to the KIC's financial sustainability.

⁶¹ EIT Manufacturing Grant Assessment 2022, EIT Manufacturing.

⁶² *Business Plan 2023 – 2025: 2nd Call for proposals for Activities to be executed in 2023*, EIT Manufacturing, November 2022, https://www.eitmanufacturing.eu/wp-content/uploads/2022/08/EITM-Call-for-proposals-guidelines-23-25_BC_version2209.pdf.



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PART 19/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 27: Evaluation of EIT RawMaterials

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

EIT RawMaterials Knowledge and Innovation Community (the KIC or EIT RawMaterials) was established in 2015 in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. Its first operational activities and calls were launched in 2016. It is part of the second wave of the knowledge and innovation communities (KICs). The KIC was created in response to the challenges of ensuring the accessibility, availability and sustainability of raw materials needed for the EU economy. To achieve these goals, EIT RawMaterials is working on projects to secure the sustainable supply of critical and strategic raw materials to Europe. These projects include supporting start-ups; driving innovation; leading European education activities in the sector; and managing for the European Commission the European Raw Materials Alliance (ERMA), which identifies, assesses and evaluates major mining and recycling projects in and outside Europe to strengthen the resilience of EU industrial ecosystems to today's high levels of supply dependency on non-EU countries. EIT RawMaterials also funds projects and businesses that work on the substitution of critical, toxic and low-performing materials in order to reduce environmental impact and supply dependencies.

To carry out its mission, EIT RawMaterials received EUR 442 million grants from the EIT in 2015-2023.

EIT RawMaterials is the largest innovation network in the raw materials sector in Europe, with more than 140 core and associate partners and over 190 project partners. These are leading businesses, universities, research and technology organisations from over 30 European countries and across the entire raw materials value chain.

Objectives and achievements

EIT RawMaterials' 2021-2027 Strategic Agenda² defines the following three objectives: (1) securing raw materials supply for Europe; (2) designing materials solutions; and (3) closing materials loops. The KIC aims to contribute to the renewal and strengthening of the raw materials supply chains to make them more sustainable and aligned with the objectives of the Critical Raw Materials Act (CRMA) and to support the twin digital and green transitions. In this context, it also aims to contribute to the shift to a circular economy and to cater to the massive skills-building needs through its developed education programmes and academy concepts, which will play a leading role through the launch of the Raw Materials Academy and the Advanced Materials Academy. EIT RawMaterials is therefore fully aligned with the objectives of the Horizon 2020 and Horizon Europe programmes.

These strategic objectives are implemented by integrating the knowledge triangle, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's innovation, business creation and education activities. Table 1 shows EIT RawMaterials' achievements in terms of KPIs for 2017-2023.

¹ Regulation (EU) 2021/819 of the EIT (2021) replaced the original regulation (EC) 294/2008.

² EIT RawMaterials 2021-2027 Strategic Agenda.

Table 1: EIT RawMaterials KPI 2017-2023; targets (T) and achieved results (A)

	2017		2018		2019		2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A	T	A	T	A	T	A
Innovations launched on the market	7	2	55	57	87	70	98	83	118	95	29	26	394	333
Designed/Tested innovations*									2	184	15	32	17	216
KIC Supported Start-ups/Scale-ups	59	34	49	58	80	82	135	164	259	302	50	184	632	824
Start-ups created of/for innovation	5	3	2	2	6	3	8	5	14	16	2	17	37	46
Start-ups created of EIT labelled MSc/PhD programmes	0	0	1	0	1	2	5	5	7	5	6	9	20	21
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)	1,5	3,6	0,9	123	3,5	20	5	28,3	25	232	40	163	75,9	569,9
Graduates from EIT labelled MSc/PhD programmes	4	0	60	34	120	53	143	80	278	242	144	138	749	547
Participants in (non-degree) education and training*									18289	28914	3903	47139	22192	76053

* KPI reported only from 2021 (the KPI on designed/tested innovations reports on IPR applications)

Source: EIT administrative and monitoring data (reported by KIC and verified by EIT)

Overall and as the external evaluation highlighted ³, EIT RawMaterials has made good progress in solving societal challenges; creating innovation and entrepreneurship ecosystems; complementing existing EU policies and initiatives; and establishing collaboration between all three sides of the knowledge triangle. As Table 1 shows, most of the targets formulated in the KIC's 2021-2027 Strategic Agenda have been met or exceeded.

Concerning education activities, EIT RawMaterials trained more than 76 000 participants in non-degree programmes in 2017-2023, exceeding the goal of 22 000 by a factor of 3.5. However, only 574 students graduated from EIT-labelled programmes during the same period, so the target of 749 was not met. Under Horizon Europe (2021-2023), the KPI assessment shows mixed results. As Table 1 shows, the number of participants in non-degree programmes in 2021-2022 was 76 053, so far more than the target. However, although the number of graduates from EIT-labelled programmes was far greater in 2021-2022 (at 242) than in previous years, it did not reach the target of 278. In 2023, the number of graduates decreased to 138, so again below the target of 144.

Moreover, EIT RawMaterials is addressing the gender dimension with dedicated activities, such as the Girls Go Circular programme, which the KIC coordinates on behalf of the EIT community. The programme focuses on digital and entrepreneurial skills in the field of the circular economy for young girls and has trained over 47 000 girls aged 14-19 across Europe, exceeding the target of 40 000 girls. In 2024, EIT RawMaterials launched the Women in Mining Initiative, which is focused on substantially increasing the gender balance in the sector by attracting women to the sector and supporting initiatives.

When it comes to supporting entrepreneurial and business creation, EIT RawMaterials has supported 800 start-ups or scale-ups since 2017, thus surpassing the target of 632 for 2017-2023. The KIC has also exceeded expectations in the investment attracted by supported entities, which reached EUR 584 million (against a target of EUR 75.9 million).

As regards innovation, EIT RawMaterials slightly underperformed on the KPIs related to products and processes placed on the market. In 2017-2023, EIT RawMaterials introduced 333 innovations into the market, falling slightly short of the target of 394. As Table 1 shows, the KIC has achieved the targets in other innovation areas (e.g. supported start-ups and scale-ups, and designed or tested solutions).

³ Deloitte and White Research, *7-Year Review of 2nd Wave KICs: EIT RawMaterials Final Report*, March 2022, p. 10.

Overall, the KIC performed better on the innovation and entrepreneurship KPIs under Horizon Europe (2021-2023)⁴. EIT RawMaterials has exceeded targets for designed and tested innovations (216 achieved against a target of 17); start-ups and scale-ups supported (486 against a target of 309); and investment attracted by the start-ups and scale-ups (EUR 395 million against a target of EUR 65 million).

In September 2020, the Commission tasked EIT RawMaterials with leading the European Raw Materials Alliance (ERMA)⁵. ERMA has so far organised the evaluation of over 100 investment projects in the sector with a total qualified investment opportunity of over EUR 25 billion and 46 short-listed cases. Through this initiative, the KIC has increased the opportunity to generate a larger impact from innovation, start-up activities and entrepreneurial support actions⁶. The KIC is also directly supporting the Commission's International Partnership endeavours in order to grow international raw materials partnership programmes. Similarly, the EIT's HEI Initiative, Innovation Capacity Building for Higher Education (HEI Initiative), which is coordinated by EIT RawMaterials on behalf of the EIT community, aims to increase the EU's entrepreneurial and innovation capacities through the activities of higher education institutions⁷.

However, EIT RawMaterials has lagged behind in revenue generation from supported innovations, as reported under the Horizon 2020 programme. This has nevertheless improved over the years and EIT RawMaterials' future revenue generation prospects are good thanks to its current broader portfolio.

Long-term scientific, societal, economic and technological impacts

The following societal long-term goals have been identified in the EIT Impact Framework 2022-2027 for the KIC's activities:

- 1) improved industrial competitiveness;
- 2) raw materials concentrate produced;
- 3) reduced CO₂ emissions;
- 4) critical raw materials substitution/reduction;
- 5) advanced materials produced;
- 6) increased recycling rate over current rate;
- 7) enhanced sustainability⁸.

The indicators were only introduced in 2021. The assessment therefore focuses on the relevance of the KIC's activities to contributing to achieving these goals, rather than on the extent of the impact already achieved.

⁴ European Commission: Directorate-General for Research and Innovation, Boekholt, P., Thielmann, A., Strauka, O. and Endo, C., *Horizon Europe and the digital & industrial transition – Interim evaluation support study – Phase 2 – Horizon Europe – Institutionalised partnership report – EIT RawMaterials*, Boekholt, P.(editor) and Strauka, O.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/85259>, p. 26.

⁵ [European Raw Materials Alliance \(ERMA\)](#).

⁶ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 99.

⁷ [About the EIT HEI Initiative – EIT HEI Initiative](#).

⁸ [EIT Impact Framework 2022-2027](#), pp. 19-20.

EIT RawMaterials aimed to enhance industrial competitiveness with targets of making savings and increasing sales by EUR 15 million by 2024.⁹ The aim was to increase the production of raw materials concentrate by 2% by 2024, as set in the 2021-2027 Strategic Agenda for which the KIC has reported a 50% increase for 2016-2023¹⁰.

The aim was also to substitute or reduce critical raw materials for 80 substitution cases (including the substitution of critical raw materials and toxic materials) by 2024. The KIC's data indicate that the viability of 64 cases were already proved in 2016-2023. During that period, the number of new or improved products with reduced toxic material content increased to 62 – more than the 2024 target of 58¹⁰.

Production of advanced materials was set to increase by 2% by 2024, on top of a 100% increase already achieved in 2016-2023. In addition, 8 new advanced materials were developed in 2016-2023 (compared with a target of 2 for 2021-2023).

The recycling rate was targeted to increase by 2% by 2024, and the KIC's reported data show that an 82% rate had already been achieved in 2016-2023. The aim is to increase sustainability by 20% by 2024 thanks to new and existing processing plants with lower discharge rates. For 2016-2023, a 6% sustainability increase has been reported by the KIC.

A survey conducted for the external evaluation¹¹ among the KIC's supported ventures asked about the perceived impact of the companies' action in relation to these indicators:

- reduction of CO₂ emissions: 91 respondents reported a medium to extremely large impact, 10 respondents reported a weak impact and 10 respondents reported no impact.
- reduction or substitution of critical raw materials: 74 respondents reported a medium to extremely large impact, 10 reported a weak impact and 16 respondents reported no impact.
- enhanced sustainability: 76 respondents reported at least a medium impact, 11 reported a weak impact and 20 respondents reported no impact.
- increased recycling rates: 72 respondents indicated a medium to extremely large impact, 6 reported a weak impact and 24 respondents reported no impact.
- raw materials concentrate produced and advanced materials produced: 61 and 59 respectively reported at least a medium impact and 23 and 27 respectively reported no impact.

EIT RawMaterials has also identified a number of long-term economic impact measures. These are defined in the EIT Impact Framework 2022-2027 as follows:

- the contribution to the revenue growth of organisations trading in or employing innovations developed with the KICs' support;
- the number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceases;
- new jobs created in start-ups and scale-ups;
- the impact on employment growth as a result of the company being engaged with KICs;
- the number and type of jobs in existing businesses sustained through innovations;

⁹ A few more projects targeting this KPI are planned for 2024 and 2025. Reporting is expected to start from grant reporting 2024 onwards.

¹⁰ Data reported to EIT by the KIC (last updated in October 2024).

¹¹ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 33.

- the number and type of skill gaps and/or skill shortages filled, by KIC sector;
- new visible innovation ecosystems;
- the share of indicated innovation ecosystems that covers RIS countries ¹².

In the survey conducted for the external evaluation on the estimation of revenue growth and profitability of ventures due to EIT RawMaterials support¹³, 60 of the 123 respondents reported that revenue had grown by between 5% and 50%. 53 of the 121 respondents reported that profitability had grown by between 5% and 50%. According to the external report ¹⁴, this result suggests that the organisations were for the most part benefiting from their involvement in EIT RawMaterials. However, those organisations that benefited in terms of both revenue and profits mostly derived only relatively minor benefits from EIT RawMaterials support – over half of the respondents experienced only between 0% and 5% revenue and profitability growth. The KIC's data nevertheless indicated that EIT RawMaterials support to start-ups helped 280 out of 328 to survive the 'valley of death' period (i.e. the period between start-up and revenue generation) ¹⁵.

As regards the revenue of start-ups and scale-ups supported by the KIC and trading at least one year after KIC support ceased, the survey results ¹⁶ indicate that the revenue of 10 companies grew by more than EUR 0.5 million, the revenue of 23 companies grew by less than EUR 0.5 million and the revenue of 7 companies did not grow at all.

Between 2016 and 2020, the KIC's activities directly resulted in the creation or securing of 1 046.5 direct jobs in the raw materials sector. This was more than double the annual business plan target of 401.5 direct jobs. The original proposal and the strategic agendas of EIT RawMaterials contained targets of creating 10 000 direct and indirect jobs by 2022 ¹⁷. However, the 1 046.5 direct jobs created in the raw materials sector do not include (1) indirect jobs created in ventures supported; (2) jobs created within partner organisations as a result of EIT RawMaterials funding for work on KAVA and KCA projects; or (3) downstream jobs created in industrial sectors that rely on the raw materials sector. These three categories are all influenced by the KIC's activities ¹⁸. The KIC's updated data state that 1 714 jobs were created and/or secured in the RawMaterials sector in 2016-2023, compared with a target of 2 000 by 2024.

According to the external evaluation report ¹⁹, the KIC has had a positive effect on job retention and on indirect jobs created. Unfortunately, while the general trend seems to be that EIT RawMaterials had a tangible effect on jobs in the broader raw materials sector, it is not clear to what extent these were sustained through innovations.

The external evaluation report ²⁰ also shows that many skills gaps have been filled thanks to EIT RawMaterials. These mostly concern broadly applicable skills rather than sector-specific skills. However, material processing, sustainability practices and turning waste into a standardised product were common skills that were addressed in the EIT-labelled and non-

¹² [EIT Impact Framework 2022-2027](#), pp. 7-11.

¹³ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 34.

¹⁴ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 34.

¹⁵ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 34.

¹⁶ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, pp. 34-35.

¹⁷ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 36.

¹⁸ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, pp. 35-36.

¹⁹ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 36.

²⁰ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, pp. 36-37.

labelled education programmes showing that the relevant sector-specific skills are also covered²¹.

Overall, the findings from the external evaluation report²² suggest that EIT RawMaterials has a positive impact on revenue growth, profitability growth and employment growth. The KIC also contributes to the creation of new jobs and new job types in the raw materials sector and performs well in addressing skill gaps. However, there are limited data on the impact the KIC's activities have had on the success of the ventures they support. This is because these indicators have only been added in recent years.

When it comes to the long-term educational impact on the career growth of participants in EIT-labelled programmes, a survey of EIT RawMaterials' students and graduates²³ reveals that almost half of the respondents (19 of the 40) were still students. 4 students were employed in some capacity. 16 of the 21 (76%) graduates were in employment. 12 of the 20 (60%) students and graduates in employment felt that they were employed in the sector related to their EIT-labelled study programme. Students and graduates were most frequently employed in the following four sectors: professional, scientific and technical activities (6 out of 20); mining and quarrying (11 out of 20); and education and manufacturing (2 each out of 20). The external report similarly concluded that most students and graduates were employed in sectors related to their field of study²⁴.

2. Additionality

The table below provides the basic financial figures for EIT RawMaterials since the start of its operations in 2015. EIT RawMaterials was able to achieve a direct leverage factor²⁵ of 0.35 in 2015-2022 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.52 (if one adds direct revenues created through KIC activities (EUR 228 million vs the EIT grant of EUR 442 million)). The direct leverage factor was 0.72 for the Horizon Europe period of 2021-2022.

Table 2: EIT RawMaterials financial figures (in EUR million)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
EIT grant	3,8	16,8	32,3	51,0	75,0	94,4	56,7	57,9	54,4	442,4
Co-funding	0,2	4,9	9,3	11,9	15,6	22,9	33,0	28,1	31,0	156,7
Revenues		6,4	7,1	8,7	9,2	10,2	9,4	9,0	11,5	71,6
Activities not funded by EIT		74,8	107,8	138	172,5	291,2	0,0	0,0	1,5	785,3
Co-investment, i.e. investments attracted by start-ups			3,6	122,8	20,0	28,4	181,0	51,1	163,0	569,9

Source: EIT financial data reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are planned derived from three-year business plans

In terms of leverage effects for the EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the direct reinvestment of

²¹ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 37.

²² Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 14.

²³ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 77.

²⁴ Deloitte and White Research, *EIT RawMaterials – Final Report*, 2022, p. 77.

²⁵ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(funding rate))-1.

EIT KICs' revenues back into the KIC's activities, but also through the activities not funded by the EIT ²⁶ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions by partners and affiliated entities (activities not funded by the EIT) are considered, EIT RawMaterials achieved a leverage factor of 2.29 in 2015-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 570 million) are also included, the leverage factor rose to 3.58 over the period of the EIT RawMaterials lifecycle to date. This means that, for every euro of EIT funding spent, EIT RawMaterials activities have helped to attract over EUR 3.5 in external investment.

Since Horizon 2020, private contributions mobilised by EIT RawMaterials have come from partners' own sources through complementary activities additional to EIT-funded projects. EIT RawMaterials partners have constantly exceeded the initial targets for their own contribution to funding sources (87% more than targeted for Horizon 2020). Additionality is also generated by spillover effects and the cross-transfer of solutions from one raw material solution to another.

3. Transparency and openness

EIT RawMaterials is the largest consortium in the global raw materials sector, according to the external partnership report ²⁷. It is composed of more than 140 core and associate partners and over 190 project partners across the entire raw materials value chain. Partners are spread across more than 30 European countries, with a higher concentration in Germany, Spain, France, Italy, Finland and Sweden. EIT RawMaterials has six innovation hubs or co-location centres (CLCs) in Europe.

The KIC's partnership composition shows a well-balanced representation of stakeholders from all three sides of the knowledge triangle. The KIC has consistently grown and aims to expand the number of core partners to 165 by 2027. However, in order to maintain the current size and composition of the partnership or even to increase them, the value of the membership should be clearly communicated to current and future members in order to prevent retrogressive changes which have in the past caused some members leave the partnership.

By October 2024, the number of SMEs participating in the implementation of the EIT grant agreement 2023-2025 had reached 9% (32 of the total of 350 active partners) and EUR 12 million (7% of the total EIT grant) had been directed to SMEs.

According to the external evaluation report ²⁸, EIT RawMaterials has made significant progress in ensuring that it remains open to new members, including SMEs. Weaknesses in the calls for activities had been identified, but the external evaluation report ²⁹ rated the KIC's openness to new members positively in 2022. The KIC has adhered to the Principles of Good Governance, addressing strategic recommendations and implementing feedback provided by the EIT ³⁰. The membership procedure is based on clear criteria, and entry and exit rules for members and potential members are published on the KIC's website ³¹.

When it comes to transparent processes for consulting relevant stakeholders, EIT RawMaterials organises open events (e.g. 'expert forums') for non-partners, in which experts in a specific

²⁶ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to the KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

²⁷ Institutionalised partnership report – EIT Raw Materials, p. 55.

²⁸ Institutionalised partnership report – EIT Raw Materials p. 40.

²⁹ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 44.

³⁰ Institutionalised partnership report – EIT Raw Materials, p. 27.

³¹ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 44.

field or members of a value chain gather to exchange views on recent and future developments. These events are opportunities for networking and partner recruitment, because they bring together all sides of the knowledge triangle. They also foster collaboration between members, who collectively identify strategies to address sector-related challenges, thus helping to define EIT RawMaterials' calls for projects and activities. EIT RawMaterials has a strong communication strategy to provide partners with clear guidelines and information, thus ensuring that changes are clearly understood. Feedback loops through regular staff and steering committee meetings (along with publicly accessible events, such as the RawMaterials Summit) allow stakeholders to understand the KIC's operations and connect with partners. As regards the calls for projects, EIT RawMaterials provides detailed evaluation and selection criteria. When selecting projects, the KIC complies with the principles of transparency, equal treatment, non-discrimination and competition. In this context, EIT RawMaterials has also worked to address gender equity in the raw materials sector: the percentage of female students in EIT-labelled courses was 40% in 2018-2023 (the target was 30%). However, progress is still needed for female representation in management and executive positions ³².

4. Efficiency

Table 3 sets out EIT RawMaterials's operational budget and administrative expenditure (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditures paid from the EIT grant. They do not include any contributions from EIT RawMaterials's partners.

Table 3: EIT RawMaterials operational and administrative expenditure

	2016	2017	2018	2019	2020	2021	2022
Operational Expenditures	22 997 577 €	42 438 674 €	64 470 475 €	91 526 410 €	117 605 754 €	89 806 072 €	86 855 411 €
Running Costs	6 815 428 €	6 990 079 €	6 793 691 €	7 104 508 €	7 334 456 €	5 994 249 €	6 569 850 €
Total budget	22 997 577 €	42 438 674 €	64 470 475 €	91 526 410 €	117 605 754 €	89 806 072 €	86 855 411 €

Source: EIT financial data (reported by KICs and validated by the EIT).

Table 3 indicates that the running costs covering EIT RawMaterials's headquarters and CLCs for 2016-2022 ranged between 6.2% and 29.6%, and averaged 7.9%. When only the period of Horizon Europe (2021-2022) is considered, these costs constituted 7.1% of the overall operational costs. Taking into account only the administrative costs of EIT RawMaterials's headquarters, the average ratio of administrative costs to EIT RawMaterials's overall operational budget dropped to 4%. The impact of the CLCs network on the administrative expenses is obvious because the administrative expenses decreased considerably once the costs related to the CLCs are excluded.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT, in order to keep these administrative costs at an acceptable level, has, in its guidelines to the KICs, set maximum thresholds for the EIT-funded share of the KICs' administrative costs, depending on the KICs' maturity. The values range from 18% and 15% in the first and second years of a KIC respectively to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model

³² Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 44.

is to support location-based innovation locally and in regions, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

EIT RawMaterials's headquarters is located in Berlin. It functions as an administrative hub and manages the interaction between the EIT and the partnership. Most of the impact-creating activities are facilitated through the regional innovation hubs, which are known as co-location centres (CLCs). There are six CLCs across Europe: CLC Baltic (Espoo, Finland); CLC Central (Metz, France); CLC East (Krakow, Poland); CLC North (Lulea, Sweden); CLC South (Rome, Italy); and CLC West (Brussels, Belgium).

The budget has over the years been in line with the strategic focus on deploying innovative solutions in the raw materials sector. Most of the budget has been assigned to innovation activities (i.e. into up-scaling in order to bridge the gap between R&D and industrialisation), thus underlining the special role of EIT RawMaterials compared with that of other Horizon 2020 and Horizon Europe funding instruments (i.e. other pillars or other partnerships).

EIT RawMaterials has continuously improved its budget consumption over time and its management costs continue to comply with EIT requirements.

5. Coherence and synergies

According to the external evaluation report³³, EIT RawMaterials is aligned with EU initiatives, such as the Critical Raw Materials Act (CRMA), the Net Zero Industrial Act (NZIA) and the Green Deal. The alignment with the EU's green transition policies was highlighted when the Commission created ERMA³⁴ in 2020 and appointed EIT RawMaterials to lead this strategic action – thus acknowledging the KIC's significant role in the sector and reinforcing its position as a leading organisation in the raw materials sector.

EIT RawMaterials collaborates with strategic actors through ERMA – engaging with higher education via the RawMaterials academy; with the battery sector; and with Horizon Europe for industrial uptake (particularly in clusters 4 (Digital, Industry & Space) and 5 (Climate, Energy & Mobility))³⁵.

At national level, EIT RawMaterials has developed synergies with initiatives in Belgium, Germany, France, Italy, the Netherlands, Finland, Sweden and the Nordic Council. However, evaluation research has highlighted challenges in aligning EU and national perspectives due to a focus on national interests³⁶. At regional level, the CLCs maintain strong links with large industrial companies, start-up accelerators and investor networks in order to further develop ecosystem synergies.

As the Biennial Monitoring Report 2024 highlights³⁷, the EIT KICs community is clearly the most active when it comes to synergies with other European Partnerships and Missions within Horizon Europe. Relevant synergies between EIT RawMaterials under Horizon Europe Pillar

³³ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 103.

³⁴ ERMA's vision is to secure access to critical and strategic raw materials, advanced materials and processing know-how for the EU's industrial ecosystems. ERMA involves all relevant stakeholders (including industrial actors along the value chain, Member States and regions, trade unions, civil society, research and technology organisations, investors and NGOs). Around 600 such partners joined ERMA in the first year following its foundation in November 2020.

³⁵ Institutionalised partnership report – EIT Raw Materials, p. 18.

³⁶ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 101.

³⁷ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

II partnerships include the Clean Steel Partnership (CSP), the Process4Planet Partnership (P4P), Key Digital Technologies (KDT) and Made in Europe; as well as projects such as ReclaMet and the UNCLOS (Ultra-Low CO₂ steelmaking) project. EIT RawMaterials also pursues synergies with the Digital Innovation Hubs. Similarly, the European Partnership on Innovative SMEs and the European Science Cloud initiative are also relevant to EIT RawMaterials' activities³⁸.

The EIT KICs have established a number of EIT community initiatives (including Skills 4 Future, Strategic Education, HEI Capacity Building Initiative and the RIS Jumpstarter programme), thereby promoting synergies with other KICs. For example, the HEI Capacity Building Initiative is led by EIT RawMaterials and collaborates with all the other EIT KICs except for EIT InnoEnergy. EIT RawMaterials also leads the Strategic Education initiative on behalf of the EIT community.

6. EU added value

According to the external evaluation report³⁹, EIT RawMaterials has created significant EU added value thanks to the integration of the knowledge triangle across Europe, both by building a sustainable innovation ecosystem and by developing concrete solutions to societal challenges. EIT RawMaterials's ecosystem promotes cross-border dialogue, thus expanding its impact across the EU. This integration has added value at the regional and sectoral EU levels by:

- accelerating innovation and up-scaling projects for industrial competitiveness;
- creating businesses/start-ups;
- providing learning and education to re-skill and up-skill the workforce;
- facilitating matchmaking and networking with EU and third countries, helping to create an EIT community.

EIT RawMaterials contributes through cross-cutting initiatives. These include Lighthouses, which are large-scale, long-term projects addressing critical raw materials challenges in the EU. These initiatives guide innovation projects to create smart solutions along the raw materials value chain for a sustainable future, aligning with strategic objectives at EU level.

Projects under the RIS broaden the KIC's scale of action by ensuring a strong presence in RIS hubs and promoting targeted matchmaking and networking events. This engagement increases participation by non-partners in RIS regions, thus enhancing the KIC's impact in countries and regions with a lower innovation performance in line with its objectives.

7. Relevance

The KIC's partnership report⁴⁰ concludes that EIT RawMaterials is well aligned with the Framework Programme's challenges and needs – particularly in sustainability, energy, climate, resources and circularity. EIT RawMaterials also contributes to the Sustainable Development Goals (SDGs) – especially in industry, economic growth, responsible consumption and production, and clean energy.

³⁸ Institutionalised partnership report – EIT Raw Materials, pp. 18-19.

³⁹ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 15.

⁴⁰ Institutionalised partnership report – EIT Raw Materials, p. 16.

EIT RawMaterials aims to secure a sustainable raw materials supply by driving innovation, education and entrepreneurship across the EU's industrial ecosystems. Its relevance lies in its providing a collaborative environment for disruptive and breakthrough innovations by connecting business with academia, research and investment. The KIC invests in future innovators (from school students to industry professionals) and is committed to supporting the EU's transition to a circular, green and digital economy, thereby enhancing global competitiveness and securing employment.

Since 2020, EIT RawMaterials has managed the European Raw Materials Alliance (ERMA), which is composed of over 750 partners from various sectors (including industry, Member States, regions, trade unions, civil society, research organisations, investors and NGOs). ERMA has created new opportunities for innovation ecosystems and raw materials stakeholders.

EIT RawMaterials has adapted flexibly to emerging developments. For example, the Booster Call, which was implemented in response to the COVID-19 crisis, significantly increased the budget for business creation and support activities, and boosted EIT's output (as stated in the external evaluation report)⁴¹. The energy transition is accelerating and mineral and metal demands for clean energy technologies are projected to increase significantly by 2040. EIT RawMaterials has therefore focused on funding energy technology projects. In addition, the Russian war of aggression against Ukraine has placed the EU's energy sector and private households under immense strain. In order to reduce the EU's dependency on strategic and critical raw materials from outside the EU and to promote environmental, social and governance standards, EIT RawMaterials and ERMA have responded with two strategic EU action plans.

- The 2021 Rare Earth Magnets and Motors Action Plan⁴² aims to build the EU's first rare earth value chain, triggering 14 investment projects to supply at least 20% of the EU's permanent magnet needs by 2030 (according to EIT RawMaterials).
- The 2023 Materials for Energy Storage and Conversion Action Plan⁴³ identifies and quantifies raw materials investments needed for electrification and energy storage, aligning itself with the REPowerEU Plan to increase the 2030 renewables target from 40% to 45%. Nearly 50 investment cases have been identified, requiring over EUR 15 billion in total.

With these action plans, EIT RawMaterials and ERMA are responding to the key actions listed in the proposal for a Critical Raw Materials Act (CRMA) for 2030 to diversify the EU's supply and set clear benchmarks for domestic capacities along the strategic raw material supply chain⁴⁴.

8. Directionality

According to the external evaluation report⁴⁵, EIT RawMaterials has made significant progress towards its strategic vision and objectives, even if these have not been fully achieved. The KIC has engaged and mobilised a diverse range of stakeholders across the EU, thus becoming instrumental in addressing the challenges in the raw materials sector and EU policy priorities. EIT RawMaterials is aligned with Horizon Europe's impact dimensions: strategic autonomy,

⁴¹ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 89.

⁴² <https://erma.eu/app/uploads/2021/09/01227816.pdf>.

⁴³ <https://erma.eu/app/uploads/2023/06/8bafd7ec.pdf>.

⁴⁴ Institutionalised partnership report – EIT Raw Materials, p. 17.

⁴⁵ Institutionalised partnership report – EIT Raw Materials, p. 5.

global positioning, industrial competitiveness and digitalisation, human-centred/ethical innovation, and sustainability. It is also aligned with the Green Deal.

As one of the largest raw materials networks, EIT RawMaterials includes both industry leaders and SMEs throughout the entire value chain. The creation of the ERMA has opened up new opportunities to expand innovation ecosystems and involve additional partners. The Regional Innovation Scheme has also promoted new innovation ecosystems in regions that are lagging behind in terms of innovation.

EIT RawMaterials has brought products and processes to the market; created and secured jobs in the EU; established educational and training programmes; and promoted an entrepreneurial mindset through its activities. Its support for innovation and entrepreneurship provides comprehensive guidance for idea-holders and start-ups at all stages of transforming ideas into market-ready solutions ⁴⁶.

9. International positioning

According to the external evaluation report ⁴⁷, EIT RawMaterials has established itself as a thought leader in the global raw materials sector. The KIC tackles issues beyond the EU's borders through its network and through collaboration with programmes such as the UN Economic Commission for Europe.

EIT RawMaterials participates in the EIT community's Global Outreach Programme's ⁴⁸ activities and the Strategic Regional Innovations (SRI) ⁴⁹. The Programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the EU economy as well as local ecosystems. The Programme currently comprises established and successful EIT Hubs in Silicon Valley (USA) ⁵⁰, Tel Aviv (Israel) ⁵¹ and London (UK) ⁵². Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in future expand into Moldova and potentially Georgia, in line with the EU's enlargement policy priorities.

The two most involved third countries in EIT RawMaterials' activities are Australia and South Africa, which each have two participations. According to the Biennial Monitoring Report (BMR) survey conducted in 2022, the percentage of grants awarded to non-EU beneficiaries in calls for proposals was 1.2% of EIT RawMaterials's total budget ⁵³. This figure then increased to 10% according to the 2024 BMR survey ⁵⁴.

As highlighted in the partnership report, the Programme's activities focus on three main areas:

- the exporting partner network: with a focus on Australia, Canada, South Africa, Latin America and other regions;
- developing access to the pool of global talent: creating mutual benefits for third-country talents following EIT RawMaterials' education programmes, as well as for EU graduates

⁴⁶ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 29.

⁴⁷ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 101.

⁴⁸ <https://go-eit.eu/>.

⁴⁹ <https://eit-ris.eu/>.

⁵⁰ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁵¹ <https://go-eit.eu/eit-israel-hub/>.

⁵² <https://go-eit.eu/eit-uk-hub/>.

⁵³ Institutionalised partnership report – EIT Raw Materials, p. 34.

⁵⁴ Biennial Monitoring Report (BMR) Survey Results 2022 and 2024.

and start-ups from EIT-labelled and other education activities finding business opportunities with industry in third countries;

- establishing strategic alliances: identifying relevant ecosystems in target regions and adopting best practices from them ⁵⁵.

The KIC aims to continue its contributions to the EU-Latin America and Caribbean (LAC) round tables and to promote EU start-ups and SMEs. This supports the international dimension of the Green Deal by forming green alliances with partner countries and regions to prevent ecological collapse and combat climate change ⁵⁶.

In terms of ongoing activities under Horizon Europe, ERMA is expanding its international strategic partnerships and outreach activities, in both membership and leadership of investment cases. ERMA plays a crucial role in the international partnership with Canada and was instrumental in the implementation of Memorandum of Understanding between the EU and Ukraine on a strategic partnership on raw materials. Other strategically important non-EU countries for ERMA include Kazakhstan and Namibia, along with several countries and territories with upcoming (Greenland and Norway) or already announced (Argentina, Australia and Chile) international partnerships ⁵⁷.

10. Phasing-out preparedness

The EIT Regulation ⁵⁸ defines ‘financial sustainability’ as the capacity of EIT KICs to finance their knowledge triangle activities independently from the EIT contributions. It requires the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that mobilises funds from other public and private sources before the end of the 15-year period of EIT funding. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it has to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT RawMaterials has consistently overachieved its financial sustainability coefficient ⁵⁹ target and co-funding rates. The coefficient varied between 10% and 22% in 2017-2020 and was 16% in 2022. EIT RawMaterials’ revenues show consistently stable income from membership fees, while the KIC is growing its revenues from services and activities in order to differentiate and grow income sources in anticipation of the expected reduction of EIT funding rates. With the support of its IP Committee, the KIC has defined objectives to take advantage of additional revenue sources (e.g. intellectual property management or financial assets). The initial Strategic Agenda did not set targets for revenue generation through KIC activities. These targets were introduced as a single metric in the updated Strategic Agenda in 2018. To achieve long-term financial sustainability, the new Strategic Agenda introduced a backflow scheme in 2021. In 2022, EIT RawMaterials introduced an equity model with start-ups and already holds more than 40 direct equity stakes or options in these start-ups, which already had an aggregate value of

⁵⁵ Institutionalised partnership report – EIT Raw Materials, pp. 34-35.

⁵⁶ Institutionalised partnership report – EIT Raw Materials, p. 35.

⁵⁷ Institutionalised partnership report – EIT Raw Materials, p. 35.

⁵⁸ In particular, Articles 2(16) and 6(i) of [Regulation \(EU\) 2021/819 of the European Parliament and of the Council of 20 May 2021 on the European Institute of Innovation and Technology](#).

⁵⁹ The financial sustainability coefficient (FS coefficient) is the ratio of a KIC’s own revenues to its EIT grant in a given year.

EUR 7.6 million at the end of 2023 (when the KIC held 39 equity stakes or options). It also reported that it had concluded more than 200 revenue-sharing agreements by the end of 2023.

Complementary to the implemented financial sustainability mechanisms, EIT RawMaterials has received recommendations to reduce its reliance on membership fees and to improve its revenue generation, intellectual property management and financial asset ownership⁶⁰. The 2021-2027 Strategic Agenda focuses on gradually reducing reliance on EIT funding and finding new ways to achieve financial independence. The 2021-2027 Strategic Agenda aims to address this. It is also to be noted that EIT RawMaterials reported substantial financial reserves in 2023 and that this could provide a solid basis for further progress towards financial sustainability in the future.

In sum, EIT RawMaterials has created a solid basis for achieving financial sustainability beyond the 15-year period of EIT funding. The KIC will have to further diversify its revenue sources and reduce its dependency on membership fees, and has already taken active steps in this direction. One of its main future sources of revenues will be income from assets held as a result of services provided to start-ups – thus following more closely than in the past the successful example of EIT InnoEnergy.

⁶⁰ Deloitte and White Research, EIT RawMaterials – Final Report, 2022, p. 120.



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COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 28: Evaluation of EIT Urban Mobility

Annex to the Commission's interim evaluation of Horizon Europe

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1. Effectiveness

The EIT Urban Mobility Knowledge and Innovation Community (KIC' or 'EIT Urban Mobility') is a young KIC that was established as part of the fourth wave of the EIT KICs, in accordance with Article 9 of the EIT Regulation, Regulation (EU) 2021/819¹. It was officially inaugurated in 2019, and its first operational activities and calls were launched in 2020. Therefore, many of the planned activities, as set out in the KIC's Strategic Agenda and business plans, are currently being rolled out. To achieve its objective, for the 2019-2023 period, EIT Urban Mobility received an EIT grant of EUR 159 million.

EIT Urban Mobility's main objective is to develop and facilitate innovative solutions in the urban mobility sector. To achieve this, the KIC focuses on tackling challenges with the aim of creating liveable urban spaces. Under Horizon 2020, EIT Urban Mobility was relevant for activities dealing with the societal challenge(s) on transport and energy, but the operationalisation and financing of its activities started mainly under Horizon Europe. EIT Urban Mobility under Horizon Europe has forged thematic synergies mostly with the 'Climate, Energy & Mobility' cluster under Pillar II.

The network of the KIC's partners includes leading organisations in the field of education, research and business from the entire value chain of the mobility sector across Europe. Given the sectoral focus of EIT Urban Mobility, cities are key members of the KIC, as they serve as living labs for piloting innovative solutions. EIT Urban Mobility currently includes more than 50 European cities.

Objectives and achievements

EIT Urban Mobility's 2021-2027 Strategic Agenda² has set the following five objectives: (1) creating liveable urban spaces; (2) closing the knowledge gap; (3) deploying green, safe, and inclusive mobility solutions for people and goods; (4) accelerating market opportunities; and (5) promoting effective policies and behavioural change. These objectives are aligned with the priorities of the 2019-2024 European Commission³, in particular the green transition agenda that aims to achieve a liveable urban ecosystem, a climate-neutral and sustainable circular economy, inclusive and resilient urban mobility as well as a healthy urban population. They also reflect the strategic direction of Horizon Europe, ensuring consistency with EU policy objectives.

During its first three years in operation, EIT Urban Mobility has focused its activities primarily on future mobility, sustainable city logistics, mobility and energy as well as active mobility. EIT Urban Mobility's portfolio includes a dedicated service approach that goes beyond funding for projects. This is reflected in: i) the academic and professional training offers; ii) its ecosystem development approach across Europe; iii) the inclusion of the participating cities; and iv) the support for start-ups.

All of these strategic objectives are being implemented, and the results are delivered by the knowledge triangle integration concept, which brings together education, science and business. In the EIT Impact Framework, the EIT has defined several key performance indicators (KPIs) for the KIC's activities in innovation, business creation and education. Table 1 shows EIT Urban Mobility's achievements in terms of KPIs for 2020-2023.

¹ [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#) replaced the original regulation, Regulation (EC) 294/2008.

² [EIT Urban Mobility 2021-2027 Strategic Agenda](#).

³ [Political Guidelines for the European Commission 2019-2024](#).

Table 1: EIT Urban Mobility 2020-2023 KPIs; targets (T) and achieved results (A)

	2020		2021-2022		2023		Total	
	T	A	T	A	T	A	T	A
Innovations launched on the market	22	21	39	54	20	38	81	113
Designed/Tested innovations*			17	90	30	38	47	128
KIC Supported Start-ups/Scale-ups	82	81	345	472	100	405	527	958
Start-ups created of/for innovation	1	1	31	29	10	13	42	43
Start-ups created of EIT labelled MSc/PhD programmes	0	0	6	4	7	14	13	18
Investment attracted by KIC supported start-ups/scale-ups (EUR mil)	1	5,4	17,4	35	8	57,3	26,4	97,7
Graduates from EIT labelled MSc/PhD programmes	0	0	50	22	130	31	180	53
Participants in (non-degree) education and training*			9924	16295	4100	9417	14024	25712

* KPI only reported from 2021 (designed/tested innovations reports on IPR applications).

Source: EIT administrative and monitoring data (reported by the KIC and verified by EIT).

Overall, as the external evaluation highlighted⁴, EIT Urban Mobility is on target with most of its KPIs, as also shown in the table above.

EIT Urban Mobility has been effective in supporting start-ups and/or scale-ups⁵ through its entrepreneurship and business creation activities, overachieving the target set for 2020-2023 with a total of 958 supported companies (against the initial target of 527). Therefore, EIT Urban Mobility has been successful in its aim to provide a start-up-friendly environment including access to partners, infrastructure and finance. The countries in which these supported start-ups were registered were widely spread, including several countries associated with Horizon Europe and third countries. Moreover, the investment attracted for the supported start-ups and scale-ups was higher than originally planned, reaching over EUR 97 million for 2020-2023, significantly outperforming the target of EUR 26 million. For example, in 2023, EIT Urban Mobility was the top investor in European mobility start-ups according to Via ID and Dealroom⁶. In 2024, the Financial Times ranked EIT Urban Mobility (together with four other KICs) among the top 125 of Europe's leading start-up hubs⁷.

When it comes to innovation activities, EIT Urban Mobility has performed well in bringing solutions to the market, exceeding the target of 81 set for 2020-2023 with a total of 113 innovations launched on the market. Similarly, the creation of new start-ups from innovative projects has reached the target set for 2020-2023 of 42 with a total of 43 new companies, as shown in the table above. The innovation projects usually focus on higher technology readiness levels (TRL), at 6 or higher. Smaller projects are funded, many of which have an experimental character or can be regarded as pilots. They are very much application-oriented and often try to include cities and citizens. Examples of the innovations launched on the market thanks to EIT Urban Mobility are *SOLUM* – solar-powered micromobility docking stations for e-scooters and e-bikes – and a solar-charging electric battery service. Its main goal is to encourage

⁴ Deloitte and White Research, [Three-year Interim Review of EIT Urban Mobility - Final Report](#), October 2023, p. 57p. 57.

⁵ Partnership evaluation report – EIT Urban Mobility (2024), p. 19.

⁶ <https://www.eiturbanmobility.eu/eit-urban-mobility-is-the-most-active-investor-in-european-mobility-startups-in-2023/> Data extracted from the start-up database DealRoom, to track investment rounds and employment at start-ups supported by the KIC.

⁷ [Ranking - Europe's leading start-up hubs | Incubator Accelerator Programmes Europe \(ft.com\)](#).

intermodality in Milan, Toulouse and Madrid, therefore contributing to the KIC's main focus of 'innovation and the actual piloting and experimentation in concrete urban spaces' ⁸.

A priority for EIT Urban Mobility during the last four years has been the establishment of academic education and vocational training offered within the KIC's 'Academy' pillar. In view of the external evaluation report ⁹, EIT Urban Mobility contributed to skills development in institutions as well as to upskilling/reskilling through its various education programmes, e.g. EIT-labelled master's degrees, the doctoral training network (DTN), the competence hub, and education capacity building. However, the KIC could not fully achieve certain initial goals at least not in its the early phase of the KIC, mainly due to the limitations imposed by the COVID-19 pandemic and its limitations. ¹⁰ In particular, challenges were identified regarding the number of graduates and the number of start-ups created from EIT-labelled programmes. For the 2020-2022 period, some 94 students were enrolled in EIT-labelled MSc and PhD programmes, but only 22 graduated, falling short of the target of 50. In 2023, only 31 students graduated from EIT-labelled programmes, also falling short of the target of 130. For 2020-2023 period, 18 start-ups were created from such programmes a number that meets the target of 13 set for the period but that still needs to increase to reach the target of 79 by 2027 ¹¹. On the contrary, as stated in the EIT Urban Mobility's highlights report from 2022 ¹², 15 000 professionals have been trained by the Competence Hub, which indicates that a good progress has been made towards reaching the 2027 target of 42 500. The table above reveals a positive trend in the number of participants in non-degree education and training, with some 25 000 professionals already having been trained, above the goal set for 2021-2023 of 14 024.

EIT Urban Mobility currently runs two Master's programmes ¹³ (instead of the targeted four), but a call to broaden the offer was launched in autumn 2023 and a third Master's programme was launched in 2024 and is currently accepting applications¹⁴. EIT Urban Mobility has also established a PhD School that focuses on an additional entrepreneurship module to bridge the gap between research and how it is applied. Doctoral candidates can also apply for financial support if they want to establish a start-up. To make the work of the Academy more visible, EIT Urban Mobility has also started an inter-disciplinary academic journal.¹⁵ While all course offerings and course programmes are evolving, as the challenges and technology evolve, EIT Urban Mobility offers more than 100 courses for different needs and stakeholders, having over 32 000 enrolled learners and over 25 000 graduates in non-degree programmes. This educational offer is being promoted, with initiatives such as creating a digital marketing strategy to increase the access to the EIT Campus, which is an online one-stop-shop for all education and training programmes offered by all EIT KICs ¹⁶.

⁸ For more information and more examples, see [EIT Urban Mobility Highlights Report 2020](#), pp. 18-32.

⁹ Partnership evaluation report – EIT Urban Mobility (2024), p. 19.

¹⁰ Partnership evaluation report – EIT Urban Mobility (2024), p. 19.

¹¹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023) p. 59.

¹² [EIT Urban Mobility Highlights Report 2020](#), p. 12.

¹³ These pan-European two-year master programmes combine innovation and entrepreneurship training with technology and more technical knowledge, based on a learning-by-doing approach to education. The double-degree programmes run in partnership with six leading European universities and involve industry and cities. Students complete a two-week summer school in two different cities addressing critical city-based challenges. [EIT Urban Mobility Highlights Report 2020](#), p. 9. Partnership evaluation report – EIT Urban Mobility (2024), p. 19.

¹⁴ EIT Administrative data (data reported by KICs and validated by EIT), November 2024.

¹⁵ Partnership evaluation report – EIT Urban Mobility (2024), p. 19.

¹⁶ <https://eit-campus.eu/>

Long-term scientific, societal, economic and technological impacts

The following societal impact indicators have been identified in the EIT Impact Framework 2022-2027 for the KIC's activities:

- 1) Improved quality of public space design and public infrastructure,
- 2) Repurposed traffic road space to public places,
- 3) Modal shift to clean and healthy mobility alternatives to motorised transport ¹⁷,
- 4) New competencies created that match future needs for the mobility sector and respond to city challenges,
- 5) Reduced CO₂ emissions and liveable urban areas created through implementation and scaling of solutions,
- 6) Increased share of public-private investments and incentives for sustainable urban mobility measures and services,
- 7) Increased citizen involvement and level of active participation in decision making and co-creation of urban mobility solutions,
- 8) Improved travel behaviour¹⁸.

As the indicators were only introduced in 2021, the assessment focuses on the relevance of the KIC's activities in contributing to achieving these goals, rather than on the extent of the impact already achieved.

Nevertheless, according to the external evaluation report¹⁹, the KIC's activities clearly point towards achieving the main challenge that it was designed to solve, in particular, improving the quality of life in cities, mitigating climate change thus stepping up urban resilience, and boosting the competitiveness of cities and the European mobility sector to create jobs.

As regards the way EIT Urban Mobility contributed towards improving the quality of public space design and public infrastructure, the KIC has been behind target, having achieved 31 public realm improvements in the period 2021-2022 compared to the 75 targeted.²⁰ Throughout 2021-2023, the KIC's was able to roll out 42 public realm improvements across Europe against the target set in the KIC's Strategic Agenda of 200 by 2024.²¹

EIT Urban Mobility aims to mitigate climate change by involving EU-level stakeholders and cross-KIC initiatives, taking on best practices from EIT Climate-KIC and supporting projects that create innovative urban mobility solutions, thereby moving towards climate-neutral cities. In view of the external evaluation report ²², the KIC has been working on several projects thus proving their commitment to achieving this goal. These activities include: i) the Zeus project for silent, emission-free deliveries; ii) the Ultimate project for public transport electrification; and iii) the Inclusiv_eBike project, which developed a new rickshaw e-bike concept for safe urban transport. In addition, in 2020, EIT Urban Mobility repurposed 10 227 m² of traffic roads into public spaces, far exceeding the target of 1 200 m² set in the 2021-2027 Strategic Agenda,

¹⁷ According to the external evaluation report, this will only be monitored in 2024 against 2020 values and 2027 against 2024 values. Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023) p. 32.

¹⁸ [EIT Impact Framework 2022-2027](#) pp. 21-22.

¹⁹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 28.

²⁰ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p.32

²¹ EIT Administrative data (data reported by KICs and validated by EIT), November 2024.

²² Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 32.

with the aim of promoting healthy, clean mobility and flexible public space uses.²³ benefiting those who live in urban areas liveability, the local economy, and the environment.

EIT Urban Mobility aims to contribute to the European mobility sector by educating the next generation of urban mobility specialists by using its Master School, DTN and competence hub. To this end, the KIC has developed 101 new courses between 2021 and 2022,²⁴ and around 50 new courses in 2023²⁵, against the target set in the KIC's Strategic Agenda of 75 by 2024.

EIT Urban Mobility helps reduce both GHG and non-GHG emissions by implementing less polluting solutions like electric and autonomous ferries, electric bicycles and EV charging platforms, which can translate into savings of 10 027 tons of GHG emissions²⁶. EIT Urban Mobility's portfolio of activities are designed based on how they contribute to four broad dimensions (society, knowledge, health, environment) and 19 categories of impact as defined by the Upright Project's Net Impact Model.²⁷ Ultimately, the KIC supported sustainable solutions developed tackle the complex urban challenges that include also conserving highly scarce natural resources (fresh water and certain minerals and metals), preserving ecosystems and protecting biodiversity (EV battery upcycling services) or promoting responsible waste management, recycling and resource sustainability (waste management data analytics and optimisation software).

Moreover, in 2021-2022 the KIC progressed towards achieving its goal of contributing to liveable urban areas by implementing and scaling up solutions, with 16 innovation pilot scaling, against a target of 17²⁸. However, by 2023 the total of pilots scaled up was 17, a bit far from the target set in the KIC's strategic Agenda of 39 innovation pilot scaling by 2024.²⁹

Furthermore, EIT Urban Mobility boosts city competitiveness by stepping up business creation, providing training to citizens, engaging in innovation programmes, and implementing urban mobility solutions. As mentioned before, the KIC supports start-ups and entrepreneurs through accelerators and scale-up programmes and has launched various education initiatives to nurture and develop talent. On top of this, the KIC has implemented several education programmes to ensure the upscaling and fostering of talent. These programmes include EIT Label Master's degrees, the DTN, the competence hub, and capacity building in education.³⁰

Furthermore, the KIC is working towards increasing the innovation capacity of cities through living labs and innovation programmes in order to increase public involvement and the level of active participation in decision-making and co-creation of urban mobility solutions. In 2021-2022, it developed 114 demonstrations, pilots and living labs, actively involving citizens and/or local associations and surpassing the target of 95.³¹ However, the total for 2021-2023 amounted to 159³² against a target set in the KIC's Strategic Agenda of 228 to be reached by 2024. This highlights EIT Urban Mobility's contribution to an increased share of public-private investments and incentives for sustainable urban mobility measures and services. Through

²³ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023) p. 59.

²⁴ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023) p. 68

²⁵ EIT Administrative data (data reported by KICs and validated by EIT), November 2024.

²⁶ [2024-Impact-Report-EIT-Urban-Mobility.pdf](#)

²⁷ Categories of impact include jobs, taxes, societal infrastructure & stability, equality & human rights, knowledge infrastructure, scarce human capital, physical & mental diseases, nutrition, relationships, GHG emissions, biodiversity or waste

²⁸ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 48.

²⁹ EIT Administrative data (data reported by KICs and validated by EIT), November 2024

³⁰ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 33.

³¹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 63

³² EIT Administrative data (data reported by KICs and validated by EIT), November 2024.

initiatives like living labs, City Club, and ChallengeMyCity, the KIC has made progress towards achieving this goal.

Since EIT Urban Mobility was launched as part of the fourth wave of the EIT KICs, with its first operational activities and calls launched in 2020, a more accurate assessment of its impact targets will be conducted during the seven-year comprehensive review starting in 2025, as done with the first three waves of KICs.

EIT Urban Mobility has also identified several economic long-term impact goals. These are defined in the EIT Impact Framework 2022-2027 as follows:

- contribution to the revenue growth of organisations trading or employing innovations developed with the KIC support;
- number and revenue of start-ups and scale-ups supported by KICs trading three years after KIC support ceased;
- new jobs created in start-ups and scale-ups;
- impact on employment growth as a result of company being engaged with KICs;
- number and type of jobs in existing businesses sustained through innovations;
- number and type of skill gaps and/or skill shortages filled, by KIC sector;
- visible innovation ecosystems not previously in existence;
- share of indicated innovation ecosystems that covers RIS countries ³³.

EIT Urban Mobility has worked towards job creation and the strengthening of the European urban mobility sector by providing reskilling and upskilling programmes through its academy and its programmes supporting start-ups and scale-ups ³⁴. In the recently published 2024 Impact Report, it is estimated that the KIC's contribution could translate into 1 070 direct or indirect jobs being created thanks to EIT Urban Mobility support ³⁵. Therefore, the KIC has: contributed to skills development in institutions as well as upskilling and reskilling (e.g. NewUM, Urban Mobility Digital Talent).

Due to EIT Urban Mobility being a young KIC, information on the long-term impact of EIT-labelled programmes on participants' career growth is not yet available. This will be part of the seven-year assessment starting in January 2025.

2. Additionality

Table 2 provides the basic financial figures for EIT Urban Mobility since it started operating in 2019. EIT Urban Mobility was able to achieve a direct leverage factor ³⁶ of 0.16 in 2019-2023 (if one only takes co-funding from partners related to the EIT grant into consideration) and 0.26 (if one adds revenues created through KIC activities (EUR 41 million vs the EIT grant of EUR 159 million).

Table 2: EIT Urban Mobility financial figures (in EUR million)

³³ [EIT Impact Framework 2022-2027](#) , pp. 7-11.

³⁴ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 47.

³⁵ [2024-Impact-Report-EIT-Urban-Mobility.pdf](#)

³⁶ Ratio of the direct leverage to the EU contribution. This is calculated as: direct leverage factor = (1/(Funding rate))-1.

	2019	2020	2021	2022	2023	Total
EIT grant	3,7	27,6	28,4	47,4	51,9	159,0
Co-funding	0,4	5,4	4,1	7,2	8,8	25,8
Revenues		2,8	3,4	5,8	3,5	15,5
Activities not funded by EIT		48,0	0,0	0,3	19,7	68,0
Co-investment, i.e. investments attracted by start-ups		5,4	4,3	30,6	57,3	97,6

Source: EIT financial data; reported by KICs and validated by the EIT (also available in Corda). EIT Grant 2023 figures are derived from three-year business plans.

In terms of leverage effects for the EIT KICs, the specificity of the EIT model requires the monitoring of additional leverage not only through co-funding and the revenues of EIT KICs that are directly reinvested back into the KICs activities, but also through the non-EIT funded activities³⁷ as well as the co-investments attracted by the companies supported through the EIT.

When the activities funded by direct contributions from partners and affiliated entities (activities not funded by the EIT) are considered, EIT Urban Mobility achieved a leverage factor of 0.69 in 2019-2023. When the co-investments (i.e. investments attracted by start-ups of EUR 97 million) are also included, the leverage factor rises to 1.3 over the period of EIT Urban Mobility's lifecycle to date. This means for every euro of EIT funding spent, EIT Urban Mobility activities have helped to attract EUR 1.3 in external investment.

Significantly, there are very large differences between the KICs, with very high leverage effects in some cases for the older KICs and significantly lower leverage effects for the newer KICs, such as EIT Urban Mobility. The conclusion from this observation suggests that a start-up phase is needed to achieve a higher financial leverage effect.

3. Transparency and openness

EIT Urban Mobility started its operation with a rather wide partnership network, which has been growing steadily. In 2019, its start-up year, the KIC already had 85 member organisations from 16 European countries³⁸. Between 2020 and 2021, the number of partners increased from 144 to 210, while in 2022 the partnership showed continuous growth, reaching 311 partners. The fluctuation within the partnership was rather low, as only 7 partners have withdrawn since 2021, which also shows that the revision of the partnership model carried out in 2022 (see section 10) was quite successful in retaining partners. In its 2021-2027 Strategic Agenda, EIT Urban Mobility set a target of having 257 partners by 2022 and 327 partners by 2027. Based on the partnership growth witnessed between 2020 and 2022, the external evaluation report concludes that the KIC has overachieved its set targets for 2022³⁹.

EIT Urban Mobility is open to new partners and membership applications are part of a fully open process, with clear instructions on the website⁴⁰. Similarly, the KIC's calls have been accessible, and clear information has been made available online. In 2022 the KIC's partnership model was revised, and a new, service-based, more open approach was introduced. The reform also resulted in decreased partnership fees and opportunities being offered to organisations to

³⁷ Non-EIT financed activities (NEFAs) are fully implemented without an EIT grant but must contribute to KIC's Strategic Agenda and must be based on the EIT Knowledge Triangle Integration concept. They replaced the former KIC complementary activities (KCAs) applied in 2014-2020 under Horizon 2020.

³⁸ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 87.

³⁹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 87.

⁴⁰ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 79.

take part in activities with lower or no financial contribution ⁴¹. So far, as concluded by the external evaluation study, the new partnership model was successful, EIT Urban Mobility managed to retain its partnership and maintain a growing trend ⁴².

In view of the external evaluation report ⁴³, the EIT Urban Mobility's partnership reflects the extended knowledge triangle, where cities also involved along with education, research and business organisations. The partnership includes businesses from various areas of the mobility industry including some high-profile actors. Furthermore, cities are also represented within the partnership including multiple city municipalities. As the KIC's innovation programmes have prioritised higher Technology Readiness Levels (TRL) and inclusivity Key Performance Indicators (KPIs), research organisations have found these programmes less appealing due to their focus on marketed innovations ⁴⁴. The lower percentage of research institutions is a natural consequence of the sectoral needs ⁴⁵.

In 2022, out of the 311 EIT Urban Mobility partners, 102 were SMEs which represented 33% of all the partners. In terms of financial support, about 15% of the total 2021-2022 EIT Urban Mobility grant of EUR 76 million was directed towards SMEs. As of October 2024, the number of SMEs participating in the EIT grant agreement for 2023-2025 had increased to 53% of all active partners, with EUR 24.5 million directed towards SMEs, representing 22% of the total EIT grant ⁴⁶.

In terms of transparency, the KIC's calls have been available on their website since 2021. The evaluation process is clearly outlined, and external experts are involved in the scoring of the proposals. According to the external evaluation report ⁴⁷, the project selection process looks solid and transparent. In addition, core partners are involved in developing the business plans and strategic dialogues on priorities, and they can influence the work agenda ⁴⁸.

4. Efficiency

Table 3 sets out EIT Urban Mobility's operational budget and administrative expenditure (or running costs). The running costs include the management, governance, coordination, organisation and overhead expenditure paid from the EIT grant. This does not include the contribution from EIT Urban Mobility's partners.

Table 3: EIT Urban Mobility operational and administrative expenditure (in euro)

	2020	2021	2022
Operational Expenditures	28 009 807 €	27 353 806 €	47 536 964 €
Running Costs	5 096 651 €	5 173 164 €	7 054 496 €
Total budget	33 106 458 €	32 526 971 €	54 591 460 €

Source: EIT Financial Data; reported by KICs and validated by EIT

⁴¹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 86.

⁴² Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 86.

⁴³ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 79.

⁴⁴ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 82.

⁴⁵ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 87.

⁴⁶ While the EIT grant agreement for 2023-2025 is being implemented, the grant committed to SMEs and the number of SMEs, and their participation can still increase in the upcoming months and next year as EIT Urban Mobility has still calls to open and sign new projects.

⁴⁷ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 79

⁴⁸ Partnership evaluation report – EIT Urban Mobility (2024), p. 27

Table 3 indicates that the running costs for EIT Urban Mobility's headquarters and co-location centres (CLCs) for 2020-2022 ranged between 12.9% and 15.9%, at an average of 14.4%. Taking into account only the administrative costs of EIT Urban Mobility's headquarters, the average ratio of administrative costs to EIT Urban Mobility's overall operational budget dropped to 10.6% for the Horizon Europe period. This shows that the impact of the CLCs network on the administrative expenditure is obvious, because this decreased considerably once the costs related to the CLCs are excluded.

The EIT KICs are pan-European networks with many offices on the ground across Europe. These offices are an operational activity carried out by the KICs at a corresponding administrative cost. The EIT has, in order to keep these administrative costs at an acceptable level, set maximum thresholds in its guidelines to the KICs for the EIT-funded share of the KICs' administrative costs depending on the KICs' maturity. The values range from 18% and 15% in the first and second years of a KIC, respectively, to a constant of 12% from the third year until the end of the partnership lifecycle. If the EIT KICs were, as beneficiaries of EIT grants, to follow the rules of EU public entities, the expenses related to CLCs would be treated as operational expenditure related to ground operations, rather than as administrative expenditure. In such circumstances and considering that one of the core operational aspects of the EIT model is to support location-based innovation locally and regionally, it would be more appropriate to take only the administrative expenses of the EIT KICs' headquarters into account.

EIT Urban Mobility's headquarters are located in Barcelona. There are five CLCs, which are located in Munich, Amsterdam, Prague, Copenhagen and Barcelona. These five innovation hubs cover different geographic areas (i.e. central, east, north, south and west) with several countries located within these areas. Their task is to reach out to partners all over Europe and create a vibrant innovation ecosystem that enables the Strategic Agenda and the business plans to be implemented. Collaboration between the innovation hubs is ensured by the general rule that innovation projects need to involve partners from at least two hubs.

Despite the adverse circumstances resulting from the COVID-19 pandemic in 2020 and 2021, EIT Urban Mobility quickly got off the ground and published its first calls as early as in the second half of 2020. Several of the planned activities contained in EIT Urban Mobility's business plan are currently being rolled out. The number of activities ⁴⁹ increased remarkably from 2021 to 2022. However, there are not enough outcomes yet to make a reliable assessment of its overall efficiency at this stage ⁵⁰.

Nevertheless, in its very early years of operation, the KIC has been particularly effective in supporting start-ups, through its educational activities (especially regarding professional programmes) and knowledge exchange (e.g. through the annual 'Tomorrow.Mobility World Congress', which attracts over 25 000 participants). The first pilots of new processes and products, which involved companies, start-ups, research organisations, universities and citizens through living labs, took place in concrete urban spaces and more than 150 market-ready mobility solutions designed by innovative entities are available on the digital platform ⁵¹.

2023 data indicate that the average time-to-grant for calls launched by EIT Urban Mobility is 3.2 months.

⁴⁹ The EIT Urban Mobility business plan consists of activities (projects), commonly referred to as KAVA's – KIC added value activities.

⁵⁰ Partnership evaluation report – EIT Urban Mobility (2024), p. 31

⁵¹ Partnership evaluation report – EIT Urban Mobility (2024), p. 31

5. Coherence and synergies

Building synergies has been a priority for the KIC ever since it was created, as highlighted in its Business Plans and Strategic Agenda.

The main conclusion from the external evaluation report⁵² is that EIT Urban Mobility cooperates effectively with key networks and associations that support and share the same goals. Therefore, it is able to accelerate its actions and achieve greater impact.

EIT Urban Mobility has also been successful in aligning its activities and vision with relevant EU policy objectives (e.g. European Green Deal, 2030 Climate Target Plan, Sustainable and Smart Mobility Strategy)⁵³. In addition, EIT Urban Mobility has established relationships with relevant key-stakeholders, such as the European Innovation Council (in particular the Accelerator instrument) and the Digital Europe Programme.

Moreover, the KIC has also signed memoranda of understanding (MoUs) with institutions such as the Spanish Ministry of Transport⁵⁴ and the French Innovation Agency⁵⁵. They provide a joint framework for collaboration on addressing the current and future urban mobility challenges. Partnerships have also been forged with leading EU-funded city initiatives, like CIVITAS, Smart Cities Marketplace and Net Zero Cities⁵⁶ supporting the Mission on Smart and Climate Neutral Cities.

When it comes to synergies with other European partnerships and missions within Horizon Europe, the EIT KIC community is clearly very active, as highlighted in the 2024 Biennial Monitoring Report⁵⁷. EIT Urban Mobility has been able to create synergies, in particular with Pillar II Global Challenges, Cluster 5 (climate, energy and mobility), as well as with other partnerships (CCAM, 2ZERO and Driving Urban Transition). The KIC has shown that it can complement the work of other partnerships, particularly in facilitating the green and digital transitions.⁵⁸

The EIT KICs have established several EIT Community initiatives, thereby forging synergies with other KICs. EIT Urban Mobility is very active in these initiatives and supports different clusters, e.g. the Strategic Synergies cluster and the Shared Services cluster⁵⁹. Within the EIT Circular Economy Community, EIT Urban Mobility has joined forces with EIT RawMaterials, EIT Climate-KIC, EIT Food and EIT Manufacturing to create an environment that enables creative thinking and innovation. The EIT Campus, an online platform bringing together diverse programmes in the world of innovation, sustainability, entrepreneurship and technology, is a cross-KIC initiative led by EIT Urban Mobility⁶⁰.

⁵² Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 76.

⁵³ Partnership evaluation report – EIT Urban Mobility (2024), p. 15.

⁵⁴ <https://www.eiturbanmobility.eu/mitma-ministry-of-transport-mobility-and-urban-agenda-of-spain-and-eit-urban-mobility-agree-on-moving-forward-their-collaboration-agreement-in-2023/>.

⁵⁵ <https://www.eiturbanmobility.eu/eit-urban-mobility-and-the-innovation-agency-for-transport-join-forces-to-promote-innovation-in-france/>.

⁵⁶ <https://eit.europa.eu/news-events/news/netzerocities-eit-urban-mobility-working-support-cities-achieve-climate-neutrality>.

⁵⁷ European Commission: Directorate-General for Research and Innovation, Performance of European partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>, p. 56.

⁵⁸ Partnership evaluation report – EIT Urban Mobility (2024), p. 15.

⁵⁹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 76.

⁶⁰ [EIT Campus online platform - EIT Campus \(eit-campus.eu\)](https://eit-campus.eu).

6. EU added value

According to the external evaluation⁶¹, EIT Urban Mobility creates EU added value thanks to the pan-European integration of the knowledge triangle, which enables the relevant problems related to transport and mobility across Europe to be addressed using a bottom-up approach. EIT Urban Mobility is oriented towards innovation and experimentation in concrete urban spaces, and by cooperating with cities, it also contributes to non-technological innovations.

EIT Urban Mobility relies on city partnerships to achieve its goal of building a sustainable ecosystem. Thanks to its European scale, the KIC has been able to implement many city-based programmes helping to address the urban mobility challenges⁶².

EIT Urban Mobility's innovation hubs on the ground⁶³ as well as its Regional Innovation Scheme (RIS) hubs⁶⁴ have played a central role in building pan-European ecosystems in the area of urban mobility. They support start-ups, disseminate calls and inform local, regional and national authorities about the opportunities provided by the KIC. They meet local needs and link local partners into European networks⁶⁵.

According to the external evaluation⁶⁶, EIT Urban Mobility also offers EU added value at the programmatic-content level. This happens, firstly, through the European, transnational and regional ecosystems mentioned above that focus on deploying applicable urban mobility solutions to the market, for example, products supporting the fight against climate change. Secondly, EIT Urban Mobility differs from most other European programmes and initiatives in urban mobility in so far as the KIC targets higher TRLs that are strongly focused on innovation and start-ups. This depicts EIT Urban Mobility as an impact-driven venture organisation⁶⁷.

7. Relevance

The conclusion from the external evaluation report⁶⁸ is that EIT Urban Mobility is fully aligned with the EU's objectives. EIT Urban Mobility was set up under Horizon 2020 and responded to the societal challenge 'Smart, green and integrated transport'. This includes the notion of a resource-efficient and climate- friendly and safe European transport system to benefit the public, which should lead to better mobility, less congestion and more safety and security. This is also reflected by EIT Urban Mobility's three societal impact goals: 1) improving quality of life in cities; 2) mitigating and adapting to climate change; 3) creating jobs and strengthening the European urban mobility sector. Under Horizon Europe, EIT Urban Mobility contributes to all specific objectives, in particular to climate-neutral and environmental-friendly mobility, as well as safe, seamless, smart, inclusive, resilient, climate-neutral and sustainable mobility systems⁶⁹.

In addition, EIT Urban Mobility is also aligned with the 2022-2024 European Research Area (ERA) Policy Agenda⁷⁰. This is especially the case for the actions related to: i) partnerships; ii) the green and digital transition of industrial ecosystems; iii) knowledge valorisation; and iv)

⁶¹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 30.

⁶² Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 30.

⁶³ <https://www.eiturbanmobility.eu/our-hubs/>.

⁶⁴ <https://www.eiturbanmobility.eu/ris/>.

⁶⁵ Partnership evaluation report – EIT Urban Mobility (2024), p. 22.

⁶⁶ Partnership evaluation report – EIT Urban Mobility (2024), p. 22.

⁶⁷ Partnership evaluation report – EIT Urban Mobility (2024), p. 21.

⁶⁸ Partnership evaluation report – EIT Urban Mobility (2024), p. 13.

⁶⁹ Partnership evaluation report – EIT Urban Mobility (2024), pp. 13-14.

⁷⁰ [European Research Area Policy Agenda 2022-2024](#).

bringing science closer to people. Furthermore, its activities also help achieve the UN Sustainable Development Goal on sustainable cities. According to the external evaluation ⁷¹, EIT Urban Mobility also contributes to research careers via its international academic and vocational training offers and actively supports gender mainstreaming through its investments in gender-balanced start-ups.

As regards flexibility, EIT Urban Mobility has been flexible in adjusting its objectives, activities and resources to changing policy needs and requirements. These adjustments have been made through the KIC's business plans. The KIC's flexibility is also shown through its ability to join new initiatives quickly, such as the New European Bauhaus Initiative (NEB) ⁷², an EIT Community activity launched in 2021.

8. Directionality

After three years, EIT Urban Mobility's activities are aligned with EU objectives, especially the Green Transition Agenda. All resources are invested into activities linked to the Green Deal objectives ⁷³.

Furthermore, the KIC is making progress in contributing to boosting economic growth and fostering innovation and entrepreneurship capacity in EU Member States ⁷⁴. The KIC's activities address the societal challenges it aims to tackle, namely improving the quality of life in cities, mitigating climate change, and boosting the competitiveness of cities and the European mobility sector to create jobs ⁷⁵. As an example, through innovation and collaboration with SMEs and research institutes, the KIC has created innovative mobility solutions and products that support the fight against climate change ⁷⁶.

Overall, while EIT Urban Mobility must still reach its maturity, which implies that it is still difficult to assess its concrete effects and outputs, its activities in collaboration with cities, businesses, start-ups and scale-ups as well as education institutions are already helping to address the societal challenges it aims to tackle. ⁷⁷

9. International positioning

EIT Urban Mobility is pre-dominantly EU oriented, which is reflected in its network of partners ⁷⁸. However, the KIC also has partners from associated countries (Israel, Norway, Serbia, the UK and Türkiye) and third countries (Argentina, Mexico, Switzerland and the USA). Among EIT Urban Mobility's 50 core partners, only 4 are organisations from non-EU Member States ⁷⁹.

In 2021 and 2022, 3.4% of all start-ups supported by EIT Urban Mobility involved third countries. The share of supported start-ups registered in associated countries in the same period

⁷¹ Partnership evaluation report – EIT Urban Mobility (2024), p. 14.

⁷² The NEB, launched in early 2021, seeks to make the EU a leader in the circular economy, create a sustainable environment and provide inclusive, accessible spaces.

⁷³ Partnership evaluation report – EIT Urban Mobility (2024), p. 24.

⁷⁴ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 26.

⁷⁵ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), pp. 26-28.

⁷⁶ [EIT Urban Mobility, Highlights Projects 2020-2022, Mobility for more liveable urban spaces, 2021. EIT Urban Mobility, Highlights report 2022, Mobility for more liveable urban spaces, 2022.](#)

⁷⁷ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 33.

⁷⁸ <https://www.eiturbanmobility.eu/our-partners/>.

⁷⁹ Partnership evaluation report – EIT Urban Mobility (2024), p. 25.

was significantly higher, namely 12.6%, because many are registered in Türkiye (32) and Serbia (15).⁸⁰

EIT Urban Mobility participates in the EIT Global Outreach Programme's⁸¹ activities and the Strategic Regional Innovations (SRI)⁸². The Programme was established in 2018 and links the EIT's innovation ecosystem with innovation valleys worldwide, forging synergies with global innovation leaders and creating significant value for the European economy as well as local ecosystems. The Programme currently comprises established and successful EIT hubs in Silicon Valley (USA)⁸³, Tel Aviv (Israel)⁸⁴ and London (UK)⁸⁵. Under the SRI, activities are currently being developed in the Western Balkans, Türkiye and Ukraine. These will in the future expand into Moldova and potentially Georgia, in line with the EU's enlargement policy priorities. In these countries, EIT Urban Mobility has been tasked with overseeing the opening of EIT Community RIS hubs. The first opened in Skopje (North Macedonia) in June 2023⁸⁶, followed by Ukraine in December 2023, and Montenegro in May 2024⁸⁷.

In addition, even if EIT Urban Mobility has not developed priority towards R&I internationalisation, the KIC considers itself as central to the development of a pan-European ecosystem for urban mobility. For example, EIT Urban Mobility's flagship event 'Tomorrow.Mobility World Congress'⁸⁸ that takes place in Barcelona every year, provides a meeting place for the global urban mobility community. With participants coming from over 130 countries, it gives the KIC a high level of international visibility⁸⁹.

10. Phasing-out preparedness

The EIT Regulation⁹⁰ defines 'financial sustainability' as the EIT KICs' capacity to finance their knowledge triangle activities independently from the EIT contributions. It asks the EIT KICs to pursue this goal by implementing an effective financial sustainability strategy that involves mobilising funds from other public and private sources before the end of the 15-year period of EIT funding. The closer an EIT KIC gets to the end of its EIT funding period, the less EIT funding it receives and the more alternative funding sources it needs to find. The emphasis is on encouraging KICs to secure a larger share of their funding from external sources in order to ensure their long-term viability and continue their activities effectively. The challenge is for the KICs to secure adequate co-funding from other sources.

EIT Urban Mobility recently entered its ramp-up phase, in which 80% of its annual funding comes from EIT sources the EIT expects the KIC to start generating its own revenue already now so that it can gradually reduce its dependency from EIT funding.

In fact, in line with the financial sustainability strategy adopted in its Strategic Agenda, EIT Urban Mobility has gradually diversified its revenue portfolio. Despite the amounts still being modest, the KIC has started generating revenues from its provision of services and consultancy,

⁸⁰ Partnership evaluation report – EIT Urban Mobility (2024), p. 25.

⁸¹ <https://go-eit.eu/>.

⁸² <https://eit-ris.eu/>.

⁸³ <https://go-eit.eu/eit-silicon-valley-hub/>.

⁸⁴ <https://go-eit.eu/eit-israel-hub/>.

⁸⁵ <https://go-eit.eu/eit-uk-hub/>.

⁸⁶ <https://eit.europa.eu/news-events/news/eit-launches-innovation-hub-north-macedonia>.

⁸⁷ <https://eit.europa.eu/news-events/news/new-innovation-hub-opens-ukraine-eit-continues-strengthen-support-ukrainian>.

⁸⁸ <https://www.tomorrowmobility.com/>.

⁸⁹ Partnership evaluation report – EIT Urban Mobility (2024), p. 26.

⁹⁰ In particular, Article 2, (16) and Article 6 (i). [Regulation \(EU\) 2021/819 of the EIT \(2021\)](#).

its education activities, and alternative funding sources. Furthermore, it obtained its first revenues from returns on investment in its innovation projects. At the same time, the membership fees from partners represent a substantial revenue source, accounting for 45% of total revenues in 2023 ⁹¹. As of the end of 2023, EIT Urban Mobility reported 105 equity shareholdings in start-ups with a market value estimated at EUR 11.8 million. In addition, the KIC has 36 commercial agreements in place with different initiatives running in the innovation, education and business creation sectors, which aim to contribute to the KIC's financial sustainability based on revenue-sharing, tuition fees and service agreements.

In 2021, the reported financial sustainability coefficient ⁹² was slightly higher than the targeted percentage, which shows that the KIC has already started incorporating additional revenue sources from the market through commercialised services, equity investments, etc. ⁹³ In 2022, the figure was slightly below target, due to decrease of revenues from membership fees following changes in the KIC's membership scheme (see Section 3).

In 2021-2022, EIT Urban Mobility carried out two reforms: (1) a revision of the partnership model from a 'grant for fee' to a 'services for fee' model, focused on delivering value offers to partners in return for their annual service subscription; (2) a shift from 'funder' to 'impact investor', aligning innovation, academy and business creation programmes to ensure the more stable creation of and investment in start-ups ⁹⁴. This change has significantly helped to achieve a more diversified, albeit still modest revenue basis, as can be seen from the start of 2023.

Overall, EIT Urban Mobility seems to be on the path towards financial sustainability despite its short period of activity and the COVID-19 pandemic, which made its start-up phase even more challenging. Looking into the future, the main goal of EIT Urban Mobility's main goal in the coming years will be to increase its revenues from alternative sources and services to start-ups and put more emphasis on strong financial sustainability mechanisms. As the market for urban mobility services has significant potential, EIT Urban Mobility is well-positioned for future growth in a global economic segment.

⁹¹ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 97.

⁹² Financial sustainability coefficient (FS coefficient) is the ratio of KICs own revenues compared to EIT grant in a given year.

⁹³ Deloitte and White Research, Interim review of EIT Urban Mobility – final report (2023), p. 100.

⁹⁴ https://www.eiturbanmobility.eu/wp-content/uploads/2022/12/EIT-UM_Highlights-Report_2022.pdf.



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PART 21/21

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

Interim Evaluation of the Horizon Europe Framework Programme for Research and Innovation (2021 - 2024)

Accompanying the document

Communication from the Commission to the European Parliament and the Council

Horizon Europe: Research and Innovation at the heart of competitiveness

{COM(2025) 189 final}

Annex 29: Evaluation of European Partnership on Metrology

Annex to the Commission's interim evaluation of Horizon Europe

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The European Metrology Programme for Innovation and Research (EMPIR), established under Horizon 2020 and the Decision No 555/2014/EU¹, and the European Partnership on Metrology, established under Horizon Europe and the Decision (EU) 2021/2084², bring together the measurement science community and stakeholders to coordinate research. An external evaluation study³ has been performed by consortium led by Technopolis Group Belgium, which acts as a basis for this section of the Staff Working Document.

1. Effectiveness

Achievement of the objectives

EMPIR

The specific objectives of EMPIR are included in the Decision establishing the Partnership¹. It must be noted that actions from the EMPIR programme are still ongoing and that more results will become available after projects have been finalised in the autumn of 2024.

According to the external evaluation study, EMPIR has been successful in reaching most of its objectives⁴. For example, EMPIR has made progress towards two specific objectives of the partnership: the engagement of standardisation bodies (in the calls 2014 to 2020, EMPIR projects had made 2 316 contributions to 624 unique standard committees); and the development of a common strategic agenda, which has a thematic structure with a focus on addressing big challenges like climate change or digital transformation⁴.

The external evaluation study observes that objectives related to the interactions with all European National Metrology Institutes (NMIs) and Designated Institutes (DIs) and to a turnover of at least €400M from new products and services appear to have been largely, but not fully, reached⁴.

In addition to that, one of the objectives is interactions of all NMIs and DIs in the EU with EMPIR. Not all European NMIs and DIs have met this objective, as Albania, Cyprus, Latvia, Luxembourg, and Malta have not participated. Albania and Latvia were part of consortia submitting proposals for projects⁴. The external evaluation study highlighted that the absence of this group of NMIs is explained by the lack of staff and budget⁴. The average national budgets for metrology research have remained stable (in cash terms) over the decade, and programme funding has also been consistent. Regarding the objective to maintain a level of at least 50% of dedicated national metrology research investments in Europe under the coordination or influence of the programme, in the view of the external evaluation study, these shares of the national metrology budgets have remained stable at 52% (in cash terms)

¹ [Decision - 2014/555 - EN - EUR-Lex](#)

² [Decision - 2021/2084 - EN - EUR-Lex](#)

³ European Commission: Directorate-General for Research and Innovation, Oomens, I., Viscido, S., Lotito, A., Knee, P. et al., Horizon Europe and the digital & industrial transition – Interim evaluation support study – Phase 2 – Horizon Europe – Institutionalised partnership report – EMPIR and European Partnership on Metrology (EPM), Viscido, S.(editor), Lotito, A.(editor), Boekholt, P.(editor) and Lehardt, F.(editor), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/39988>

⁴ EMPIR-EPM external evaluation study (2024), p. 39 and 40

over the decade, and programme funding has also been consistent. More details on the status of the objectives of EMPIR can be found in Annex 2⁴.

EPM

The specific objectives of EPM are included in the Decision establishing the Partnership². For EPM, Key Performance Indicators (KPIs) have been defined to monitor the progress of the objectives of the Partnership. More detail on the status of the KPIs of EPM can be found in Annex 3. The Partnership is on-going, and all the KPIs due up to mid-2024 have been met. Two organisational novelties are:

- The EPM Steering Group^{2 5}, organised by the EC, is aimed at being an advisory body of the Metrology Partnership and shall give advice to the Metrology Partnership on the emerging priorities for metrology research at European level and on how to increase the impact of its research on European industry, economy and society.. Members of the EPM Steering group are experts coming from: EU Partnerships, Standards Setters, Regulators, Representatives of the Scientific Community and the Chairs of EURAMET. Minutes of the meetings are publicly available⁵.
- The European Metrology Networks (EMNs), which, according to Decision (EU) 2021/2084², are contributing to develop new research capabilities and allow the Partnership to interact with external stakeholders in developing commonly agreed strategic research agendas. They also foster new knowledge, competences and skills across the Union, thanks to the organisation of events and sharing of information. As of July 2024, 12 EMNs have been established⁶.

EURAMET operates various instruments to support capacity building⁷. EURAMET also organised specific events on regulation to gather relevant needs for the “Normative” research calls⁸, and thus contribute to the design and implementation of specific standards and EU regulations⁹. As mentioned during recent consultations with major stakeholders in November 2023, EPM has good collaborations with CEN/CENELEC on the definition of potential needs for standards. Stakeholders stressed that this should have a major impact on sectors like health, where new screening methods are developed in laboratories but are not brought to the market due to the lack of standards. In addition to that, they highlighted the need to do more to ensure that outcomes of projects are reflected in future standards or regulations. In line with the objective of unleashing the potential of metrology among end-users, including SMEs and industrial stakeholders, more than 90% of the Suggested Research Topics had co-authors who were interested in using the outcomes of the projects to ensure the right exploitation

⁵ [Metrology - European Commission \(europa.eu\)](https://europea.eu)

⁶ [EMNs Report download page \(euramet.org\)](https://euramet.org)

⁷ [Capacity Building \(euramet.org\)](https://euramet.org)

⁸ Normative research calls aim at developing metrological methods and techniques required for standardisation, regulation and conformity assessment.

⁹ [Metrology for Energy Regulation - Open Public Consultation - Online Event \(euramet.org\)](https://euramet.org)

activities¹⁰. At the moment, there are insufficient data on sales to monitor the progress towards the objective on market adoption.

Long-term scientific, societal, economic and technological impacts

EMPIR

Scientific impact

EMPIR has had a relevant scientific impact, thanks to several publications of project outputs in peer-reviewed journals. In EMPIR there have been 1689¹¹ publications in peer-reviewed journals as of June 2024. In addition, 344 conference proceedings, 17 good practice guides, 23 technical reports, 12 books, and 51 theses have been published by the EMPIR projects. EMPIR project partners engaged with a wide range of standardisation and regulatory bodies, as detailed before. An example of scientifically impactful research is the Redefinition of the International System of Units (SI)¹². In 2019, as an example of scientific breakthrough, after decades of laboratory work, the world's metrology community redefined four of the seven base units for the International System of Units (SI), linking them to fundamental constants of the universe¹³. EMPIR supported key European research that contributed to the SI revision and addressed the measuring challenges entailed by the SI redefinitions.

Technological impact

An example of technological impact is the EMPIR project “Precision Time for Industry”¹⁴. This project developed new time transfer techniques for industrial applications¹⁵. A correct knowledge of time is vital to modern life. Without it, energy grids, financial systems, global positioning, transport and the internet would fail. Currently, time is disseminated by radio signals or from orbital atomic clocks, which are prone to electromagnetic interference, space weather and hostile acts. A more secure system has been developed in the Project based on a protocol called White Rabbit (WR-PTP)¹⁶. The system acts as a backup for, or replacement of, this essential service. The techniques developed in the project have been implemented in real-life applications by several NMIs. For example, Dutch company OPNT, member of the consortium of the Project, in collaboration with SURF and the SuperGPS project, demonstrated that WR-PTP can deliver sub-nanosecond accuracy over existing telecom networks. This work helped establish WR-PTP links across Europe, including connections between VSL and ESA-ESTEC in the Netherlands. The technology's stability and scalability make it a robust backup to satellite-based timing¹⁵. Several National Metrology Institutes (NMIs) as of September 2024 offer time services based on the technology developed in the Project. For example, VTT MIKES (Finland) and INRiM (Italy) provide these services through partners such as Top-IX, while NPL (UK) offers NPLTime, ensuring secure and accurate UTC-synchronized time distribution for a range of applications, from 5G to smart

¹⁰ EMPIR-EPM external evaluation study (2024), p. 41 and 42

¹¹ [Publications Repository Link \(euramet.org\)](https://euramet.org/publications-repository-link)

¹² [SI redefinition \(euramet.org\)](https://euramet.org/si-redefinition)

¹³ [Implementing the revised SI \(euramet.org\)](https://euramet.org/implementing-the-revised-si)

¹⁴ [Precision Time for Industry \(euramet.org\)](https://euramet.org/precision-time-for-industry)

¹⁵ [Dissemination of accurate time and frequency over ground-based optical systems \(euramet.org\)](https://euramet.org/dissemination-of-accurate-time-and-frequency-over-ground-based-optical-systems)

¹⁶ [White Rabbit Official CERN website](https://white-rabbit.cern.ch/)

grids and finance¹⁷. The Triple-T project, which involved VSL, OPNT, and ESA, demonstrated WR-PTP's capability of 0.2 ns accuracy over a 260 km fiber link, paving the way for the Galileo G2 satellite system. This level of precision is critical for Europe's timing and navigation infrastructure, supporting innovation and resilience across industries.

Another example is the "Metrology for hydrogen vehicles 1 and 2"^{18,19} projects. These projects developed new instrumentation, including capabilities of measuring hydrogen purity in real-time, at levels required by quality standards²⁰. Developing precise measurement standards for hydrogen purity and flow rates ensures the safe and efficient use of hydrogen as a clean energy carrier, supporting the growth of the hydrogen economy. These projects have significantly advanced the accuracy and reliability of hydrogen refuelling stations (HRS), supporting the growth of the hydrogen economy. For instance, a company called Maximator benefited from the new measurement standards for hydrogen developed in the Project, which helped the company to validate its hydrogen dispensers, reduce production costs, and achieve international type approval²¹. This improved the billing accuracy for customers. Similarly, Resato Hydrogen Technology implemented the new measurement standards for hydrogen to ensure precise dispensing at their refuelling stations, including the highly used public hydrogen refuelling station in The Hague²². In parallel, AP2E developed the ProCeas H2 PURITY gas analyzer, based on knowledge gained from the project, offering real-time measurements of hydrogen purity. This tool enhances process control in hydrogen production and ensures fuel quality at HRS²⁰.

The "Bidirectional reflectance definitions"²³ (BiRD) project developed a metrological format for visual attributes of surface gloss²⁴, having applications in automotive, paint, textile, construction, and aerospace industries. The BiRD project played a key role in the creation of new standards for measuring surface reflectance and appearance, leading to the establishment of CIE TC2-85 for BRDF (Bidirectional Reflectance Distribution Function) and CIE JTC 12 for sparkle measurements. Project partner Rhopoint Instruments Ltd developed a new instrument, i-GM, which now captures a wide range of visual parameters, such as sparkle, contrast gloss, and surface texture (including defects like "orange peel"). This development, guided by metrology principles and linked to human visual perception through psychometric testing, sets a new standard for product surface appearance measurement²⁴.

Metrology research supports the development of smart electricity grids, including meters which provide accurate real-time data on electricity usage. The "Metrology for the next-generation digital substation instrumentation"²⁵ project developed metrological tools for all-digital power and energy meters,²⁶ facilitating better demand-side management, improving

¹⁷ [Transnational time transfer via fibre-optics \(euramet.org\)](https://euramet.org/en/transnational-time-transfer-via-fibre-optics)

¹⁸ [Metrology for hydrogen vehicles \(euramet.org\)](https://euramet.org/en/metrology-for-hydrogen-vehicles)

¹⁹ [Metrology for hydrogen vehicles 2 \(euramet.org\)](https://euramet.org/en/metrology-for-hydrogen-vehicles-2)

²⁰ [Developing the technology to support hydrogen as a clean energy fuel \(euramet.org\)](https://euramet.org/en/developing-the-technology-to-support-hydrogen-as-a-clean-energy-fuel)

²¹ [A new field test standard for hydrogen refuelling stations \(euramet.org\)](https://euramet.org/en/a-new-field-test-standard-for-hydrogen-refuelling-stations)

²² [A new flow instrument to support the use of hydrogen as a clean transport fuel \(euramet.org\)](https://euramet.org/en/a-new-flow-instrument-to-support-the-use-of-hydrogen-as-a-clean-transport-fuel)

²³ [Bidirectional reflectance definitions \(euramet.org\)](https://euramet.org/en/bidirectional-reflectance-definitions)

²⁴ [Improving the measurement of gloss \(euramet.org\)](https://euramet.org/en/improving-the-measurement-of-gloss)

²⁵ [Metrology for the next-generation digital substation instrumentation \(euramet.org\)](https://euramet.org/en/metrology-for-the-next-generation-digital-substation-instrumentation)

²⁶ [A new procedure for energy meters to support power grid digitalisation \(euramet.org\)](https://euramet.org/en/a-new-procedure-for-energy-meters-to-support-power-grid-digitalisation)

grid stability, and supporting the integration of renewable energy sources. In this regard, Siemens used a new Merging Unit calibration service developed by the project's partners to enhance the credibility and reliability of their substation products. Siemens improved customer confidence in its energy automation products, helping them adopt new technology for grid management²⁶.

As a last example, instruments for measuring ultra-high vacuums (10^{-5} to 10^{-10} Pa), used in industries such as semiconductor and solar cell manufacturing, are calibrated with ionisation gauges (IG). However, these gauges are prone to instability and can have measurement uncertainties around 10-20% - even between devices from the same manufacturer. The “Ion Gauge”^{27,28} project developed a stable, transportable, ISO compliant ion gauge, with uncertainties reduced by a factor of ten (1-3%). One of the project partners commercialised this technology and won an R&D World Magazine award as one of the 100 most exciting developments in 2023²⁹. As a follow-up to this project, the company INFICON used project developments to launch the IRG080, a new high-accuracy ion gauge for vacuum process applications. By improving the accuracy and stability of vacuum measurements, the IRG080 increases reliability for sectors like semiconductor manufacturing. Its design, supported by ISO standardization, allows for interchangeable gauges without the need for recalibration, reducing downtime and enhancing productivity²⁸.

EURAMET reported to the Commission that EMPIR projects generated 37 patent applications until March 2024. As of September 2024, no information on awarded patents has been collected by EURAMET. The European Commission recommends that information on patents is collected even after the end of the Project.

Societal impact

EMPIR is assessed to have a societal impact mainly on health and climate change.

The project “Metrology for drug delivery”³⁰ strives to improve the accuracy of intravenous drug delivery and feeds into update of international standards that will underpin the future validation of drug delivery devices. This project won the “Standards + Innovation ‘Individual Researcher’” award in 2023^{31 32}.

As another example, ammonia, a highly reactive gas, has been linked to severe health effects. As it can be absorbed by components in measurement instruments, its atmospheric levels are hard to monitor accurately. Most emissions are from agriculture; thus monitors need to be field-deployable, but the data these provide can be influenced by environmental conditions. The project “Metrology for Ammonia in Ambient Air”³³ developed ammonia reference gas

²⁷ [Towards a documentary standard for an ionisation vacuum gauge \(euramet.org\)](https://euramet.org/towards-a-documentary-standard-for-an-ionisation-vacuum-gauge)

²⁸ [A highly reproducible ionisation gauge for high vacuum environments \(euramet.org\)](https://euramet.org/a-highly-reproducible-ionisation-gauge-for-high-vacuum-environments)

²⁹ [2023 R&D 100 Award Winners - Research & Development World \(rdworldonline.com\)](https://rdworldonline.com/2023-rd-100-award-winners-research-development-world)

³⁰ [Metrology for drug delivery \(euramet.org\)](https://euramet.org/metrology-for-drug-delivery)

³¹ [Valid calibration of infusion pumps \(euramet.org\)](https://euramet.org/valid-calibration-of-infusion-pumps)

³² [Elsa Batista wins CEN-CENELEC Standards + Innovation award \(euramet.org\)](https://euramet.org/elsa-batista-wins-cen-cenelec-standards-innovation-award)

³³ [Metrology for ammonia in ambient air \(euramet.org\)](https://euramet.org/metrology-for-ammonia-in-ambient-air)

standards for use in calibrations and in-the-field device performance assessments and upgraded the existing facilities for use with ammonia³⁴.

EPM

Scientific impact

The EPM is in an early stage of implementation and none of the projects launched have concluded. In EPM there have been 25 publications in peer-reviewed journals to date¹¹. In addition, three conference proceedings have been published from the EPM projects and project participants have made 62 contributions or inputs to 44 unique committees of standards making bodies, predominantly at international level.

Technological impact

Even though EPM projects are at the initial phases of their implementation, some examples of potential technological impacts in the long-term can be given.

Natural gas is being increasingly replaced with renewable energy gases in the European gas networks. Through metrology research in the project “Protocol for SI-traceable validation of methods for biomethane conformity assessment”³⁵, standard methods for assessing the purity and calorific value of biomethane have been developed. These standards ensure that biomethane injected into natural gas grids is of high quality³⁶, protecting infrastructure and ensuring consistent energy output and valuation of the energy content. The project won the ‘best lecture in metrology prize’ at the international Gas Analysis Workshop 2024 for the description of the work done.

Battery Performance and Reliability can be improved through the new cell designs and materials. The project “Operando metrology for energy storage materials”³⁷ is working to establish traceable, validated and quantitative methodology for energy storage materials suitable for use in battery systems. By incorporating precise measurement techniques to monitor and optimise the internal environment of the battery cells, the project has the potential to extend the lifespan and capacity of batteries.

Societal impact

As for the technological impact, some ongoing EPM projects are expected to deliver societal impact in the long-term.

Advancements in metrology for radiation dosimetry has enhanced the safety and effectiveness of imaging procedures and cancer treatments, leading to better patient outcomes. The project “Metrology for emerging targeted alpha therapies”³⁸ will help generate the metrological

³⁴ [Developing the technology to accurately measure ammonia \(euramet.org\)](https://euramet.org/)

³⁵ [Protocol for SI-traceable validation of methods for biomethane conformity assessment \(euramet.org\)](https://euramet.org/)

³⁶ [Presentation describing work of Metrology Partnership biomethane project wins best lecture award \(euramet.org\)](https://euramet.org/)

³⁷ [Operando metrology for energy storage materials \(euramet.org\)](https://euramet.org/)

³⁸ [Metrology for emerging targeted alpha therapies \(euramet.org\)](https://euramet.org/)

network needed for efficient and safe targeted administration of alpha therapies³⁹, improve comparability between multi-centre studies, and open new routes for the treatment of cancer.

Precise measurements of pollutants and greenhouse gases enable better regulatory practices and policies aimed at protecting public health and the environment. The project “Metrology for Earth Biosphere: Cosmic rays, ultraviolet radiation and fragility of ozone shield”⁴⁰ provides key information on the effects of cosmic rays, UV and human activities on the ozone layer. This helps Europe to make informed decisions on protecting the ozone layer, considering the related effects on human health⁴¹.

2. Additionality

EMPIR

EMPIR does not involve further additionality requirements on top of the national contributions of members to the partnership. The total EU Contribution for EMPIR was EUR 300 million, while the public national contribution was EUR 300 million¹.

EMPIR	Data from the Annual Report 2023
<i>Allocated EU contribution</i>	€ 299 629 630
<i>Direct leverage estimate</i>	€ 261 847 645
<i>Direct leverage factor</i>	0,87
<i>Additional leverage</i>	n/a
<i>Indirect leverage estimate (Economic Impact)</i>	€ 144 630 000
<i>Full leverage factor</i>	1,36

Information on additional leverage has not been collected by EURAMET in EMPIR. Calculation is based on data reported in the EMPIR Annual Report 2023 and definitions can be found in Annex 1.

EPM

EPM does not involve further additionality requirements on top of national contributions of members to the partnership. The total EU Contribution for EPM is EUR 300 million², while the public national commitment is EUR 389 million, which means that the additional leverage fraction of EC contribution is expected to be 121% at the end of the Partnership.

³⁹ [Workshop on standards and measurements for alpha-emitting radionuclides in nuclear medicine \(euramet.org\)](https://euramet.org/workshop-on-standards-and-measurements-for-alpha-emitting-radionuclides-in-nuclear-medicine)

⁴⁰ [Metrology for Earth Biosphere: Cosmic rays, ultraviolet radiation and fragility of ozone shield \(euramet.org\)](https://euramet.org/metrology-for-earth-biosphere-cosmic-rays-ultraviolet-radiation-and-fragility-of-ozone-shield)

⁴¹ [Partnership project makes progress towards protecting the Earth’s fragile ozone shield \(euramet.org\)](https://euramet.org/partnership-project-makes-progress-towards-protecting-the-earths-fragile-ozone-shield)

EPM	Data from the Annual Report 2023
<i>Allocated EU contribution</i>	€ 67 698 053
<i>Direct leverage estimate</i>	€ 88 300 000
<i>Direct leverage factor</i>	1,30
<i>Additional leverage</i>	€ 67 102 272
<i>Indirect leverage estimate (Economic Impact)</i>	n/a
<i>Full leverage factor</i>	2,30

Calculation is based on data reported in the EPM Annual Report 2023 and definitions can be found in Annex 1. Direct leverage estimate includes fully self-funded participation in projects, contribution of associated partners to the projects, and estimated co-funding of projects. Data on co-funding of projects is not collected by EURAMET, but historical statistics on beneficiary overheads from the European Metrology Research Programme (EMRP – FP7) has been used in making the estimate. United Kingdom and Switzerland nationally funded participation are included in this category which explains higher figure than in EMPIR) Additional leverage is an evaluation of the Member State in-kind contributions to EPM.

3. Transparency and openness

Openness to newcomers and SMEs

EMPIR

The main conclusion from the interim evaluation of EMPIR⁴² is that the wider measurement community was not sufficiently integrated and that the programme needed to be more open and inclusive and encourage open dialogue between the Member States' NMIs and EC services and all stakeholders, including academia, researchers and industry. A major change in response to these recommendations was the introduction of the EMNs in the second half of EMPIR, a new structure within the Partnership⁶. During EMPIR, the share of EC funding received by SMEs under H2020 was equivalent to 0.55% of the total budget, corresponding to EUR 1.6 million. The total amount of funding (including funding from Member States) that went to SMEs was equivalent to 1%. Although there was no target for SME participation in EMPIR, the number is low compared to other partnerships. In the view of the external evaluation study, this has been attributed to the fact that metrology is often long-term and related to infrastructure investments, and therefore does not match the more short-term business cycle (and funding capabilities) of SMEs⁴³.

EPM

The governance of the Metrology Partnership was changed from EMPIR (H2020) to EPM (HE), with a new Steering Group⁵ acting as an advisory body on emerging priorities for metrology research at EU level and increasing the impact on industry, economy and society, hence making the Partnership more open to their needs. As an example of how the EPM Steering Group contributed to the openness of the Partnership, in 2022 it requested to start a

⁴² [Final evaluation of the European Metrology Research Programme \(EMRP\) and interim evaluation of the European Metrology Programme for Innovation and Research \(EMPIR\) - Publications Office of the EU \(europa.eu\)](#)

⁴³ EMPIR-EPM external evaluation study (2024), p. 56

pilot trial encouraging external beneficiaries (i.e. non-signatories to the A185 agreement) to take the coordinating role in a project ⁴⁴. Normally, coordination of projects from the EPM is done by an NMI, this is not a rule but something that happens naturally in the majority of the cases. Following this request, coordination of external beneficiaries has been encouraged for calls on standardisation and fundamental metrology in 2023 and for Metrology support for Digital Transformation (DIT). EPM continued the implementation of the EMNs, allowing strategic research agendas to be developed in close cooperation with external stakeholders. In order to encourage the participation of SMEs, EPM introduced the Mutual Insurance Mechanism (MIM), which provides security against defaults in payments. Under EPM, thus far, 6% of the EC funding was received by SMEs, amounting to a value of EUR 2.2 million, this is increased compared to EMPIR.

Mechanisms to ensure openness

EMPIR

For EMPIR, 70% of the funded legal entities participating had not previously participated in EU Metrology programmes⁴⁵. This was because in the previous programme, EMRP, no external beneficiaries were allowed. EMPIR had a bottom-up approach for the management of the calls for funding. This is done through a two-stages procedure where in stage 1 the general public can suggest a topic for research. In stage 2, applicants can send their proposals for a selected group of topics. This allowed the Partnership to be open to suggestions from a wide group of external stakeholders. Nevertheless, more could be done to advertise the opportunities for funding offered by the Partnership. Guidelines and templates are available⁴⁶ and support project partners who are new to the two-stage approach of EMPIR and the Metrology Partnership, helping them to propose ideas, join consortia and contribute to the project proposals⁴⁵.

EPM

Under EPM, considering calls in 2021-2023, the share of newcomers to the Partnership in projects was 10% of all participations, accounting for 11% of the EU funding. EPM implements the same two-stage process as EMPIR⁴⁴. EURAMET organised several “public consultations” to orient the calls and inform the stakeholders on opportunities offered by the Partnership. Nevertheless, the view of the EC is that the bottom-up approach of the calls could be better advertised among stakeholders, to highlight the opportunity to co-define topics for funding.

Transparency

EMPIR

Following the recommendations of the interim evaluation of 2017, industrial and academic partners participated in the programming process under H2020. Strategic Research Agendas (SRAs) are being developed by individual EMNs, tailored to the needs of their communities

⁴⁴ EMPIR-EPM external evaluation study (2024), p. 58

⁴⁵ EMPIR-EPM external evaluation study (2024), p. 55

⁴⁶ [Partnership guides and templates download page \(metpart.eu\)](https://metpart.eu/partnership-guides-and-templates-download-page)

of end-users, researchers and metrologists⁶. In the ex-post evaluation of H2020, it was mentioned that it was initially difficult for countries with less developed metrology institutes to be included in projects, and a lot of effort was put into capacity building⁴⁵. These NMIs contribute to the longer-term development of research agendas through the EMNs.

EPM

The Metrology Partnership increased the coherence and links with the academic research community, industry and policy makers at large, primarily through the European Metrology Networks⁴⁷. Through the Metrology Networks, the external industrial, academic and other stakeholders have been involved in the process of developing the Strategic Research Agendas. EURAMET and the European Commission have implemented a number of actions to consult stakeholders in the identification of research priorities through ‘Open consultation events’⁴⁸, organised by the EMNs and the EPM Steering Group⁵. The EMNs also established relevant synergies with other Partnerships and HEU Missions to develop common research priorities and avoid overlaps⁴⁹.

4. Efficiency

EMPIR and EPM grants are not managed through Commission corporate tools. This creates limitations in the type and timeliness of information available to the Commission in structured way, beyond what is reported directly from the partnership⁵⁰. The data presented in this section has been provided by the partnership ad hoc for this exercise. As of July 2024, implementation data for EPM was not yet integrated in Commission monitoring tools.

Cost-effectiveness

EMPIR

In June 2024, EURAMET stated that EMPIR had the following expenses up to end of 2023:

- Running costs (sum of all costs that EURAMET paid for the personnel, opening of calls, continuous monitoring of projects etc.) – EUR 25.438 million (requested by the Decision to be less than 5% of total partnership volume. Funded by EMPIR Members only, no EU Funding)
- Operational expenditure (sum of all the payments done by the Partnership to the projects - EU finding + MS funding) – EUR 282.934 million

EPM

In June 2024, EURAMET stated that EPM, up to end of 2023, had the following expenses:

- Running costs – EUR 3.686 million (requested by the Decision to be less than 5% of total partnership volume. Funded by EMPIR Members only, no EU Funding)

⁴⁷ [European Metrology Networks \(euramet.org\)](https://euramet.org/)

⁴⁸ [Communication and Outreach \(euramet.org\)](https://euramet.org/)

⁴⁹ EMPIR-EPM external evaluation study (2024), p. 31 and 32

⁵⁰ For example, information on proposals and grants is not automatically available in the Common Research Data warehouse (CORDA) encompassing all projects from EU R&I programmes. Manual integration in the system had not yet taken place at the reference date for this work.

- Operational Expenditure – EUR 37.253 million

In the view of the external evaluation study, EURAMET has improved its monitoring of in-cash and in-kind contributions of Member States; while administrative and operational burdens are a concern, the in-cash contributions have been reduced from 10% under EMPIR to 8.2% under EPM.

Time to Grant (TTG) and other indicators of operational efficiency

EMPIR

EURAMET stated that the EMPIR programme signed 241 grants between 2014 and 2020 with the following statistics:

Average Time-to-inform (TTI)	103 days
Time-to-signature (TTS)	116 days
Time-to-grant (TTG)	219 days
% below TTG target (245 days)	99%

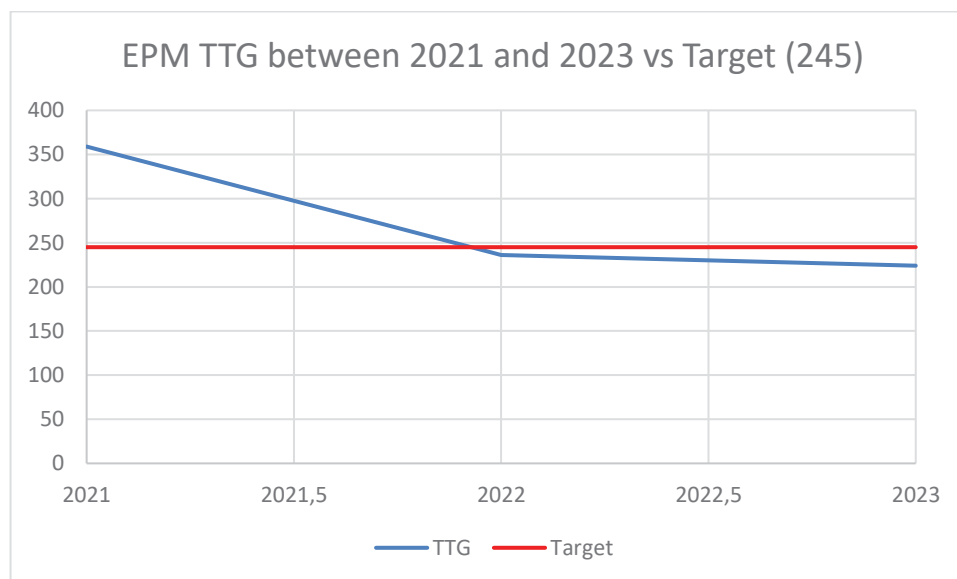
Definitions can be found in Annex 1.

EPM

EURAMET stated that, between 2021 and 2023, the EPM signed 58 grants with the following statistics:

Average Time-to-inform (TTI)	99 days
Time-to-signature (TTS)	152 days
Time-to-grant (TTG)	258 days
% below TTG target	73%

As of July 2024, the percentage of EPM projects which respected the maximum time to grant is lower than the corresponding figure for EMPIR. EURAMET stated that this was caused by a delay in the signature of the Financial Framework Partnership Agreement in 2021, the contract which allows EURAMET to sign Grant Agreements with beneficiaries. For calls 2022 and 2023, the average TTG met the target, as shown in the graph below.



EURAMET did not provide any information on applicant costs and/or administrative burden, because they have not asked applicants and beneficiaries of EMPIR and EPM to provide such data. The Commission recommends that EURAMET prepares a survey to be circulated to beneficiaries, in order to assess this point.

5. Coherence and synergies

Complementarity with relevant regional, national and EU policies/programmes

EMPIR

In order to tackle the challenges of the EU at that time, the targeted programmes in EMPIR were: Environment, Energy, Fundamental Metrology, Health, Industry, New Technologies, Normative, Capacity Building, SI Broader Scope and Support for Networks⁵¹. A major change initiated in EMPIR was the introduction of thematic programme calls on the Green Deal on Health and on the Digital Transformation⁴⁹. EURAMET stated in July 2024 that in EMPIR, approximately 180 projects covered areas linked to EU priorities and programmes such as: Health, Digital Transformation, Radiation Protection, Agriculture, Energy grids, Quantum, Space, Maritime and Fisheries, Climate and Environment, Hydrogen and Chips⁵². As an example, EMPIR research in advanced measurement techniques has resulted in an end-to-end traceability chain (from European National Measurement Institutes to end-users)⁵³. In addition to that, EMPIR (and now EPM) Partnership Members are owners of the National Metrology Programmes, facilitating synergies and complementarities at Member State level.

EPM

In order to be consistent with the Decision², stating that EPM should contribute to the realisation of the Union's objectives and policies and to tackle global challenges, targeted programmes are: Industry, Research potential, Green Deal, Health, Integrated European Metrology, Regulation, and Pre- and Co-normative research. EPM Calls between 2021 and 2024 addressed areas such as Health, Digital Transformation and Industry⁵⁵. EURAMET stated in July 2024 that, for EPM, approximately 80 projects are covering areas linked to EU priorities and programmes such as: Health, Digital Transformation, Radiation Protection, Agriculture, Energy grids, Quantum, Space, Maritime and Fisheries, Green Deal, Chips, and Single Market⁵⁴. For the calls from 2025 to the end of the Partnership in 2027, these areas are expected to be addressed again⁵⁵. The Partnership also left two undefined areas in the schedule, one in 2026 and one in 2027, to potentially address new priorities defined by the Commission 2024-2029. In addition to that, the Normative calls ensured a direct contribution to regulation and standardization activities at EU and regional level. EURAMET organised consultation events on different topics and is envisaging further similar workshops in the future.

⁵¹ [About EMPIR and call plan \(euramet.org\)](https://euramet.org/)

⁵² [EMPIR Calls and Projects \(euramet.org\)](https://euramet.org/)

⁵³ PERFORMANCE OF EUROPEAN PARTNERSHIPS: Biennial Monitoring Report (BMR) 2022 on partnerships in Horizon Europe – Page 91

⁵⁴ [Metrology Partnership Calls and Projects \(euramet.org\)](https://euramet.org/)

⁵⁵ [EPM Plan for Calls \(metpart.eu\)](https://metpart.eu/)

Metrology contributes to the functioning of the European Single Market^{56,57}. Metrology provides the measurement standards and traceability⁵⁸ that enable reliable measurements in trade, ensuring that consumers receive the correct amount of goods for their money. This applies to everything from grocery items to fuel and electricity, where precise measurements are crucial. Overall, metrology influences everything from daily commerce to manufacturing, global trade and high-level scientific research⁵⁹. To improve synergies in this field, EURAMET and other actors of the European Quality Infrastructure⁶⁰ recently established a European Quality Infrastructure (QI) Network⁶¹ to jointly address aspects including metrology, standardization, accreditation, and conformity assessment.

On the regional development side, one complementary action is the construction of a new campus for the Polish NMI, GUM⁶², primarily funded by the European Regional Development Fund (€32M). This investment will give GUM improved opportunities to contribute to research linked to EU priorities e.g. through EPM.

Synergies with other parts of the Framework Programme

EMPIR

As highlighted in the external evaluation study, during H2020, links were established with the EU Quantum and Graphene Flagships, forming the basis for deeper and more consequential subsequent relationships within the EMNs⁴⁹. Collaborations were focusing on the definition of research priorities to be also implemented in EMPIR in order to ensure that the activities in the two Programmes were complementary. For example, the relationship with the members within the Quantum Flagship has evolved into deeper relationships within the EMN in Quantum Technology.

With EMPIR, synergies with standardisation bodies have been created, which continued in EPM⁶³. As an example, the STAIR-EMPIR Platform ensures a mutual exchange of information between EMPIR (now EPM) and CEN-CENELEC to allow the Partnership to actively contribute to the creation of new standards with the outcomes of the funded projects. This is based on a signed MoU between CEN-CENELEC and EURAMET in 2010 and renewed in 2015^{64 65}.

EPM

At the start of Horizon Europe, multiple interconnections were identified between the (candidate) European Partnerships, both within and among the clusters. It was expected that

⁵⁶ [Legal metrology - European Commission \(europa.eu\)](https://european-council.europa.eu/media/en/press-articles/2020/06/01/legal-metrology)

⁵⁷ [Single Market | WELMEC](https://www.welmeq.org/)

⁵⁸ [The Importance of Measurement Standards and Traceability - Calibrate](https://www.calibrate.eu/)

⁵⁹ [Ensuring Quality to Gain Access to Global Markets \(worldbank.org\)](https://www.worldbank.org/en/programs/ensuring-quality-to-gain-access-to-global-markets)

⁶⁰ [ECE TRADE 478.pdf \(unece.org\)](https://unece.org/Trade/478.pdf)

⁶¹ [CEN, CENELEC, EA, EURAMET, and WELMEC join forces to reinforce and promote the European Quality Infrastructure - CEN-CENELEC \(cencenelec.eu\)](https://cencenelec.eu/)

⁶² [The Campus Project - National - Central Office of Measures \(gum.gov.pl\)](https://gum.gov.pl/)

⁶³ EMPIR-EPM external evaluation study (2024), p. 49

⁶⁴ [Cooperation Agreement between CEN-CENELEC and EURAMET](https://euramet.europa.eu/en/cooperation-agreement-between-cen-cenelec-and-euramet)

⁶⁵ [STAIR-EMPIR: Joint initiative of CEN-CENELEC and EURAMET continues](https://euramet.europa.eu/en/stair-empir-joint-initiative-of-cen-cenelec-and-euramet-continues)

partnerships developing cross-cutting technologies and methods, such as EPM, could team up with partnerships in industry or societal application areas (e.g. health, mobility, energy and agriculture)⁴⁹. Looking at the progress that was made in the first two years of Horizon Europe, the external evaluation study confirmed that major improvements have been made in EPM as compared to EMPIR, when it comes to connections to other partnerships, in particular within Cluster 4⁴⁹. This has been driven by the new EPM Steering Group, which has worked to facilitate and improve connections to other European partnerships. Representatives of four other Partnerships are members of the EPM Steering Group: the Key Digital Technologies JU, the Clean Hydrogen JU, the Built4People (B4P) co-programmed partnership and the Made in Europe Partnership⁴⁹. These members are expected to rotate soon and be replaced by representatives of other four European Partnerships. In context of the Quantum Flagship Initiative, EURAMET is in discussions with DG CNECT on the implementation of the measurement and testing pillar of the Quantum Flagship.

The EURAMET EMNs facilitate stakeholder engagement⁶. While most interactions are informal, some stakeholders are connected to the EMNs formally via memoranda of understanding (MoUs), letters of intent and appointments to the EMNs' stakeholder advisory boards.

The EMNs have established MoUs with:

- ICRP⁶⁶ (the International Commission on Radiological Protection is an independent Registered Charity, established to advance, for the public benefit, the science of radiological protection, in particular by providing recommendations and guidance on all aspects of protection against ionising radiation. Public radiation authorities, hospitals, academia and research centres are part of the group.)
- Hydrogen Europe and Hydrogen Europe Research (Association of the Clean Hydrogen JU)
- GERG⁶⁷ (the European Gas Research Group, along with its member organisations, work to develop innovative solutions which place the gas infrastructure at the heart of the energy system. Industry, academia and research centres are represented in the group.)
- VAMAS⁶⁸, (the Versailles Project on Advanced Materials and Standards supports world trade in products dependent on advanced materials technologies, through International collaborative projects aimed at providing the technical basis for harmonized measurements, testing, specifications, and standards^{6 69}, Ministries, industry, academia and research centres are represented in the group and working in the projects.)

⁶⁶ [ICRP](#)

⁶⁷ [Gerg - The European Gas Research Group](#)

⁶⁸ [Versailles Project on Advanced Materials and Standards \(VAMAS\)](#)

⁶⁹ EMPIR-EPM external evaluation study (2024), p. 33

Some EMNs build synergies with European Partnerships to co-create research priorities e.g. with Clean Hydrogen JU, EURATOM, and the Quantum Flagship Initiative⁶. Further information on the synergies established (as stated by EURAMET in July 2024 in a report on the EMNs⁶) can be found in Annex 4.

6. EU added value

EMPIR

The use of programme and partnership models supported by the European Union (A185) has provided the metrology community with a framework for increased coordination and collaboration⁷⁰.

Importantly, the Art. 185 approach have provided EURAMET with a well-defined administrative structure to support cross-NMI working, manage European research funds and coordinate national activities. In doing so, this increases coherence and reduces fragmentation of metrology research at the European level⁷⁰. The H2020 funding has underpinned these developments; not only it acted as a catalyst and motivator for European collaboration and coordination, but it also enables the European NMIs to increase the range and relevance of their research, while continuing to maintain the fundamental underpinnings of the national and international measurement system⁷⁰.

The need for a proactive approach to ensure continued and, ideally, greater integration within the Metrology Community remains. In the view of the external evaluation study, developing and agreeing a European level strategy and the mechanisms to implement it, both to support coordination and jointly develop new metrology capabilities (at the cutting-edge and across Europe), takes considerable time and resources and is unlikely to happen without EU support⁷⁰. The partnership's view is that without a structured European Collaboration on Metrology through the EMPIR Programme and Metrology Partnership, activities would be fragmented and efforts duplicated across Member States. This would lead to a lack of impact at the EU and global level, as the scale and complexity of metrology require investments that go beyond the core research budgets of the national metrology institutes. The excellence required for research and development of cutting-edge metrology solutions is spread across national borders and hence cannot be attained at national level only.

EPM

The EPM continued the work of EMPIR in ensuring coordinated research for metrology in the EU. In addition to that, the EMNs, established at the end of EMPIR and fully implemented in EPM, have a contribution in boosting the coordination at EU level of the activities on Metrology⁷¹ ⁶. The EMNs not only allowed the NMIs to collaborate on a specific domain and to develop a common research agenda, but also allowed for better and increased interactions with external stakeholders. This ensures that the Partnership responds to the needs of industry and EU priorities, and also raises awareness on the importance of metrology and the

⁷⁰ EMPIR-EPM external evaluation study (2024), p. 45

⁷¹ EMPIR-EPM external evaluation study (2024), p. 48

collaboration with the NMIs⁶. The EPM Steering Group also contributes to ensure that the NMIs are working on the right priorities, thanks to interactions with standard setters, international organisations and other European Partnerships.

7. Relevance

Relevance to challenges and needs

EMPIR

In the view of the external evaluation study, the objectives of EMPIR were aligned with almost all the “Leadership in enabling and industrial technologies” (LEIT) objectives under H2020, particularly when it comes to the support of innovation, industrial uptake and standardisation through joint research projects and bringing parties together to construct common agendas. Only the objective of LEIT ICT to ‘increase collaboration around common, open technology platforms’ is not explicitly covered in EMPIR’s objectives⁷².

EPM

In the view of the external evaluation study, EPM is in line with three impact dimensions of HE⁷²:

Strategic Autonomy/global positioning: when it comes to metrology, Europe has a strong position, provided that there is collaboration between Member States. Metrology is an enabler of strategic autonomy but there is an investment gap between Europe and its global competitors. Placing the EU on a level playing field with its competitors is amongst the objectives of EPM.

Industrial competitiveness/digitalisation: Metrology Institutes have traditionally been very closely tied to industry and industry needs. The NMIs offer traceable calibration services to industry and calibration laboratories, develop new measurement methods and devices, and develop measurement infrastructure to enable industry to improve their products and production systems. The EMNs are particularly relevant to industrial competitiveness and the digital transformation.

Sustainability/Green Deal: The first EMNs that were started were almost all focused on sustainability and the Green Deal. Six out of the twelve current networks are particularly relevant to the Green Deal.

Flexibility

EMPIR

In EMPIR, the bottom-up approach in the Work Programme, whereby the general public can suggest research topics in pre-defined areas, ensured a good flexibility of the Partnership to adapt to current needs⁷². In fact, all selected research topics for Stage 2 are coming from the needs suggested in Stage 1 by the general public. Applicants can find all the relevant

⁷² EMPIR-EPM external evaluation study (2024), p. 27 and 28

information on Stage 1 and 2 of the calls in the yearly Work Programme (WP) or the applicants webpage^{46 73}.

EPM

The EPM continued with the bottom-up approach that had been adopted in EMPIR. EURAMET stated that Call Scopes for the Targeted Programmes were developed by the Committees and complemented by Orientation Papers, describing topical stakeholder needs that should be addressed by the metrology community. The EMNs and the EPM Steering group are also working to ensure that research needs contained in Orientation Papers and strategic documents are always updated and reflecting needs of the EC and other stakeholders.

8. Directionality

EPM

In the view of the external evaluation study, EPM is in line with the impact dimensions of HE Cluster 4, and it is focused on today's global challenges^{74 2}. The fiche in EPM of the 2022 Biennial Monitoring Report on European Partnerships states that it delivers on global challenges, supports the European Green Deal, and underpins innovation in industry⁷⁵. The strategic research agenda "EURAMET 2030 Strategy"⁷⁶ also mentions the Sustainability and Energy challenges (with impacts on sustainability/green deal); and Innovation, with a focus on European Industry. The main process in place to deliver on this vision is through the EMNs. The EMNs are established in highly competitive areas and engage with stakeholders to ensure 'state-of-the-art metrology capabilities' that are taken up by innovators⁷⁴.

By increasing the role of metrology in the design and implementation of regulation and standardisation, EPM also aims to underpin public policies⁷⁴. The EMNs also develop their own strategic research agendas. Furthermore, different call themes were scheduled under EMPIR and EPM that should ensure the delivery of results on these global challenges and competitiveness. As mentioned, EURAMET also organised several public consultations to ensure that the priorities addressed by the Partnership are aligned with the needs at EU level, including competitiveness, and addressing the global challenges. The Biennial Monitoring Report Survey Results of 2023 note the proportion of the total partnership budget that is invested into EU priorities⁷¹. In general, EPM seems to be on track in reaching its objectives and contribution to the Green Deal, and Digitalisation seems most fitting for the partnership⁷⁴. In the view of the external evaluation study, given the horizontal nature of metrology, additional objectives for Resilience could be considered for the next FP⁷⁴.

⁷³ [EPM WP 2024](#)

⁷⁴ EMPIR-EPM external evaluation study (2024), p. 50

⁷⁵ PERFORMANCE OF EUROPEAN PARTNERSHIPS: Biennial Monitoring Report (BMR) 2022 on partnerships in Horizon Europe – Page 245

⁷⁶ [Strategy 2030 \(euramet.org\)](#)

9. International positioning

EPM

The Partnership has built synergies beyond the EU, ensuring the participation of international bodies in the governance of EURAMET. For example, the BIPM (the International Bureau of Weights and Measures) is a member of the EURAMET Research Council; and the World Metrology Organisation (WMO) is a member of the EPM Steering Group⁷⁷. While connections with WMO were already established under the FP7 partnership, EMRP, this shows that recently established governance bodies have close connections to relevant stakeholders⁷⁷. Furthermore, several EMNs also have global stakeholders as liaisons, which are established on an informal or formal basis. Examples of liaisons are the International Consortium for Harmonization of Clinical Laboratory Results (ICHCLR), the International Atomic Energy Agency (IAEA), BIPM, the World Health Organisation (WHO), the International Committee for Radiological Protection (ICRP), and others⁷⁷.

Projects from EPM also collaborated with partners outside the EU. As an example, the project “Metrological framework for passive radiative cooling technologies”⁷⁸ is working to develop a metrological framework to classify and compare Passive Radiative Cooling (PRC) materials. These materials provide an emerging technology that can cool to sub-ambient temperatures even in direct sunlight, and could be an efficient alternative to conventional systems, saving up to 80 % of cooling-related electricity. SPACECOOL INC in Japan has developed a PRC material known as SPACECOOL film⁷⁹. The company will provide the material and will collaborate with the consortium towards the development of characterisation methods, demonstration tests and life cycle assessments for PRC materials.

In conclusion, EPM has a good international positioning and connections with all relevant international metrology bodies. In the current political climate, it is important that the EPM continue to invest in maintaining these relationships, through for example engaging with them in international networks, representation in governance structures and collaborating in projects and through EMNs⁷⁷.

10. Phasing-out preparedness

EPM

The EMNs are intended to be a central feature of a sustainable and more integrated metrology infrastructure in Europe, providing a mechanism to coordinate NMIs/ DIs and act as an established interface with the industrial, public and research communities they serve⁸⁰. They are a coordination structure within the governance structures of EURAMET and will be led and driven by its members, the NMIs⁸⁰. It is a structural mechanism that, if used well and engages with non-NMI /DI communities across Europe (i.e. the users of metrology), can play a central role in identifying metrology needs and collectively delivering solutions⁸⁰. However,

⁷⁷ EMPIR-EPM external evaluation study (2024), p. 52 and 53

⁷⁸ [Metrological framework for passive radiative cooling technologies \(euramet.org\)](https://euramet.org/metrological-framework-for-passive-radiative-cooling-technologies)

⁷⁹ [EURAMET project on passive radiative cooling technologies collaborates with SPACECOOL in Japan](#)

⁸⁰ EMPIR-EPM external evaluation study (2024), p. 60

these networks have a significantly different structure from that of the previous partnerships, and while they are important to the ‘phasing-out’ strategy, they are costly to initiate and implement. In the view of the external evaluation study, while the EMNs are directly funded by Member States, this funding is still catalysed and incentivised by the EC Institutionalised Partnership model, and the EMNs are likely to be at risk without this model as an underpinning structuring and funding mechanism⁸⁰.

During a Workshop on the future of Metrology in Europe, stakeholders highlighted that a structured EU support is needed in the future. In February 2024, the European Commission organised a further workshop with all the EMNs’ Chairs. The discussions highlighted again the importance of the EMNs to a phasing-out strategy; and they have been highlighted as a key actor for a potential evolution of the current partnership.

Annex 1 – Glossary and definitions

GLOSSARY	
CIC	Coordination of Impact and Communication
DI	Designated Institute
DIT	Digital Transformation
EMN	European Metrology Network
EMPIR	European Metrology Programme for Innovation and Research
EPM	European Partnership on Metrology
FFPA	Financial Framework Partnership Agreement
GRD	Green Deal
JRP	Joint Research Project(s)
NMI	National Metrology Institute
NRM	Pre- and Co-Normative
PRT	Potential Research Topic
RPT	Research Potential
SRT	Selected Research Topic
TC	Technical Committee

Term	Meaning or definition
<i>Direct leverage</i>	Difference between a project's total costs and the EU contribution given to the project.
<i>Direct leverage factor</i>	Ratio of the direct leverage and the EU contribution. It is related to the 'Funding rate' (see the definition below) via the following formula: $Direct\ leverage\ factor = \frac{1}{Funding\ rate} - 1$
<i>Funding rate</i>	Ratio of the EU contribution to a project and project's total costs.
<i>Additional leverage</i>	Additional leverage is additional activities or investments triggered by the partnership and can include private investments or public investments mobilised from other EU or national programmes.
<i>Average Time-to-inform (TTI)</i>	Time from call closure to announcement of results. Target 5 months which is 153 days
<i>Time-to-signature (TTS)</i>	Time from invitation letter to grant agreement signature. Target 3 months which is 92 days
<i>Time-to-grant (TTG)</i>	Time from call deadline/closure to grant agreement signature - equivalent to TTI + TTS. Target 8 months which is 245 days
<i>% below TTG target</i>	% of projects with TTG less than 245 days Time-to-grant

Annex 2 – EMPIR – Status of Objectives as reported in the AAR2023

1.1 At least 400 M€ of European turnover from new or significantly improved products and services that can be attributed to the research activities of EMPIR and its predecessors

EURAMET conducted surveys of industrial participants in EMRP projects and developed impact case studies. For EMRP 352.8 M€ is directly attributable to the programme. This figure covers the industrial participants who participated in all EMRP projects. In addition, the new products sold will contribute to economic benefits for many of the end-users. Up to now we identified 159,70 M€ from call 2014, 2015 and 2016 projects directly attributable to the EMPIR programme.

1.2 At least 60 % of CEN/CENELEC /ISO/IEC Technical Committees and equivalent standardisation bodies with potential to benefit directly from EMPIR projects to engage with the programme

All EMPIR proposals are required to specify which documentary standards and standards developing committees and working groups they will engage with. This engagement is tracked and reported by the EMPIR reporting processes. During the proposal phase 95 % of the JRPs of the EMPIR calls (2014 to 2020) planned to have some input to standardisation (230 JRPs/JNPs/SIPs for a total of 241 JRPs/JNPs/SIPs). After the reporting periods and the final reports of call 2014 to 2018 to the end of 2023, the calls 2014 to 2020 EMPIR projects had made 2316 contributions to 624 unique standard committees.

1.3 Maintain a level of at least 50 % of dedicated national metrology research investments in Europe being coordinated or influenced via the programme

In 2005, the 14 states proposing the iMERA project (a predecessor of the programmes) assessed their joint national research budget as 165 M€ per year and that up to half of that value could be subject to a joint prioritisation process. This appears to be the origin of the 50 % concept.

For 2015, 18 states participating in EMPIR have assessed their joint national research budget as 166 M€. This includes most of the largest participants and is unlikely to increase significantly when further data is received.

The annual value (to the NMIs and DIs) of the research projects commissioned by EMPIR is 68.571 M€ (30 M€ from the EU and 38.571 M€ as in kind funding from the national budgets). This is similar to the long term annual rate across the programmes (iMERA-Plus, EMRP, EMPIR).

If the objective is to *maintain* then this is clearly achieved – the average national budgets for metrology research have stayed stable (in cash terms) over the decade, the programme funding has also been consistent.

However, demonstrating a figure of 50 % is more difficult, we need to be very careful which ratio we are talking about:

1. The percentage of the national budgets that is coordinated by the programmes (in the sense that the national budget is diverted to the in-kind funding) is 23 % (38.571/166).

2. The value of the total EMPIR budget compared to the national metrology research budgets over the same period (7 years) is 52 % ($600/(7*166)$).

Analysing the information on a country basis only adds confusion. Where countries don't use FEC to assess their national budget they can appear to use a significant part of their total national funding in the in-kind commitment (Türkiye 75 %, Slovenia 116 %, Poland 73 %). For those with reliable FEC figures, Sweden commits the smallest at 12 %, Germany 16 %, France 18 %, The Netherlands commits the largest at 68 %.

Further numerical analysis is unlikely to give greater insight. Simple messages to take forward are:

- About a quarter of the national metrology research budgets is used as in-kind funding to EMPIR.
- The metrology research funded through EMPIR is about half the value of the metrology research funded by the combined national metrology research budgets.

Understanding the differences between these two statements is important when considering other indicators e.g. information from the EMRP on number of publications from NMIs supported by the programmes.

For the final evaluation, a survey should be done on which nationally funded projects are *influenced* by the programme, i.e. either done as preparation for an anticipated EMPIR project or further national work exploiting the outputs of an EMRP/EMPIR project. This will enable a more comprehensive evaluation of this objective.

1.4 All European NMIs and their designated institutes interact with the programme

All Euramet members have a place in a funded JRP except:

1.4.1 Albania

They had an ESRMG in EMRP and were co-authors on two PRTs in 2016. An RMG was unsuccessful in 2016 due to insufficient common language between the guest worker and host. In addition, Albanian NMI submit one PRT in 2017, but was not selected for prioritisation.

1.4.2 Cyprus

Cyprus has not yet engaged with the programme. It has appointed a delegate to the General assembly but does not take part in any other parts of EURAMET.

1.4.3 Latvia

Latvia was a co-author in one PRT in 2016.

1.4.4 Luxembourg

The Luxembourg NMI consists of one person who claims to have no time to engage with us – not even to attend HI-CB training.

1.4.5 Malta

The past head of the Malta NMI was heavily engaged with EURAMET – a member of the Board of Directors. But with just 3 staff, concentrating on providing commercial services, engagement with the programme was not their priority, but they could manage to take part in Capacity Building activities so far.

In general, the thing limiting engagement from these countries is lack of staff and particularly money to fund the travel to attend training events.

1.5 European leadership in at least 20 % of international metrology committees

Of the 95 chairs and vice chairs of the working groups of the CIPM Consultative Committees, 42 come from European NMIs and DIs.

1.6 Establish common agendas with strong integration of basic as well as challenge-oriented metrology research via common priorities and joint calls with excellence based projects selection

EMPIR and its precursor joint programming activities (EMRP, iMERA-Plus and iMERA and MERA) have been on a journey towards closer integration of metrology research in Europe based on a common research agenda that drives and guides the collaborative pan-European research. EMRP research was guided by the research priorities identified during iMERA and similarly, during EMRP, EURAMET and its members developed a European Strategic Research Agenda (SRA) for the EMPIR period (<http://www.euramet.org/research-innovation/sra-survey/>).

A key element of the common research agenda for both EMRP and EMPIR is a thematic structure with a strong and direct focus on metrology to address the grand challenges rather than the traditional approach to metrology research focused on technical areas and/ or SI units. EMPIR calls are designed around the themes (referred to as TPs (Targeted Programme) in EMPIR) and the call scopes are based on the content of the SRA. The first stage of a two-stage proposal selection process ensures that proposed research topics align with the SRA and the call scopes.

The challenge-based themes: energy, environment, health and industry are targeted at the needs of measurement users in these areas be they public agencies seeking solutions, policy-makers and regulators seeking to design and implement solutions, businesses seeking to provide solutions or the research base. A key route to impact for the better measurements enabled by metrology research is to embed new accurate measurement methods in documentary standards and to improve the impact of metrology research, a new TP has been implemented in EMPIR to specifically address the needs of standards organisations (CEN, Cenelec, ISO, etc.).

In addition to the challenge-oriented research EMPIR has two themes focused on longer-term more basic research to ensure the underpinning metrology system will meet society's future measurement needs. This research supports the development of the underpinning SI system of units (SI Broader Scope theme) as well as more exploratory research in the Fundamental theme.

Under EMRP 78 % of the research funding was directed to challenge-oriented themes and in EMPIR 71 % of the research funding is directed to the themes Health, Energy, Environment and Industry.

1.7 Support innovation related activities through the development of new technologies, industry-driven joint research projects and industrial uptake. This requires a systematic technology screening of projects and at least 20 % industry driven research.

- The Industry calls (in 2014, 2017 and 2020) had a total budget (EU contribution) of 70.2 M€. This is 23.4 % of the 300 M€ total.
- Of all selected projects, 17 % by number of projects and 23 % by value have been for the industry theme.
- Of the contracts issued, 7,5 % of the estimated costs belong to industrial beneficiaries, 60 % of these are funded and 40 % are unfunded.
- Of the contracts issued, 13 % of the legal entities involved are industrial.

1.8 Increase immediate relevance for policy makers and standardisation bodies. At least 10 % is dedicated to normative research.

Proposers are asked to estimate the percentage of effort in their proposals directed towards normative activities. This is then moderated by the MSU during negotiation to ensure the data is consistent with the activity descriptions. For the contracts issued, the estimate is that 10 % of the effort is dedicated to normative research.

Call year	Percentage of Standardisation /participation	Percentage of pre and co-normative participation	Amount of NRM projects in that call year
2014	15,3%	n/a	€ -
2015	17,4%	4,8%	€ 1.869.547,01
2016	35,3%	10,5%	€ 4.985.021,67
2017	19,7%	9,8%	€ 4.617.929,16
2018	23,9%	11,0%	€ 4.889.963,97
2019	31,4%	14,8%	€ 6.689.065,05
2020	24,8%	13,6%	€ 5.901.057,90
Sum for all in %	24,8%	10,0%	€ 28.952.584,76

1.9 Open the programme to the relevant scientific communities and raise awareness and involvement of European technology and research organisations. This means to at least double the participation of non NMI/DI scientists in the programme compared to EMRP

Headcount information will not be available for EMPIR projects until they submit the “H2020 Questionnaire” at first periodic reporting. However, we do have estimates of person-months that can be compared between the programmes. The external participation in EMRP was

concentrated in long REG contracts – typically one person providing 36 months. The external participation in EMPIR is more likely to be more people providing less months each, so it is highly likely that the objective will be met.

The REG contracts in EMRP (the route for funding non NMI/DI scientists in that programme) funded a total of 5740 months.

Of the EMPIR contracts issued so far, the external funded participants estimate the funded effort to be 11.184 months. This represents an increase of 1,9 times the months in EMPIR compared to EMRP.

1.10 Support capacity building in developing NMIs, in particular by assisting national authorities to fully exploit the use of structural funds and other relevant programmes. The expectation is to increase the leverage of EU structural funds and other programmes, from 0 % under EMRP to 10 % of the co-investment in EMPIR.

Capacity Building is supported through a range of training activities and a Mobility Grant scheme, all funded from the cash contributions. Despite much work on seeking routes to influence the direction of structural funds, no common systematic approach has been discovered.

From an initial survey we have identified some 17 M€ of structural funds directed to metrology infrastructure. Additionally, nearly 10 Mio € budget have been used in the RPT calls from 2014 to 2019.

1.11 Strengthen European leadership through EURAMET and foster global cooperation. It should lead to at least two structured cooperations with major metrology actors outside Europe (e.g. US, Canada).

Forum on Metrology and Digitalisation (International)

The Forum Metrology and Digitalisation is dedicated to advice CIPM in the SI Digital Framework and the wider implications of the global digital transformation for metrology and for the international Quality Infrastructure. It also contributes to harmonize internal processes related to digitalization between NMIs, CCs, RMOs, and BIPM headquarters. Furthermore, it acts as a forum to exchange information and to create synergies and opportunities for collaboration in this field, including, but not limited to, liaison with International QI Organizations, relevant International Organizations, international Science organizations, relevant industry associations, and further relevant stakeholders in digitalization. Forum on Metrology and Digitalisation is chaired by Prof. Ullrich from PTB, a member institute of EURAMET and the EURAMET M4D working group (Metrology for Digital) has contributed to the development of the forum, ensuring standardization and effective adaptation to evolving technological landscapes.

CIPM Sectorial Task Group on Climate Change and Environment (International)

The CIPM Sectorial Task Group on Climate Change and Environment (CIPM-STG-CENV) plays a crucial role in addressing the challenges posed by climate change through the lens of metrology. Chaired by D. del Campo Maldonado from EURAMET, and building on the work

of the EURAMET EMN on Climate and Ocean Observation, the Task Group is actively working on implementing the recommendations arising from the CIPM and the BIPM-WMO Workshop on Metrology for Climate Action, held in September 2022.

The Task Group focuses on two primary themes: "Metrology in support of the physical science basis of climate change and climate observations" and "Metrology as an integral component of operational systems to estimate greenhouse gas emissions based on accurate measurements and analyses." While significant progress has been made in the former, particularly in supporting the physical science basis of climate change, there is ongoing work in addressing the latter, especially concerning greenhouse gas (GHG) emissions.

The significance of the CIPM-STG-CENV is underscored by the increasing global focus on greenhouse gas emissions monitoring. The establishment of initiatives such as the WMO's Global Greenhouse Gas Watch (GGGW) and national efforts, like the US Greenhouse Gas Center, emphasize the growing demand for gas calibration standards. The metrology community, in collaboration with the atmospheric monitoring community, is poised to contribute significantly to meeting this demand. The CIPM-STG-CENV's work aligns with these developments, aiming to enhance metrological support for climate-related initiatives and advance the global understanding of greenhouse gas dynamics.

Annex 3 – EPM – Status of KPIs as mentioned in the AAR2023

Objective	KPI Definition/ proposed target	KPI achievement
1. To develop, by 2030, new research capabilities which are built within the framework of new European metrology networks (EMN) and which perform in terms of calibration and measurement capabilities at least equally to the leading metrology institutes outside the Participating States	By mid of 2024: 1.1 The EMN landscape will have been completed through strategic consideration of topics where the NMIs and DIs most benefit from coordination, complementarity, and joint research capabilities. At least 12 EMNs will have been launched. 1.2 Deliver a report on the number of EMNs and their joint research capabilities including staff effort and shared infrastructure. By the end of 2030: 1.3 At least 9 of the EMNs will demonstrate measurement capability at the top international level.	Status end of 2023: 1.1 Up to end 2023, 12 EMNs have been launched: Advanced Manufacturing, Climate and Ocean Observation, Energy Gases, Mathematics and Statistics, Pollution Monitoring, Quantum Technologies, Radiation Protection, Safe and Sustainable Food, Smart Electricity Grids, Smart Specialisation in Northern Europe, and Traceability in Laboratory Medicine. The EMN for Clean Energy has been approved and is building up their website at the moment. 1.2 Each EMN's respective SRA has been published on their websites. A draft report has been delivered to the Commission for their review in September 2023. 1.3 The measurement capabilities are under development at the moment.
2. To support, by 2030, sales of new innovative products and services through the use and adoption of the new metrology capabilities in key emerging and	Every year: 2.1 The number of participants from industry and early adopters of the developed technologies in JRPs to be at least at the level	Status end of 2023: 2.1 The number of participants from industry and early adopters of the developed technologies in JRPs as of the end of 2023 is detailed below, and comparable figures for EMPR are given as reference. As the number of projects is different, the average number of participants per project is used to assess if the KPI is

Objective	KPI Definition/ proposed target	KPI achievement
enabling technologies	of participation in the last EMPIR comparable Target Programmes (Industry, Health, Normative, Green Deal “Energy-Environment”) The number of participants in JRPs as regards digital calls should be included in the report.	met.

2. To support, by 2030, sales of new innovative products and services through the use and adoption of the new metrology capabilities in key emerging and enabling technologies	By mid of 2024 2.2 Deliver a report on the trends in European turnover from new or significantly improved products and services that can be attributed to the research activities of the partnership and its predecessors by TP. 2.3 At least 40 % of the collaborators⁸¹ in joint research projects should be profit-making entities. Every year from 2026 onwards: 2.4 An average of at least EUR 50 million of European turnover from new or significantly improved products and services should be demonstrated to result from the research activities of the Partnership. 2.5 At least 40 % of the collaborators in joint research projects should be profit-making entities.	Status end of 2023: 2.2 This report is in progress and will be delivered in time. There have been Partnership projects concluded within the timeframe, but analysis of the economic benefit of EMPIR projects is progressing as planned. 2.3 Collaborators can only be appointed after the project started, a first indication will come at their first periodic reporting which is at M18. For Call 2021 this is foreseen in Spring 2024. 2.4 This is not possible to give evidence now, as the interviews to gain those numbers will start a year after the conclusion of the projects. 2.5 see point 2.3, This KPI had been achieved so far.
3. To contribute to the creation and diffusion of high-quality new knowledge, competences and skills across the Union in the context of lifelong learning and with a view to achieving societal transformation, including through enhancing capability	By mid of 2024 3.1 At least 18 seminars, and stakeholders events should have been organised by the EMNs. Every year from 2026 onwards: 3.2 The average number of peer reviewed scientific publications per project that	Status end of 2023: 3.1 16 EMN related events had been held within 2022, and 16 events within 2023. Altogether 32 events have been arranged by the end of 2023. (see https://www.euramet.org/publications-media-centre/events/archived-events) 3.2 No Partnership projects have been completed yet. However, up until the end of 2023, 28 peer-reviewed scientific publications have been reported from Call 2021 projects in their

⁸¹ Collaborators are those organisations that have signed a Letter of Agreement (or equivalent) with the consortium.

for innovation;	completed in the previous year should be at least 6. 3.3 On average at least 4 seminars and courses are arranged towards stakeholder communities per concluded project. By the end of 2030: 3.4 The Field-Weighted Citation⁸² Index of peer reviewed publications produced by the Metrology Partnership is at least 1. 3.5 Funding distributed to non NMIs and DIs will have been 35 % of the total funding distributed in the areas supporting the EMNs. 3.6 At least 10 patent applications are produced for every 100 concluded projects.	first 18 months. For more details see section 6.3. 3.3 A first indication will come at their first periodic reporting which is at M18. For Call 2021 this is foreseen in Spring 2024. Seminars in general are coming when the first results have been achieved and can be taught to others. 3.4 Not applicable yet. 3.5 Not applicable yet. 3.6 Not applicable yet.

Partnership	Number of projects	Number of industry and adopters per TP	Average number per project	EMPIR	Number of projects	Number of industry and adopters per TP	Average number per project	KPI on target?
DIT	2	23	11,5	n/a	0	0		N/A
GRD	10	113	11,3	ENV+ENG	37	307	8,3	Y
FUN	8	51	6,4	FUN	18	106	5,9	Y
HLT	7	65	9,3	HLT	19	129	6,8	Y
IEM	7	53	7,6	n/a				N/A
IND	14	153	10,9	IND	41	309	7,5	Y
NRM	18	102	5,7	NRM	37	166	4,5	Y
RPT	7	34	4,9	RPT	21	39	1,9	Y

4. To contribute fully and effectively, by 2030, to the design and implementation of specific standards and regulations that underpin public policies addressing societal, economic and environmental	Every year: 4.1 At least 10 % of activity in the selected joint research projects is dedicated to normative research & to support regulation. Every year from 2026 onwards:	Status end of 2023: 4.1

⁸² Field-weighted Citation Impact (FWCI) is an author-level metric introduced and applied by Scopus SciVal. FWCI equals to the total citations actually received divided by the total citations that would be expected based on the average of the considered field. FWCI of 1 means that the output performs just as expected for the global average. More than 1 means that the author outperforms the average, and less than 1 means that the author underperforms.

challenges	4.2 The number of contributions to standard committees that underpin policy or regulation that underpin public policies addressing societal, economic, and environmental challenges should be at least 400.	Call year	Funded Value	Standardisation participation	Percentage of Standardisation /participation
		2021	€ 25 946 402	€ 10 262 134	39,6%
		2022	€ 41 751 652	€ 11 430 540	27,4%
		2023	€ 52 145 132	€ 10 912 098	20,9%
		2024	€ 0	€ 0	0,0%
		2025	€ 0	€ 0	0,0%
		2026	€ 0	€ 0	0,0%
		2027	€ 0	€ 0	0,0%
		TOTAL	€ 119 843 186	€ 32 604 772	27,2%
	Overall:				
4.3 At least 40 % of activity in the selected joint research projects is dedicated to the twin transition.	4.2 A first indication will come at their first periodic reporting which is at M18. For Call 2021 this is foreseen in Spring 2024.	Call year	Funded Value	Twin participation	Percentage of Twin /participation
		2021	€ 25 946 402	€ 24 124 181	93,0%
		2022	€ 41 751 652	€ 11 063 312	26,5%
		2023	€ 52 145 132	€ 2 299 430	4,4%
		2024	€ 0	€ 0	0,0%
		2025	€ 0	€ 0	0,0%
		2026	€ 0	€ 0	0,0%
		2027	€ 0	€ 0	0,0%
		TOTAL	€ 119 843 186	€ 37 486 922	31,3%

5. To unleash the potential of metrology among end-users, including SMEs and industrial stakeholders, as an instrument which contributes to the achievement of the Union goals for the digital and green transitions.	By the end of 2022 onwards:	Status end of 2023: 5.1 <table><tr><th>Year</th><th>Total No. SRTs published</th><th>No. SRTs with Early adopters</th><th>% Early Adopters (KPI 5.1)</th></tr><tr><td>2021</td><td>30</td><td>26</td><td>87 %</td></tr><tr><td>2022</td><td>55</td><td>50</td><td>91 %</td></tr><tr><td>2023</td><td>57</td><td>44</td><td>77 %</td></tr><tr><td>Totals</td><td>142</td><td>120</td><td>85 %</td></tr></table>	Year	Total No. SRTs published	No. SRTs with Early adopters	% Early Adopters (KPI 5.1)	2021	30	26	87 %	2022	55	50	91 %	2023	57	44	77 %	Totals	142	120	85 %
	Year		Total No. SRTs published	No. SRTs with Early adopters	% Early Adopters (KPI 5.1)																	
	2021		30	26	87 %																	
	2022		55	50	91 %																	
	2023		57	44	77 %																	
Totals	142	120	85 %																			
5.1 The share of selected research topics where end-users including industrial stakeholders and early adopters of the proposed technologies, have contributed to the objectives should be at least 10 %.																						
By the end of 2026 onwards:																						
5.2 At least 0.75 % of projects can demonstrate an end-user engagement mechanism after the project.																						
5.3 On average 1.5 outreach events are arranged towards stakeholder communities per concluded project. Uptake of co-created scientific results and innovative solutions.																						
5.4 To provide examples that the joint research projects are addressing the identified Union policy priorities and global challenges (including SDGs)																						
		5.2 The first projects of the Call 2021 will finish in 2025, exact results will be obtained from that time onwards on.																				
		5.3 A first indication will come at their first periodic reporting which is at M18. For Call 2021 this is foreseen in Spring 2024.																				
		5.4 A first indication will come at their first periodic reporting which is at M18. For Call 2021 this is foreseen in Spring 2024.																				

Annex 4 – EMN liaisons with other partnerships and initiatives as stated in the EURAMET EMNs Report of July 2024⁶

Partnership	EMN or TC	Type of cooperation
Risk Assessment of Chemicals (Cluster 1)	EMN Pollution Monitoring, TC-MC	Informal liaison
Water4all (Cluster 1)	EMN Pollution Monitoring	Informal liaison
Key Digital Technologies (Cluster 4)	Advanced Manufacturing, Smart North	Invitee to EURAMETs open consultation
Smart Networks and Services (Cluster 4)	Smart North	Informal liaison
High Performance Computing (Cluster 4)	Quantum Technologies (through the Quantum Flagship)	Informal liaison
Photonics (Cluster 4)	Quantum Technologies, Smart North	Informal liaison
Made in Europe (Cluster 4)	Advanced Manufacturing	Stakeholder council
Clean Hydrogen (Cluster 5)	Energy Gases, Smart Grids, Potential EMN Clean Energy	Stakeholder council & MoU with EURAMET
Clean Energy Transition (Cluster 5)	EMN Clean Energy, Energy Gases, Smart Grids, Smart North	Informal liaison
Build4People (Cluster 5)	Radiation Protection	Informal liaison
EOSC	Mathmet and EURAMET	Informal liaison
Sustainable Blue Economy Partnership	Pollution Monitoring, Safe and Sustainable Food and Climate and Ocean Observation	Informal liaison, but participating in Blue Economy's SRIA workshop

Existing EMN contacts with European funding infrastructures beyond the Partnerships under Horizon Europe

European initiative	EMN	Type of cooperation
GERG (European Gas Research Group)	Energy Gases	MoU
Framework Partnership Agreements for open testing and experimentation and for pilot production capabilities for quantum technologies (FPA)	Quantum Technologies	Participation in the FPA consortium
Quantum Flagship	Quantum Technologies	Participation in the SRA developing group
Quantum Flagship	Quantum Technologies	Member of the Quantum Coordination Board (Core Group, and thematic group on Metrology and Sensing)
IOC Ocean Best Practices Programme	Climate and Ocean Observation (Ocean Section)	Informal liaison
MINKE (Metrology for Integrated Marine Management and Knowledge-	Climate and Ocean Observation (Ocean Section)	Liaison through project deliverables of Minke

European initiative	EMN	Type of cooperation
Transfer Network)		
PIANOFORTE (EURATOM Work programme)	Radiation Protection	Invitee to GM and co-creation of work programme
ICRP (International Commission on Radiological Protection)	Radiation Protection	MoU
IAEA	Radiation Protection	Invitation to GM