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This document corrects COM(2021) 252 final.
The correction concerns only the English language version (typos on page 3)

The text shall read as follows:

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

on the Global Approach to Research and Innovation

Europe's strategy for international cooperation in a changing world

The Global Approach to Research and Innovation

Europe's strategy for international cooperation in a changing world

1. INTRODUCTION

The mobilisation of the world's researchers and innovators will be crucial to the well-being of citizens and of future generations. We need to cooperate across borders on a scale never seen before to develop innovative solutions to deliver just green and digital transitions in line with the sustainable development goals¹ and to promote Europe's resilience, prosperity, competitiveness, and economic and social well-being.

Through its policies and programmes, the EU is a major catalyst for internationalisation in research and innovation². Reciprocal openness, the free exchange of ideas and the co-creation of solutions are essential to the pursuit and advancement of fundamental knowledge and are key components of a vibrant innovation ecosystem.

Yet the openness in cooperation that characterises EU action is taking place in a transformed global environment. Other major science powers are now spending more on science than the EU as a percentage of gross domestic product, geopolitical tensions are rising and human rights and fundamental values such as academic freedom are being challenged. Some countries are increasingly seeking technological leadership through discriminatory measures, and are often instrumentalising research and innovation for global influence and social control. The EU's prosperity and economic competitiveness, but also its ability to autonomously source and provide its citizens with crucial technologies and services that are safe and secure need to be reinforced.

In response to current global trends, the EU should lead by example, promoting rules-based multilateralism³, pursuing reciprocal openness in research and innovation cooperation to facilitate global responses to global challenges and exchanging best practices. It should support its objectives of open strategic autonomy⁴ by, in parallel, modulating its bilateral cooperation with non-EU countries in certain areas.

With this Communication, the Commission therefore presents a new strategy that:

- reaffirms the EU commitment to lead by example to preserve openness in international research and innovation cooperation, while promoting a level playing field and reciprocity underpinned by fundamental values;

¹ <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>

² *Enhancing and focusing EU international cooperation in research and innovation: A strategic approach* (COM/2012/497); see also 2014 (COM(2014) 567), 2016 (COM(2016) 657) and 2018 (SWD(2018) 307, Annex 10), reports on the implementation of the strategy for international cooperation in R&I.

³ *Strengthening the EU's contribution to rules-based multilateralism* (JOIN(2021)3).

⁴ A long-term and cross-cutting perspective on strengthening Europe's open strategic autonomy will also be provided by the Commission's 2021 Strategic Foresight Report.

- strengthens the EU's leading role in supporting multilateral research and innovation partnerships to deliver new solutions to green, digital, health, social and innovation challenges.

This global approach should be implemented through:

- modulating EU bilateral cooperation in research and innovation to make it compatible with European interests and values and to strengthen the EU's open strategic autonomy;
- mobilising science, technology and innovation to accelerate sustainable and inclusive development, and the transition to resilient, knowledge-based societies and economies in low and middle-income countries; and
- initiatives modelled on a Team Europe approach, which combine actions by the EU, financial institutions and Member States to maximise the effectiveness and impact of the actions.

It will also serve as a guide in implementing the international dimension of the new EU programme for civil research and innovation, Horizon Europe, and its synergies with other EU programmes, in particular the Neighbourhood, Development and International Cooperation Instrument - Global Europe.

2. REAFFIRMING EU COMMITMENT TO INTERNATIONAL OPENNESS AND FUNDAMENTAL VALUES IN RESEARCH AND INNOVATION

To promote global openness and scientific exchange, the EU should boost its attractiveness as a high-quality, high-intensity centre of research and innovation. Scientific research thrives thanks to freedom of thought, the development of a critical mind, argumentation based on evidence and the rejection of the argument of authority. The EU should therefore continue to offer researchers and innovators a democratic, inclusive and supportive environment, devoid of political interference, defending academic freedom and the opportunity for curiosity-driven research, under the respect and protection of the EU Charter of Fundamental Rights.

It should ensure that technology is developed for the benefit of individuals and societies, free from authoritarianism and respecting high ethical standards and human rights. Moreover, the EU should lead by example in offering a rules-based innovation ecosystem, protecting intellectual property rights enforced by an independent judicial system. The protection and enforcement of intellectual property rights should contribute to the transfer, promotion and dissemination of technological innovation in a manner conducive to social and economic welfare.

At the same time, to strengthen the EU's long-term research and innovation value chains, the EU should encourage its researchers and innovators to contribute to and benefit from global innovation ecosystems. It should also further promote cooperation in human capital

development, through researchers' training and mobility, in particular through the Marie Skłodowska Curie Actions⁵.

To maintain this leadership, the EU research and innovation programme will remain open to the world. This means that participants from all over the world, regardless of their place of establishment or residence, will be able to participate in most of the Horizon Europe programme. The EU will fund in most cases the participation in Horizon Europe actions of legal entities established in low and middle-income countries to support the development of their research and innovation capacities, in synergy with the Neighbourhood, Development and International Cooperation Instrument.

The association of non-EU countries to Horizon Europe allows their citizens and organisations to participate in the activities in generally the same way as those from EU Member States⁶. Association to Horizon Europe enables the EU and its partners to align research and innovation policy goals, pool resources, share costs and gain reciprocal access to knowledge and know-how, talents and expertise, to research infrastructure and to new markets for innovators. As an expression of the EU's commitment to international openness, Horizon Europe now offers the possibility to countries, which share European values and with a strong science, technology and innovation profile, located anywhere in the world, to be associated to the programme.

In parallel, and to strengthen the EU's role for a rules and value-based cooperation by ensuring consistency among EU and Member States' external research and innovation policies, the values and principles underlying international cooperation in research and innovation will be discussed with international partners. These discussions will notably take place in the ERA Forum for Transition, part of the strengthened European Research Area⁷ and guided by a European Pact for Research and Innovation, presented in 2021.

The EU should work towards a common understanding and implementation of the following issues with its international partners:

Academic freedom. Academic freedom, integrity and institutional autonomy form the backbone of universities and higher education institutions in the EU. The EU and its Member States should promote and protect these common fundamental values internationally and uphold the principles of the Bonn Declaration on Freedom of Scientific Research⁸ vis-à-vis third countries.

⁵ https://ec.europa.eu/research/mariecurieactions/node_en

⁶ Countries previously associated to Horizon 2020 and having expressed interest in associating to Horizon Europe are: Norway, Iceland, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Turkey, Georgia, Armenia, Ukraine, Moldova, Tunisia, Israel, Faroe Islands, Switzerland. In addition, the UK will be associated under the TCA, and Morocco and Kosovo* have expressed interest in association.

⁷ *A new ERA for Research and Innovation* (COM(2020) 628).

⁸ https://www.bmbf.de/files/10_2_2_Bonn_Declaration_en_final.pdf

Research ethics and integrity. The rapid development of new technologies necessitates a continuous evaluation of current approaches to address ethical challenges and ensure human-centred technological innovation. The EU should continue to promote internationally the European Code of Conduct for Research Integrity and the Global Code of Conduct for Research in Resource-Poor Settings. It will expand its international dialogues through European networks on ethics and integrity and support the World Conferences on Research Integrity⁹.

Gender equality, diversity and inclusiveness. In line with the Commission's Gender Equality Strategy 2020-2025¹⁰ and the EU agenda for gender equality and women's empowerment in EU external action¹¹, the EU should mainstream and integrate the gender dimension in international cooperation. Through dialogue with non-EU countries, it should also foster gender balance and equality, youth empowerment, inclusiveness, and diversity in the broader sense¹², in research and innovation at global level.

Open data and open science. Making research data as open, standardised and interoperable as possible benefits both the EU and the world when other countries and regions do the same. The EU should continue to support bodies and platforms such as the Research Data Alliance and the Committee on Data of the International Science Council, as well as efforts by the OECD, the UN and the G7. The global aim is to make datasets FAIR: findable, accessible, interoperable, and reusable. The EU will also support the international outreach of the European Open Science Cloud.

Standards. The EU's leading role as a setter of global standards should also be advanced through an increased role in international cooperation in pre-normative and standardisation research.

Evidence-informed policymaking. The EU and its Member States have emerged as leading practitioners of evidence-informed policymaking. They should share their own science for policy insights and experiences and engage with global networks.

In addition, a stronger focus on science and technology in the EU's foreign and security policies in terms of '**Science Diplomacy**' would help the EU to project soft power and pursue our economic interests and values more effectively, meeting demand and interest from partner countries and playing to the EU's strengths as a research and innovation powerhouse.

⁹ With the involvement of international organisations such as the World Health Organization and the United Nations Educational Science and Cultural Organization.

¹⁰ *A Union of Equality: Gender Equality Strategy 2020-2025* (COM/2020/152 final).

¹¹ https://ec.europa.eu/international-partnerships/system/files/swd_2020_284_en_final.pdf

¹² The EU's Union of Equality policy agenda beyond gender equality is set out in the following strategies and frameworks: EU anti-racism action plan 2020-2025 (COM(2020) 565 final); LGBTIQ Equality Strategy 2020-2025 (COM(2020) 698 final); EU Roma strategic framework for equality, inclusion and participation (COM(2020) 620 final); Strategy for the Rights of Persons with Disabilities 2021-2030 (COM(2021) 101 final)

The EU should, in 2021, in coordination with Member States in the ERA Forum for Transition¹³, develop principles for international cooperation in research and innovation, and then promote the principles in a multilateral dialogue with partner countries and international fora

3. REBALANCING THE EU'S GLOBAL APPROACH TO RESEARCH AND INNOVATION: TOWARDS A LEVEL PLAYING FIELD AND RECIPROCITY

EU efforts to promote reciprocal openness at global level can be jeopardised by geopolitical tensions at a time of economic transformation. Competition for technological leadership drives certain non-EU countries to adopt restrictive or discriminatory measures that are unfair to EU innovators, companies and in particular start-ups. At the same time, foreign interference can compromise the integrity and autonomy on which research and innovation systems in the EU are built.

For these reasons, the EU approach requires rebalancing to better safeguard its interests, values and expertise, boost its resilience, while maintaining wide openness to cooperation.

The EU should more assertively promote a level playing field and reciprocity to respect fundamental values and principles, to protect the use of intellectual property rights, to ensure the security of supply, and to encourage fair innovation ecosystems not distorted by undue rules or foreign subsidies, in line with the recently proposed regulation to address distortion by foreign subsidies and the updated Industrial Strategy¹⁴. Measures should focus on open standard setting, non-discriminatory state subsidies and the absence of protectionist laws.

The EU should pursue these points in international fora such as the World Trade Organization and the World Intellectual Property Organization. It should also deal directly with non-EU countries when necessary, through the various dialogues and negotiations that take place under relevant agreements, such as association agreements under the framework programme, EU science and technology agreements¹⁵ with non-EU countries, and EU trade and investment agreements, including the WTO TRIPS agreement¹⁶.

In addition, the Commission intends to negotiate, on behalf of the EU, targeted roadmaps for research and innovation cooperation with non-EU countries with a strong research and innovation base. These roadmaps, which will be non-binding instruments, should clearly set out the framework conditions, which both sides are expected to meet, and identify milestones and implementation timelines. The EU should condition any future continuation and expansion of bilateral cooperation on concrete progress, monitored on the ground, towards objectives set out in the roadmaps.

¹³ A new ERA for Research and Innovation (COM(2020) 628).

¹⁴ COM (2021) 223 final; COM (2021) 350 final.

¹⁵ Science and technology agreements currently exist between the European Union and Algeria, Argentina, Australia, Brazil, Canada, Chile, China, Egypt, India, Japan, Jordan, Korea, Mexico, Morocco, New Zealand, Russia, South Africa, Switzerland, Tunisia, Ukraine and the United States of America.

¹⁶ https://www.wto.org/english/tratop_e/trips_e/trips_e.htm

Furthermore, Article 22(5) of the Horizon Europe Regulation provides that the work programme may limit participation in actions under the Horizon Europe programme when there is a justified need to safeguard the EU's strategic assets¹⁷, interests¹⁸, autonomy¹⁹ or security²⁰. In these exceptional and justified circumstances, the EU could limit programme participation to legal entities established only in Member States, or to legal entities established in specified associated or other non-EU countries. The work programme may also exclude the participation of legal entities established in the Union or in associated countries directly or indirectly controlled by non-associated third countries.

Any limitations should always be applied in accordance with the procedure set out by EU legislation and respecting the EU's commitments under international agreements. They should be exceptional and duly justified, allowing the programmes to remain open as a rule.

To ensure that the EU and its Member States align their approach to pursuing open strategic autonomy in given fields of research and innovation by tailoring their international cooperation to the specific policy interests, the Commission proposes to consult the Member States in the appropriate fora.

In parallel, as preventive measures, the Commission proposes to make appropriate use of provisions under the Horizon Europe Regulation to further mitigate risks to EU interests, such as those on exploitation of results in non-associated non-EU countries (Art. 39(6)), on the transfer of ownership of results (Art. 40(4)), or on security agreements with non-EU countries (Art. 20(1)).

In addition, the Commission intends to present guidelines on dealing with foreign interference targeting EU research organisations and higher education institutions. These guidelines will aim to protect fundamental values by safeguarding academic freedom, integrity and institutional autonomy, and to shield students, researchers and innovators, and key research findings, from coercive, covert, deceptive or corrupting foreign actors.

The Commission will also put forward a code of practice on smart use of intellectual property²¹, in accordance with the Intellectual Property Action Plan²². The aim will be to raise

¹⁷ For example, sensitive infrastructure owned by the EU such as the Galileo or Copernicus satellites, the disruption of which would have a significant impact for the EU as a result of the failure to maintain those functions.

¹⁸ Covering the offensive and defensive interests identified by the EU in the various components of its external policy, the promotion of fundamental rights and values, or the protection of intellectual property rights.

¹⁹ As set out in the Trade Policy Review, open strategic autonomy encompasses (i) resilience and competitiveness to strengthen the EU's economy; (ii) sustainability and fairness, reflecting the need for responsible and fair EU action and (iii) assertiveness and rules-based cooperation to showcase the EU's preference for international cooperation and dialogue, but also its readiness to combat unfair practices and use autonomous tools to pursue its interests where needed.

²⁰ European security encompasses, for example, the protection of the EU against external or internal threats and cover, for instance protection and resilience of critical infrastructure against systemic risks and hybrid threats such as energy infrastructures, data and networks, including Space Surveillance and Tracking and Governmental Satellite Communications.

²¹ *A new ERA for Research and Innovation (COM (2020) 628)*.

awareness among universities, research organisations and businesses of the importance of managing knowledge and intellectual property in an international environment.

Lastly, to ensure that the EU can react to global crises independently and mitigate the risks of dependency on non-EU countries in the area of civil security, it should strengthen its civil security industry through an ambitious and capability-driven approach to security research and innovation.

The EU should:

- seek to agree on targeted bilateral roadmaps with prioritised non-EU country partners with a strong research and innovation base, setting out joint commitments to implement framework conditions to secure a level playing field and the promotion of shared values.

The Commission will:

- in 2021, develop and promote guidelines on dealing with foreign interference that targets EU research organisations and higher education institutions, and;
- by the end of 2022, present a code of practice on smart use of intellectual property in an international context to raise awareness among universities, research organisations and businesses.

4. POOLING GLOBAL EFFORTS TO TACKLE GLOBAL CHALLENGES TOGETHER

The COVID-19 pandemic taught the world an important lesson that should equally be applied to climate change, the biodiversity crisis and other global challenges: it exposed inequities in the vulnerability of countries, demonstrated the impossibility of containment within national borders, and showed both the need and the untapped potential to work together for the common good. The economic crisis caused by the pandemic also offers a unique opportunity to ‘build back better’ with the focus on sustainability in the context of a green recovery.

Consequently, the EU should, building on the rules and values-based cooperation it proposes, further strive to bring countries around the globe closer together in multilateral research and innovation partnerships, focused on finding solutions to global challenges such as climate change, the biodiversity crisis, pollution, resource depletion, or infectious diseases, including in crisis situations²³, and enabling the green and digital transitions.

Multilateral research and innovation partnerships should be inspired by successful models such as the All-Atlantic Ocean Research Alliance²⁴. The alliance is the result of science diplomacy efforts gathering scientists, policymakers, and public and private stakeholders to improve understanding and stewardship of the Atlantic Ocean. Building on existing efforts or

²² *Making the most of the EU's innovative potential – An intellectual property action plan to support the EU's recovery and resilience* (COM(2020) 760).

²³ *EU's humanitarian action: new challenges, same principles* COM(2021) 110.

²⁴ <https://allatlanticocean.org>.

through new initiatives, the multilateral partnerships should take different forms depending on their focus and objectives. They could range from informal arrangements between partners to coordinate their independent investments in key fields, through to partnerships providing for the pooling of resources in joint initiatives.

4.1 Leading global efforts towards a just green transition

As a global leader committed to becoming the first climate-neutral bloc in the world by 2050, the EU will continue to lead international efforts and jointly address environmental challenges with its international partners, notably the major world economies and greenhouse gas emitters. International cooperation in climate and environmental science is crucial to underpin evidence-informed policies to tackle and adapt to the climate and biodiversity crises. It should also focus on clean technology development in line with the Paris Agreement and the European Green Deal, respecting the so-called ‘do no significant harm principle’. As a contribution to achieving these objectives, key strategic orientations of Horizon Europe include climate action and reducing emissions, combatting environmental degradation, tackling pollution, promoting a circular economy and a just transition. These will be pursued through dedicated research topics and partnerships open to participation by non-EU countries.

In addition, to ensure its green technological leadership, the EU should pursue strategic partnerships with technology leaders and cooperate through global fora while supporting the uptake of EU green standards globally. It should do so through various projects and bodies, as indicated below.

All-Atlantic Ocean Research Alliance. To strengthen international marine research and innovation cooperation and actively contribute to global initiatives such as the UN Decade of Ocean Science for Sustainable Development 2021-2030, the Commission will increase EU support to the All-Atlantic Ocean Research Alliance. In parallel, Arctic science will also remain a priority for the EU as an example of global leadership.

Mission Innovation²⁵. This is a global initiative of 24 countries and the European Union working to accelerate clean energy innovation, thereby demonstrating global leadership in climate ambition at COP26. The Commission proposes to bolster the EU’s commitment to Mission Innovation by broadening cooperation to new partners, aligning research agendas, building on strengths like the hydrogen strategy²⁶ and enhancing links between relevant Horizon Europe partnerships. In this regard, the EU is co-leading the scoping of a ‘Hydrogen Mission’ with Australia, Chile, Germany and the United Kingdom, to be launched at the Mission Innovation 2.0 conference in June 2021.

Group on Earth Observations (GEO). The Commission is the lead co-chair in 2021 of this global network in the area of earth observation. GEO has the capacity to connect government

²⁵ Mission Innovation (<http://mission-innovation.net/>) is a global initiative announced in 2015 at the COP21 working to accelerate clean energy innovation. The European Union currently holds the chair of its steering committee.

²⁶ <http://mission-innovation.net/our-work/innovation-challenges/renewable-and-clean-hydrogen/>

and academic institutions, data providers, businesses, engineers and citizens to create earth observation-based innovative solutions to global environmental, social and health challenges.

International Bioeconomy Forum. Under the umbrella of the Bioeconomy strategy, the Commission will stimulate a more innovative, resource efficient and competitive society that reconciles food and nutrition security with the sustainable use of renewable resources for industrial purposes, while ensuring environmental protection. In the framework of the EU Farm-to-Fork strategy²⁷, the Commission will foster cooperation at global level in agricultural research on priority areas such as soil health²⁸, and food systems²⁹ and will assess the feasibility of an international platform for food systems science in view of the UN's 2021 Food Systems Summit.

The EU supports both the **Intergovernmental Panel on Climate Change (IPCC)** and the **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)**. The Commission intends to showcase the EU's work in support of climate science in the United Nations Climate Change Conference (COP26), to highlight EU's role as a key enabler of the transition to climate neutrality and resilience. The EU should promote synergies between the IPCC and IPBES in view of the interdependence between the climate change and biodiversity crises, taking also into account the EU Biodiversity Strategy for 2030.

The Commission will also promote the work of the **International Resource Panel (IRP)**, which it co-chairs. It provides advice on resource efficiency and the circular economy, crucial for the new EU Circular Economy Action Plan (CEAP), to operationalise the Global Alliance for Circular Economy and Resource Efficiency³⁰ (GACERE) and to feed into the work of the G7 and G20.

The **New European Bauhaus**³¹ has the ambition to make the European Green Deal³² a cultural, human-centred, inclusive and positive, tangible experience for all and to accelerate a sustainable greening of the built environment. It will tackle at local level the most pressing challenges shared at EU and global level.

²⁷ https://ec.europa.eu/food/farm2fork_en

²⁸ With the establishment and support of International Research Consortia (IRCs) and the participation of the Commission in the Global Research Alliance on Agricultural Greenhouse Gases.

²⁹ Food 2030: https://ec.europa.eu/info/research-and-innovation/research-area/environment/bioeconomy/food-systems/food-2030_en

³⁰ https://ec.europa.eu/environment/international_issues/gacere.html

³¹ https://europa.eu/new-european-bauhaus/index_en

³² <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#>

The EU should:

- further strengthen international marine research and innovation cooperation through the multilateral All-Atlantic Ocean Research Alliance, building on its successes, clustering its results and strengthening its north pole to south pole dimension;
- use its leadership position in the Mission Innovation governance to strengthen the multilateral alliance, focusing international innovation actions on breakthrough energy technologies and initiatives that show global leadership on climate and environmental ambitions in line with the European Green Deal

The Commission will:

- support multilateral cooperation on research and innovation policy for fair, healthy and environmentally friendly food systems, notably through the International Bioeconomy Forum, the International Research Consortia and the Global Research Alliance on Agricultural Greenhouse Gases; and
- establish in 2022, through the New European Bauhaus initiative, an international knowledge management platform that will disseminate information about standards, guidance and funding opportunities, and that will serve as a depository of ideas and exchanges of best practice, and engage in community management.

4.2 Promoting the digital transition

The 2030 Digital Compass³³ will guide the EU's efforts in fostering a global approach to the main technological and regulatory developments, including in the area of international connectivity and standards. The EU should foster an international approach to trusted data flows, while promoting its model of a safe open and resilient global internet and pursuing ambitious goals in terms of market access. Collaboration in research and innovation is one tool to foster digital partnerships with regions around the world. International digital partnerships should result in greater opportunities for EU companies, increased digital commerce via secure networks, respect of EU standards and fundamental rights and values, and a supportive environment internationally for a human-centric digital transformation.

International digital partnerships on the following topics will be promoted: (i) human centric policy and regulations; (ii) adapted and improved solutions for digital connectivity; (iii) enhanced innovation partnerships with the digital research and innovation ecosystems; (iv) enhanced focus and research partnerships on key technologies such as Artificial Intelligence, blockchain, internet of things, big data, space data, applications of digital technologies to green transition, health, and education. For example:

³³ 2030 Digital Compass: the European way for the Digital Decade COM(2021) 118.

- a joint task force on artificial intelligence with India to establish common ground for collaboration on specific use-cases and on topics such as research and innovation on ethical artificial intelligence and standardisation;

- a support for broadband roll-out in the Western Balkans and Eastern Partnership countries, and digital connectivity projects with the European Neighbourhood countries, Africa, Latin America, India and ASEAN, inter alia to support the pooling of research and innovation efforts;

- a support for the launch of the connectivity components of the Digital Alliance with Latin America & the Caribbean, building on the direct fibre optic cable link between South America and Europe (the BELLA cable);

The private sector has a key role to play in research and innovation for the digital transition. It will be associated to strategic initiatives to enhance the EU's expertise in several digital strategic areas.

International digital partnerships³⁴ will offer the opportunity to carry out joint research activities, including through joint undertakings on industrial issues, which will support EU leadership in evolving technologies such as 6G or the use of digital technology to tackle climate change and environmental challenges.

International digital Partnerships in research and innovation will be promoted also through the Digital 4 Development Hub³⁵ (D4D Hub), the EU global multi-stakeholder platform that supports a human-centric digital transformation. The D4D Hub bundles a multitude of digital initiatives and promotes combining resources of the EU, Member States, and financial institutions through the Team Europe approach for coordinated impact. The D4D Hub will form regional branches in Africa, Asia, Latin America and the Caribbean, as well as in the EU's Eastern Neighbourhood and include all relevant stakeholders from respective regions.

The EU should:

- strengthen joint research activities, including under joint undertakings on industrial issues, to support EU leadership in evolving technologies such as 6G or the use of digital technology in the fight against climate change and environmental challenges;
- build strong international digital partnerships matching the four pillars of the 2030 Digital Compass.

³⁴ https://ec.europa.eu/international-partnerships/topics/digital-partnerships_en

³⁵ https://ec.europa.eu/international-partnerships/news/team-europe-digital4development-hub-launched-help-shape-fair-digital-future-across-globe_en

4.3 Strengthening cooperation on global health

The COVID-19 pandemic has shown that the EU and the world need to substantially strengthen its preparedness and socio-economic resilience to health-related and other shocks. In low and middle-income countries, as well as in conflict settings, the pandemic has further highlighted the need for health system strengthening, and recalled the need for a global health security approach. The EU has used its strong international partnerships to accelerate efforts aiming at defeating the virus, launching the Coronavirus Global Response, which has raised nearly €16 billion in pledges globally, developing the COVID-19 Data Platform³⁶, and publishing the manifesto for EU COVID-19 research. Together with the World Health Organisation (WHO) and its international partners, the EU also played a leading role in founding the Access to COVID-19 Tools Accelerator (ACT-A)³⁷ as well as the COVAX mechanism³⁸. These two initiatives aim to lead the development and equal distribution of safe and effective COVID-19 diagnostics, treatments and vaccines. Furthermore, the Pharmaceutical Strategy for Europe³⁹ is set to further enhance the EU's role at global level, as a leader in health research and innovation, which can benefit patients across the world.

Building on this success and reinforcing its leadership, and together with Italy as the G20 Presidency in 2021, the Commission is organising a global health summit to take stock of the global response to the COVID-19 pandemic, including the ACT-A, to improve current and potential future pandemic preparedness and response. It will also aim to develop and endorse a set of principles for further multilateral cooperation and joint action to prevent future global health crises, and for a joint commitment to build a healthier, safer, fairer and more sustainable world.

In this regard, the EU should promote cooperation of the EU-funded European platform trials with the ACT-A partnerships, in particular to ensure rapid sharing of clinical evidence to assess therapeutics and vaccine candidates. This will improve preparedness to tackle new variants of the virus and help to rapidly deliver effective vaccines and therapeutics in line with the EU strategy for COVID-19 vaccines⁴⁰ and the EU strategy on COVID-19 therapeutics⁴¹.

In the medium to long term, the Commission will enhance its commitments to strengthen health systems, global health security, increase access to medicines and health products, notably through research, innovation, capacity building and support to local production, with digital innovations at the core of the strategy. The Commission will focus efforts on research and innovation high burden diseases and topics, such as communicable and non-communicable diseases or maternal and child health.

³⁶ <https://joinup.ec.europa.eu/collection/digital-response-covid-19/news/european-covid-19-data-platform>

³⁷ <https://www.who.int/initiatives/act-accelerator>

³⁸ <https://www.who.int/initiatives/act-accelerator/covax>

³⁹ https://ec.europa.eu/health/sites/health/files/human-use/docs/pharma-strategy_report_en.pdf

⁴⁰ COM(2020) 245 final.

⁴¹ COM(2021) 355 final.

The Commission will build on global alliances in health already launched or joined over recent years in key sectors such as rare diseases⁴², chronic non-communicable diseases⁴³, antimicrobial resistance⁴⁴, and personalised medicine⁴⁵. It has also proposed to support the European and Developing Countries Clinical Trial Partnership (EDCTP) aiming at reducing the individual, social and economic burden of poverty-related infectious diseases in sub-Saharan Africa; support the research on significant outbreaks of infectious disease⁴⁶; and the development of and access to vaccines against emerging infectious diseases⁴⁷.

The Commission, together with the European Medicines Agency, also actively participates in the initiatives that provides strategic orientations and recommendations, fostering exchanges and cooperation among global regulators of pharmaceutical research results⁴⁸.

These international partnerships will be strengthened, involving as appropriate the World Health Organization and other global health actors.

The Commission will:

- contribute to the medium and long term agenda on health security, preparedness and health system strengthening;
- promote cooperation of EU-funded European platform trials with the Access to COVID-19 Tools Accelerator (ACT-A) partnerships and pursue the ACT-A objectives by enhancing access to medicine and health products, notably through research, innovation, development and promotion of digital health tools and increase of local production capacity in partner countries; and
- support the establishment of a global health joint undertaking under the European and Developing Countries Clinical Trials Partnership, in which the EU will partner with Member States, countries associated to Horizon Europe and African countries, to tackle infectious diseases and public health emergencies in sub-Saharan Africa.

4.4 Promoting Innovation

With ever-increasing digital connectivity and literacy, grassroots innovators are appearing everywhere around the world, from big cities to remote rural areas; they interact, share and

⁴² International Rare Diseases Research Consortium: <https://irdirc.org/about-us/vision-goals/>

⁴³ Global Alliance for Chronic Diseases: <https://www.gacd.org/>

⁴⁴ Joint Programming Initiative on Antimicrobial Resistance - One Health antimicrobial resistance partnership: <https://www.jpamr.eu/>

⁴⁵ International Consortium for Personalised Medicine: <https://www.icpermed.eu/>

⁴⁶ Global Research Collaboration for Infectious Disease Preparedness: <https://www.glopid-r.org/>

⁴⁷ Coalition for Epidemic Preparedness Innovations: <https://cepi.net/>

⁴⁸ International Coalition of Medicines Regulatory Authorities: <http://icmra.info/>

together create solutions across all areas to tackle global challenges. To foster and tap into this immense potential, and support the EU Connectivity Strategy⁴⁹, the EU should establish win-win international innovation partnerships, consisting of networks of incubators and accelerators, with countries and regions that offer reciprocal openness to entrepreneurship and investment. They should foster, among other things, the creation of soft landing programmes⁵⁰ and start-up collaborations between the EU and non-EU countries, thereby complementing the international dimension of European Cluster Partnerships⁵¹ and Start-up Europe⁵² initiatives and the network of EU Digital Innovation Hubs. Complementing the Marie Skłodowska-Curie actions, these partnerships will also promote the mobility of innovators in both directions. Already operational in India and Africa, the Commission proposes to expand them to other regions.

To further encourage European innovators to tap into the global innovation ecosystem, the European Innovation Council's (EIC) business acceleration services will offer the European start-up and scale-up companies it supports the opportunity to attend international trade fairs. In parallel, to further increase EU attractiveness and innovation capacity, overseas innovators who wish to establish start-ups in the EU will be able to apply for EIC support. In addition, the European Institute of Innovation and Technology (EIT) will launch, in targeted non-EU countries, coordinated actions of its knowledge and innovation communities

5. MODULATING COOPERATION WITH PRIORITY COUNTRIES AND REGIONS

The EU should engage with non-EU countries in a nuanced and modulated approach, based on levels of reciprocity, a level playing field, and the respect for fundamental rights and shared values. The EU should remain a strong and open partner, while seeking to enhance, through well-targeted cooperation, its own expertise in key emerging areas. At the same time, it should co-design initiatives to support countries that wish to upgrade their research and innovation ecosystems.

5.1 Strengthening cooperation with industrialised non-EU countries and emerging economies

While much of the cooperation with specific countries will take place within multilateral global partnerships, the EU should also seek to strengthen bilateral cooperation to enhance knowledge and pool resources, especially in areas of EU interest.

United States. Cooperation with the United States, with which the EU shares high levels of research and innovation capacity and common values and principles, ensures that researchers, innovators and the best facilities are combined in the search for solutions to global challenges. In particular, the recommitment of the United States to climate goals and to the strengthening

⁴⁹ JOIN (2018) 31.

⁵⁰ Soft-landing is a tailor-made programme to help startups and scaleups explore a new ecosystem.

⁵¹ <https://clustercollaboration.eu/find-partners/beyond-europe>

⁵² <https://digital-strategy.ec.europa.eu/en/policies/startup-europe/>

of the multilateral order provides the opportunity for a renewed relationship in research and innovation. The Joint Communication ‘A new EU-US agenda for global change’⁵³ sets out a number of proposals for cooperation with the US, and notably a call to form a Green Technology Alliance and to establish a new EU-US Trade and Technology Council. Building on this text, the Commission also proposes to increase reciprocity in bilateral cooperation, and raise the levels of coordination and coherence between EU and US research and innovation investments, beginning with climate, digital, energy, environmental and health challenges.

The EU should also seek to enhance its cooperation with major science powers such as **Canada, Japan, South Korea, Singapore, Australia and New Zealand**, including by exploring new possibilities for closer cooperation such as association under Horizon Europe.

China. As a research and innovation powerhouse, China is a partner for the EU in tackling global challenges. At the same time, China’s position as an economic competitor and a systemic rival to the EU calls for a rebalancing of research and innovation cooperation. The EU has launched discussions with China on a joint roadmap to establish agreed framework conditions and guiding principles for cooperation to reach a level playing field and reciprocity, while respecting fundamental values, high ethical and science integrity standards. On this basis, it will also identify the research fields in which cooperation could be mutually beneficial, such as climate science and biodiversity protection, circular economy, health, food, agriculture, aquaculture, and ocean observation. Reaching a level playing field and reciprocity will be conditional to developing cooperation with China.

The EU is funding an EU knowledge network on China to address research and innovation, bringing together Member States and the EU to discuss and share best practices and strategies and agree on common approach. At the same time, the EU should take measures to tap into China’s new research and innovation potential. It should encourage universities and research institutions to ensure a higher degree of reciprocity and mutual benefit in their cooperation with Chinese counterparts.

India. In line with the *EU-India Strategic Partnership: A Roadmap to 2025*, cooperation with India will be stepped up to address together global challenges and sustainable modernisation. Cooperation on healthcare, including resilience to health crises, actions on a just greening of the economy and striving for a human-centric digitalisation will all be considered as priorities. Cooperation to underpin the EU-India Connectivity Partnership⁵⁴, with a focus on mobility of researchers and innovators, and the Indo-Pacific strategy, by actions on the blue economy such as marine litter, will also be considered.

Russia. The EU’s cooperation with Russia is based on the five agreed principles for engagement set out by the Council, notably, in the area of research and innovation, and on the desirability of maintaining people-to-people contacts. It takes into account the EU’s policy

⁵³ JOIN(2020) 22 final.

⁵⁴ Launched at the EU-India Leaders’ Meeting, 8 May 2021 - <https://www.consilium.europa.eu/media/49516/eu-india-connectivity-partnership-8-may-2.pdf>

priorities and interests, the need for increased reciprocity and level playing field, and respect of fundamental rights and values.

5.2 Integrating cooperation with EFTA countries, the Western Balkans, Turkey, countries covered by the European Neighbourhood policy and the United Kingdom

The EU should give particular priority to partners in its immediate vicinity, including through association to Horizon Europe.

EEA/EFTA countries. EEA/EFTA countries share EU values and make important contributions to the European research and innovation landscape. They support excellence with major investments in globally ranked research organisations, cooperate in collaborative projects, and, given their level of integration with the EU, receive and send a great number of researchers and innovators from and to the EU.

Western Balkans and Turkey. Fostering the stability and prosperity of candidate countries and potential candidates remains a key EU priority. The EU is in particular committed to support the implementation of a dedicated innovation agenda for the Western Balkans⁵⁵, including in the framework of the Economic and Investment Plan for the Western Balkans⁵⁶. Participation in EU programmes is an important element of integrating Turkey into EU policies and tools where it is in the mutual interest and in line with progress in the overall framework of its relations with the EU.

Eastern Partnership & Southern Neighbourhood. In line with the Joint Communication on the Eastern Partnership⁵⁷, the post-2020 Eastern Partnership deliverables should identify cooperation actions for the years to come. The EU partnership with the Southern Neighbourhood⁵⁸, based on the Renewed Partnership with the Southern Neighbourhood and its Economic and Investment Plan, is instrumental to promoting growth and prosperity through research and innovation. International cooperation supports technology transfer, innovation and collaborative research, and leads to more resilient and inclusive growth, the creation of sustainable employment opportunities, a knowledge society and economy and environmental improvements through initiatives such as the BlueMed⁵⁹.

United Kingdom. The participation of the United Kingdom in Horizon Europe will enable it to maintain strong links with the EU on research and innovation, building on shared values and on the long history of the UK's participation in research and innovation framework programmes and in the European Research Area.

⁵⁵ To be agreed at the Ministerial meeting in May 2021.

⁵⁶ *An Economic and Investment Plan for the Western Balkans* COM(2020) 641.

⁵⁷ *Eastern Partnership policy beyond 2020: Reinforcing Resilience - an Eastern Partnership that delivers for all* (JOIN(2020) 7).

⁵⁸ *Renewed partnership with the Southern Neighbourhood - A new Agenda for the Mediterranean* (JOIN(2021) 2).

⁵⁹ [BlueMed Initiative \(bluemed-initiative.eu\)](https://bluemed-initiative.eu).

5.3. Deepening EU partnerships with Africa, Latin America and other regions and countries

The modulated approach will pay special attention to cooperation with Africa, while building on existing cooperation with other regions and countries⁶⁰.

Africa. In line with the Joint Communication ‘Towards a comprehensive strategy with Africa’⁶¹, the EU seeks to enhance its cooperation with Africa in research and innovation. Making effective use of science, technology and innovation accelerates sustainable and inclusive development and the transition to knowledge-based societies and economies strengthening human capital notably through mobility and training of academics and researchers. To meet these challenges, whose urgency has increased due to the COVID-19 pandemic, the EU proposes a series of ambitious regional initiatives.

The Commission, working closely with the African Union Commission, proposes to implement a series of initiatives under Horizon Europe constituting a comprehensive and ambitious ‘Africa Initiative’. This will support the agreement reached at the July 2020 Ministerial meeting of the EU-African Union High-level Policy Dialogue on Science, Technology and Innovation. Four pillars of cooperation should be supported: (i) Public health, including resilience and pandemic preparedness⁶²; (ii) The green transition⁶³; (iii) Innovation and technology for job creation⁶⁴; and (iv) Capacities for science and higher education⁶⁵, particularly for women and youth.

In addition, a European Union-African Union Innovation Agenda should support the transformation of research and innovation outputs into products and services with a concrete impact, through various measures that improve business development and access to finance for innovators.

The priority given to cooperation with Africa, includes the longstanding bilateral cooperation with South Africa,⁶⁶ and comes in parallel with the EU’s continuing its partnerships with other parts of the world combining resources of the EU, Member States, and financial institutions through Team Europe initiatives.

Latin American and the Caribbean (LAC). The Commission will support the implementation of the EU-CELAC Strategic Roadmap on Science, Technology and

⁶⁰ Research cooperation opportunities will continue with other regions and countries not specifically mentioned below.

⁶¹ *Towards a comprehensive strategy with Africa* (JOIN(2020) 4).

⁶² Through the European and Developing Countries Clinical Trial Partnership and the proposed global health joint undertaking.

⁶³ Including through the EU-AU partnerships on Food and Nutrition Security and Sustainable Agriculture, on Climate Change and Sustainable Energy and on Sustainable Fisheries Partnership Agreements.

⁶⁴ For example through the Africa-Europe Innovation Partnership.

⁶⁵ Including by supporting science for policymaking, promoting open science, and the pilot programme of the African Research Initiative for Scientific Excellence.

⁶⁶ S&T Agreement with South Africa.

Innovation⁶⁷, based on four main lines of cooperation with the region, focusing on (i) global challenges, (ii) mobility of researchers, (iii) research infrastructures and (iv) innovation. Stronger engagement should be also sought with Brazil, Mexico, Argentina, Chile and other EU partners in the region, in areas such as green and digital transition, health, or developing common solutions for a sustainable recovery. An increasing collaboration with the EU Space programme and the new Copernicus hubs and Galileo centres in LAC will play a key role to drive innovation and research in the region.

Association of Southeast Asian Nations (ASEAN). Regional cooperation with ASEAN will be enhanced through EU support for intra-ASEAN research and innovation cooperation and mobility under the ASEAN-EU Dialogue on Science and Technology.

The EU should:

- seek to agree on the EU-China Joint Roadmap on the future of science, technology and innovation cooperation to secure a level playing field and reciprocity as a precondition for future cooperation; and
- implement the Strategic Roadmap of the EU-CELAC Action Plan on Science, Technology and Innovation (2021-2023) and support the ASEAN-EU Dialogue on Science and Technology.

The Commission will:

- develop selective and targeted international cooperation actions in calls for proposals in areas of mutual interest under Horizon Europe and exploit, where justified and on a case by case basis, the opportunities for association to Horizon Europe, while ensuring reciprocity, mutual gains and respect of fundamental values; and
- develop strategic research and innovation plans for Africa, linking the programming of the Neighbourhood, Development and International Cooperation - Global Europe Instrument with Horizon Europe, and launch in 2021 a comprehensive and ambitious 'Africa Initiative' under the first Horizon Europe work programmes.

6. CONCLUSION

To support the objective of a stronger EU in the world, the EU should endeavour to deliver this global approach in close coordination with the strategies of Member States, using the ERA Forum for Transition as appropriate. The Commission will monitor the implementation of the actions set out in this Communication and evaluate their contribution to the objectives of the Global Approach, taking into account benchmarks like the volume of mobilised

⁶⁷https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/eu-celac_strategic-roadmap-2021-2023.pdf

international R&D investment in multilateral cooperation, the number of international scientific co-publications and progress in mutual reciprocity in access to publicly-funded R&D programmes. A first review of progress will take place at an international conference to be organised in 2022. This will be followed by biennial reports from the Commission to the European Parliament and the Council, which will replace the implementation reports and the specific country-based roadmaps presented in the 2012 Communication on international cooperation in research and innovation⁶⁸.

Our rapidly changing world sees science and technology as key drivers and enablers of foreign policy but are also placed at the heart of geopolitical tensions. This calls for deepened cooperation on the basis of openness, a level playing field and respect of fundamental rights and values and supporting EU's open strategic autonomy. The new global approach to research and innovation, as presented in this Communication, will strengthen the global capacity to deliver solutions to the shared challenges facing humanity and strengthen the EU's positive influence in the world.

⁶⁸ COM/2012/0497 final.