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COVER NOTE

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To:	Mr Jeppe TRANHOLM-MIKKELSEN, Secretary-General of the Council of the European Union
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Subject:	COMMISSION STAFF WORKING DOCUMENT INTERIM EVALUATION of HORIZON 2020 ANNEX 2

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PART 11/16

COMMISSION STAFF WORKING DOCUMENT

INTERIM EVALUATION of HORIZON 2020

ANNEX 2

{SWD(2017) 220 final}
{SWD(2017) 222 final}

E.4. EFFECTIVENESS

E.4.1. Short-term outputs from the programme

As of 1 October 2016, 309 projects have been completed[1], whereas 582 projects are ongoing and 469 are under preparation. Overall, the total EC contribution to the completed projects amounts to EUR 40.9 million (corresponding to only 1.5% current project portfolio[2] in terms of EC contribution). It is clear that the measurable output at this stage of the programme implementation is therefore very limited (expected outputs from the abstract analysis and survey of participants are discussed in section 5.2). The available outputs reported below indicate however that the programme is in good track to achieve its objectives.

The projects completed are mostly projects under Phase I of the SME Instrument (ODI Scheme), Innovation Actions under "Content Technologies and Information Management", "ICT innovative Creative Industries SMEs" and CSAs:

- The ODI scheme, according to project participants[3], clearly **contributed to the growth of highly innovative SMEs and start-ups** (see box below)[4].
- In the "ICT innovative Creative Industries SMEs" call projects were requested to have a maximum duration of 18 months and maximum funding of EUR 1 million so as to better adapt the funding scheme to the quickly changing area of cultural and creative industries. The call resulted in 15 projects[5] with higher than normal innovation rate as demonstrated through the Innovation Radar process.

The following **short-term outputs** can be reported based on information provided by project participants (as of 1 October):

- **2,150 publications** have been generated by LEIT ICT projects, of which 400 publications in peer-reviewed journals. The number of open-access articles published in peer-reviewed journals is 285 (71%).
- Projects funded under LEIT ICT have applied for **33 patents**, of which 4 have been awarded. In addition, **10 trademark applications** have been made and awarded.

In terms of **direct crowding in**[6] of funding, LEIT ICT's projects are directly mobilising EUR 1.3 billion in total. This reflects to maximum rate of reimbursement of eligible costs identified in the Work Programmes 2014-17 which was 100% for Research and Innovation Actions, and 70 % for Innovation Actions.

The share of the projects flagged as an **innovation action** is 14% (130 out of 929 signed grants) representing an EC contribution of 28% (EUR 603 million of total EUR 2.1 billion of signed grants).

Regarding the **gender dimension** in R&I content, 24 % (198) of EC funded projects have included a sex and/ or gender analysis as part of their research or innovation activities.

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[1] *Based on end date.*
[2] *Projects signed and under-preparation.*
[3] *Interviews carried out in the context of the CARSA study.*
[4] *The expert panel noted that effect of the SME Instrument should be compared with the effects of other financial instruments, specifically dedicated to SMEs, such as investment grants, Business Angels or Venture Capitalists.*
[5] *http://ec.europa.eu/information_society/newsroom/image/document/2016-5/Horizon 2020_call_1_projects_updated_13363.pdf*
[6] *The amount of funding contributed by the stakeholders to the Project, matching the EC contribution.*

As part of efforts to promote **Responsible Research & Innovation** (RRI) across Horizon 2020, LEIT ICT fostered the co-creation of scientific agendas and scientific contents, as demonstrated by the 9% (74) of projects where citizens, Civil Society Organisations (CSOs) and other societal actors contributed to the co-creation of scientific agendas and scientific contents. Such contributions are very diverse in content; such projects focus on identifying the main societal and ethical challenges emerging from the adoption of big data technologies or on introducing empirically-based knowledge of human needs and societal concerns into roboticists' visions of a future with robots, to name some examples.

Box 1 - Case Study – Results of Phase I of ODI Scheme implemented through the SME Instrument

Project participants indicated that the SME Instrument Phase I supported them in developing business market strategy which helped them to expand their innovative product further. Turnover and employees increased slightly and participants expect a gradual increase in the following years. In 2016 the EC compiled a report on the social-economic implications which included survey results on the SME Instrument Phase I from 151 project reports, where participating SMEs provide their opinion about the Phase I. All the participants forecasted that their product or service will show steady increase of turnover and number of employees. The following table shows the forecast of four projects mentioned in the case study carried out as part of the study.

Table 1 - ODI Scheme case study - Project participants forecast of their turnover and number of employees

Project	Turnover after 1 year	Employees after 1 year	Turnover after 2 years	Employees after 2 years	Turnover after 3 years	Employees after 3 years	Turnover variation	Employee variation
Project A	3,577,350	43	5,425,350	46	8,089,350	52	126,1%	20,9%
Project B	729,500	18	2,316,100	23	5,212,755	29	614,6%	61,1%
Project C	5,100,000	23	8,040,000	39	11,096,000	51	117,6%	121,7%
Project D	8,400,000	8	9,049,185	12	10,184,938	16	21,2%	100%

Source: CARSA study.

According to the interviews and desk research many disruptive innovation products and services implemented under the ODI scheme, such as YouBeep, iMoHealth, PICOMB, Global PERES, have been **commercialised and put in widespread use**. With the support of the ODI scheme the above projects established good contacts in Europe and beyond, mostly in the United States. For instance, after Phase I Global PERES, which offers an innovative device and mobile application designed to detect freshness of product and a risk of food poisoning, became popular in Europe and in the United States (US). The product was mentioned in European and the US media platforms. Project participants believe that the project continuation in the ODI scheme, particularly in Phase II, would have been provided support to the product's commercialisation. For example, in order to receive financial support and continue to expand business, after the Phase I Global PERES has presented its product in a financial portal called Indiegogo.Currently, this innovative product raised EUR 70,448.

Source: CARSA study.

In FP7, ICT[7] resulted in at least 366 patent applications[8], 1,254 commercial exploitations and 165 spin-off companies[9]. Furthermore, evidence from projects reviewed in the context of the Innovation Radar indicated that on average, there were nearly two new or substantially improved products or services developed within each ICT FP7 project. The number of publications reported were 24,110, of which 8,850 (37%) appeared as journal articles and 61% as conference proceedings[10]. ICT Cooperation was one of the areas with the largest share of publications originated by FP7.

Specific achievements related to the publication outputs of FP7 ICT included the following[11]:

- 6% of publications in the ICT area were co-publications in collaboration between academia and industry, which is the highest share among the FP7 research areas.
- 5% of FP7 publications in ICT were among the top 1% and 18% among top 5% highly cited publications in their disciplines (well above the overall EU average and the US average, 1% and 7% for the EU, 2% and 8% for the US).
- The ICT part of the Cooperation Programme of FP7 had up to 3.6 points field weighted citation impact, which is above EU average (1.2 points) and US average (1.5 points).

Moreover, publications coming from FP7 ICT projects received on average more citations than the ones funded by other sources, which indicates increased quality of scientific knowledge produced by EU funded research (Breschi, 2010). As expected, academic organisations led in generating most of the scientific output. The aggregated share of publications by academics, government, NGOs and hospitals was 93.1%, whereas the total corporate research activity accounted for 6.9% of publications (DG CONNECT, 2015).

E.4.2. Expected longer-term results from the programme

The longer term outputs and outcomes of LEIT ICT projects go beyond patents and publications. They involve translating R&I into commercially viable undertakings; at this stage it is only possible to report on the expected outputs and results as known from a number of sources.

Demonstrating and Pilot Activities

168 projects include Demonstrating/Piloting Activities: these are projects mostly within Content Technologies and Information Management (77), Robotics and Future Internet (17), followed by Micro-and Nanoelectronics and Photonics (14) and ECSEL JU (11). First of a kind market replications are expected by 8 projects (7 in Content Technologies and Information Management, 1 in Robotics).

Table 51 - LEIT ICT - Demonstrating/Piloting Activities in Projects

LEIT ICT Area	Nr of Demonstrating/Piloting Activities
Content Technologies and Information Management	77
Robotics	17
Future Internet	17
Micro-and nanoelectronics and photonics	14

[7] *ICT Cooperation and Capacities.*
[8] *Data up to 2013.*
[9] *Based on the information extracted from final reports and from a survey ran in 2016.*
[10] *DG CONNECT (2015).*
[11] *European Commission (2016c).*

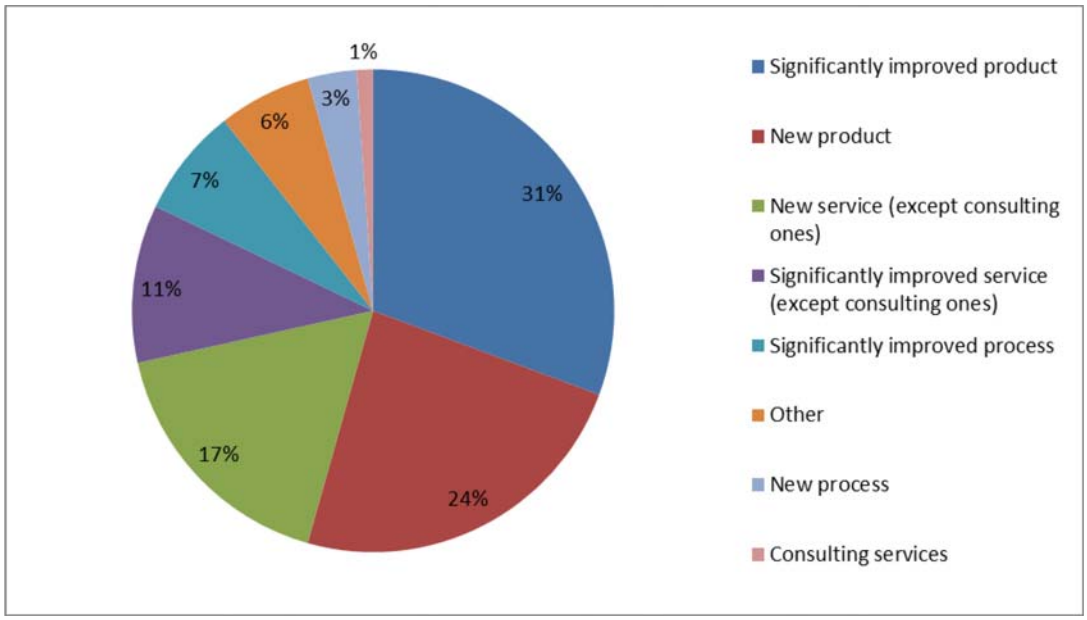
ECSEL JU	11
A new generation of components and systems	9
Next generation computing	7
ICT for the Factories of the Future	7
ICT Cross-cutting Activities	5
Horizontal ICT Innovation Actions	3
Responsibility and creativity	1

Source: CORDA, 1 October 2016.

Expected innovations

The Innovation Radar identified 274 innovations in Horizon 2020 projects[12], the majority of which are significantly improved products or new products (Figure 82), which are going to be exploited either commercially (170 innovations) or internally by the organisations (61) or for which there are no plans of exploitation yet (53).

Figure 82 - Innovations in Horizon 2020 Projects identified through the innovation radar



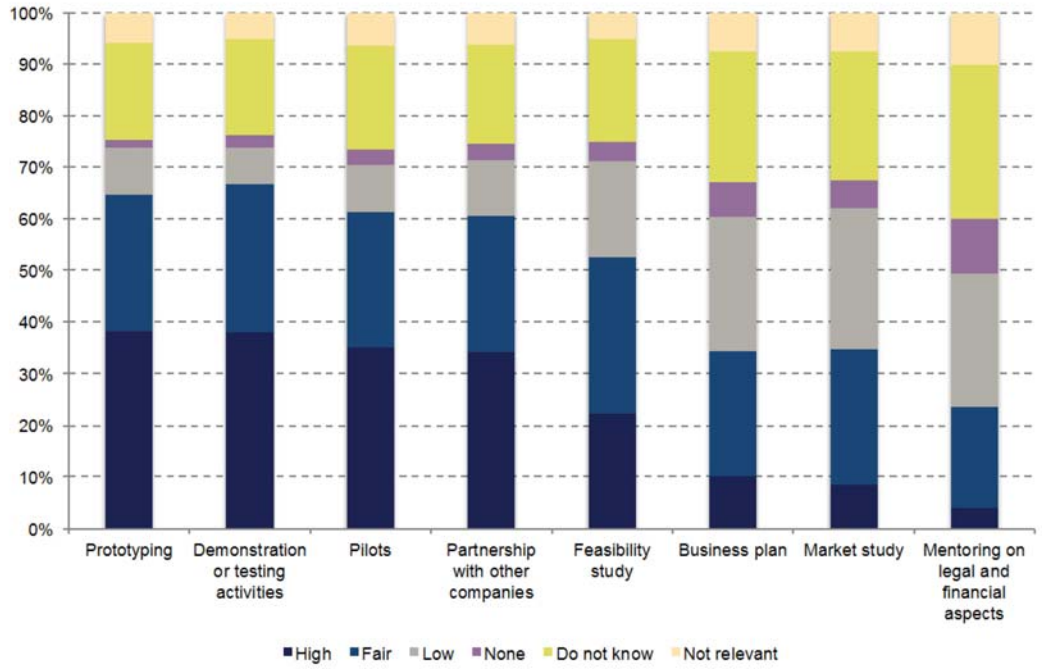
Source: Innovation Radar, DG CONNECT, July 2016.

Support provided by Horizon 2020 for translating R&I actions into commercially viable results

Participants did not rate equally highly the forms of **support provided by Horizon 2020 for translating R&I actions into commercially viable results.**[13] Mostly appreciated were prototyping, piloting, testing and demonstration activities and much less the implementation of market studies, development of business plans and mentoring on legal and financial matters. Participants were asked to assess the level of support by Horizon 2020 to the translation of R&I (into commercially viable undertakings). Horizon 2020 support was perceived to be strongest in the areas of prototyping (38% of coordinators rated the support as high), and demonstration or testing activities (38% of coordinators rated the support as high). The level of support was perceived to be relatively lower in the areas of market studies and mentoring on legal and financial issues.

[12] *Data up to July 2016.*
[13] *CARSA study.*

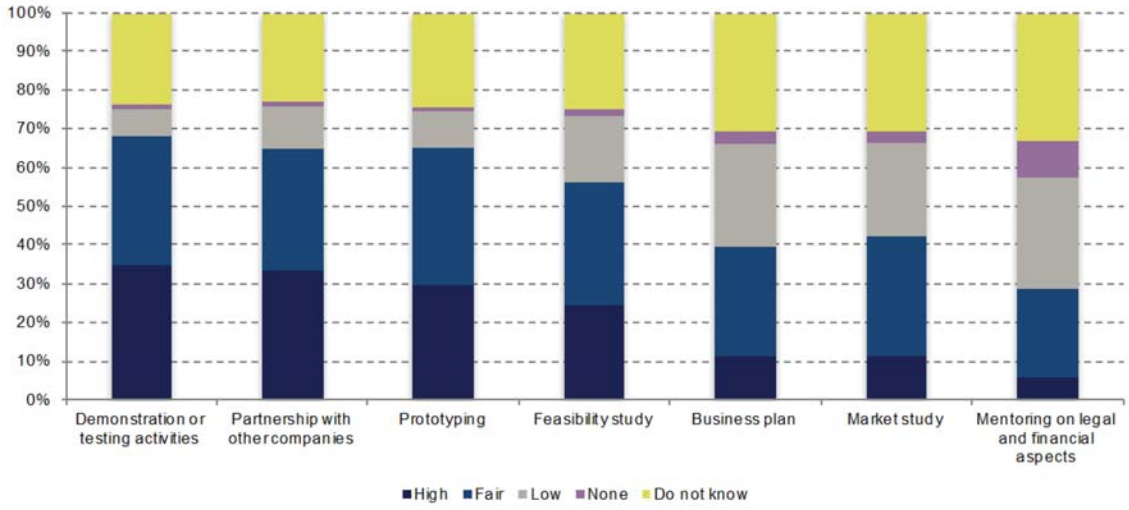
Figure 83 - Assessment of the level of support by Horizon 2020 to the translation of R&I into commercially viable undertakings, by type and level of support (% of coordinators)



Source: Survey carried out between July and September 2016 by CARSA study.

Participants were particularly pleased with the level of support for demonstration and testing activities. Only 30% of participants thought that mentoring on legal and financial aspects was provided at a high or fairly high level of support. Large companies and societal challenges companies were the ones who praised the most the support for demonstration and testing activities. There were no other noticeable trends.

Figure 84 - Participants' assessment of the level of support by Horizon 2020 to the translation of R&I into commercially viable undertaking by type and level of support (% of participants)



Source: Survey carried out between July and September 2016 by CARSA study.

Both coordinators and participants were asked about what else could be done to improve commercial exploitation of results. One of the key area for suggestions (around 33% of survey respondents provided an answer) concerned how to improve support to

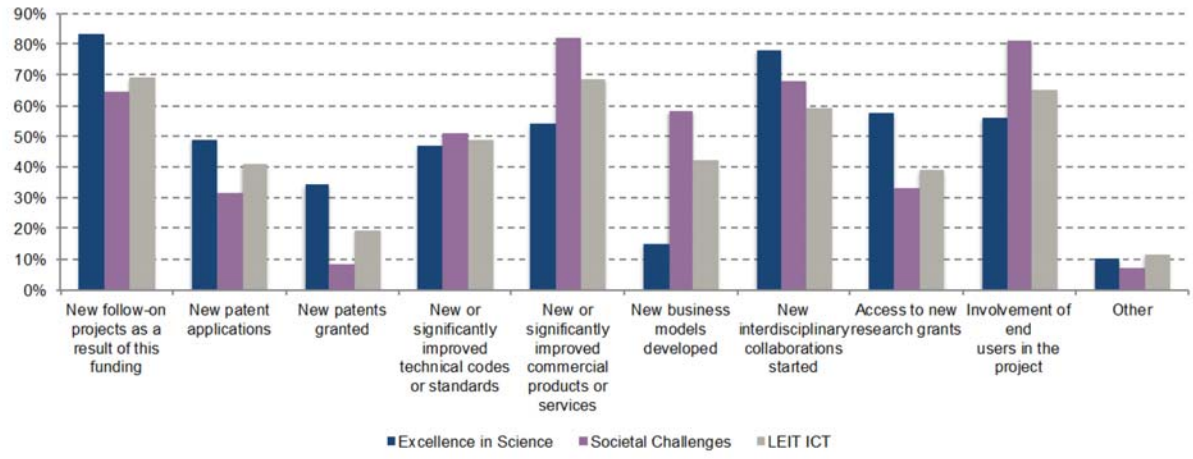
commercialisation, with concrete examples such as training and support by experts, early identification and inclusion of key supply chain partners and investors, help with exploitation plans, quicker and more flexible processes and funding periods, funding and support for patent submission and more flexibility to adapt the project given arising opportunities, e.g. the possibility to bring a new partner onto the project or adapt project activities in view of market evolutions. Another key area (22% of respondents) identified the need for more collaboration, e.g. between Horizon 2020 projects, between research and industry and between consortia with similar interests.

Participant's expectations

The results of the survey and of the case studies carried out in the support study, as well as results from the abstract analysis provide further information on the intended effects of LEIT ICT. Project coordinators surveyed gave an indication of the type and number of expected outputs of their Horizon 2020 project (Figure 85). The largest impact of Horizon 2020 projects under the LEIT ICT pillar relates to **new or significantly improved commercial products or services** and to access to new follow-on projects. They also expect to have involvement of end users in research and to start new interdisciplinary collaborations, as well as the projects to result in new or significantly improved commercial products and services and to develop new business models. This finding can be complemented with the insights from the PPMI survey[14], where 82% of the beneficiaries of LEIT ICT expected to secure funding from private/industrial sources, the second highest value for Horizon 2020 areas (after participants in FTI).

The reasons cited by participating organisations in the survey[15] as having encouraged them to apply to Horizon 2020 calls can also be considered a useful proxy for expected results of the programme. Organisations participating in LEIT ICT see the opportunity to develop new or improve existing relationships and networks as the primary motivation (81% rated it as highly important) followed by the possibility to address specific scientific or technical challenges and to access to research funding (71%) and to maintain/enhance technological competitiveness (61%).

Figure 85 - Expected output from the project by type of output and by pillar (number, % of coordinators who replied)



Source: CARSA study.
Note: Excellence in Science refers to FET Open and Proactive and the Societal Challenges include ICT related projects in SCs 1, 3, 4, 5, 6, 7.

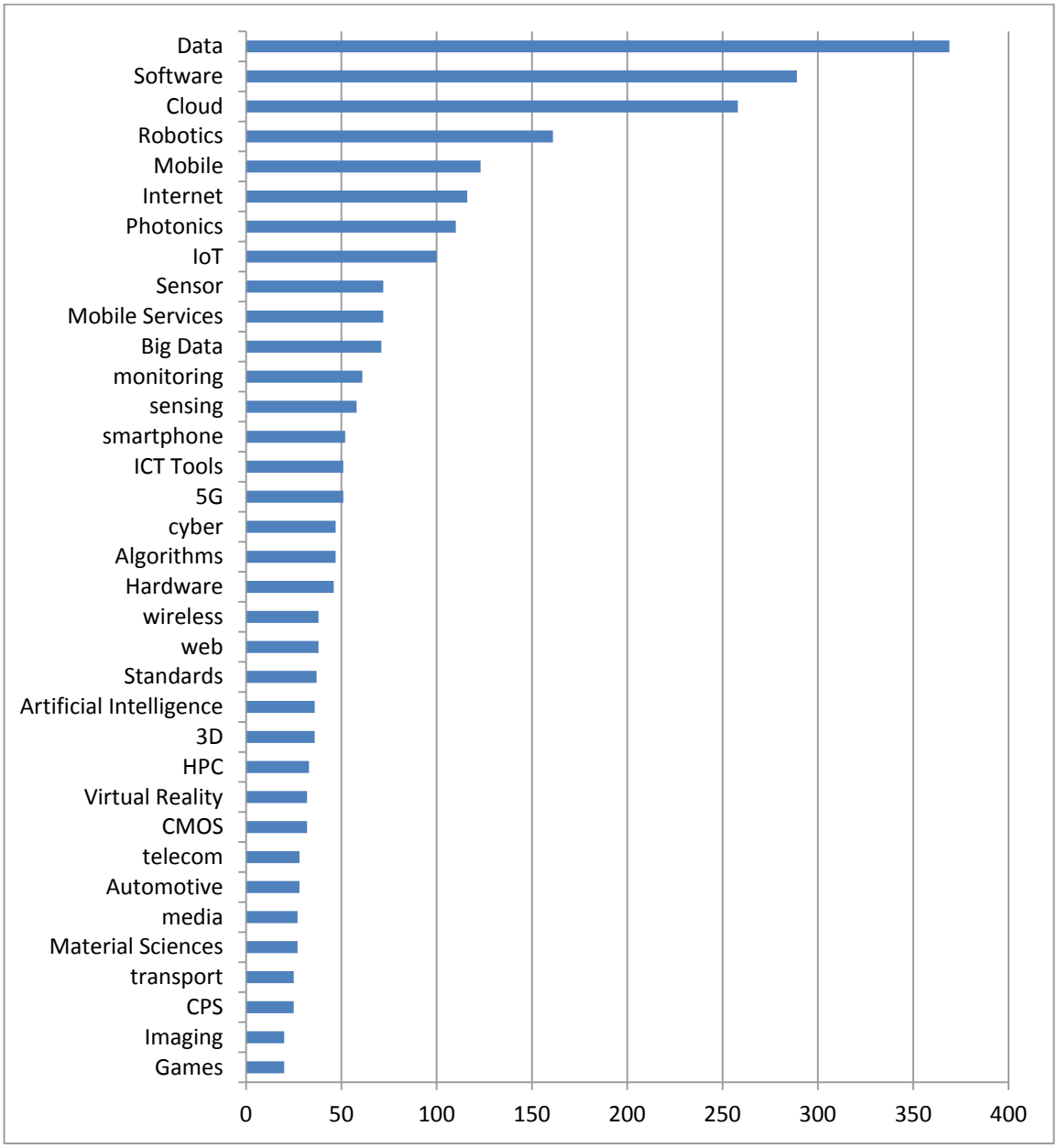
[14] *PPMI, Survey of a sample of project coordinators within the study 'Assessment of the Union Added Value and the Economic Impact of the EU Framework Programmes (FP7, Horizon 2020) (2012/S 144-240132), 2016.*
[15] *CARSA study.*

Project participants were also asked about the expected impacts of a specific Horizon 2020 project in which they were participating (from no impact to high impact). A relatively high proportion of project participants perceived a fair or high impact of their Horizon 2020 project on their ability to **access new knowledge and increase staff skills**. Other areas where a high impact was perceived include access to **international technological/scientific networks** (over 80 % of participants perceived a high or fair impact in this area). Collaboration with both developers and end-users were important areas where the projects were perceived to have an impact – over 40% of project participants who responded to the question indicated that the project was expected to have a high impact on their collaboration with developers and 43% indicated a high impact on collaboration with end-users. Overall 49% of participants expected a **high project impact on their ability to innovate**. Looking at the intervention logic of Horizon 2020 ICT activities these are necessary results that are a prerequisite for the activities to achieve an impact in scientific and technological research, development and demonstration. In terms of achieving longer term objectives, participants also perceived a high impact of the projects on enabling high-tech SMEs to develop new products and services (80% of participants perceived a high or fair impact). A relatively lower project impact is perceived in terms of aligning national and EU research areas. This is perhaps understandable given that the alignment impact at a strategic level may not be expected to come from individual projects alone, but rather from the strategic orientation of Horizon 2020 research areas.

Project characterisation and thematic focus

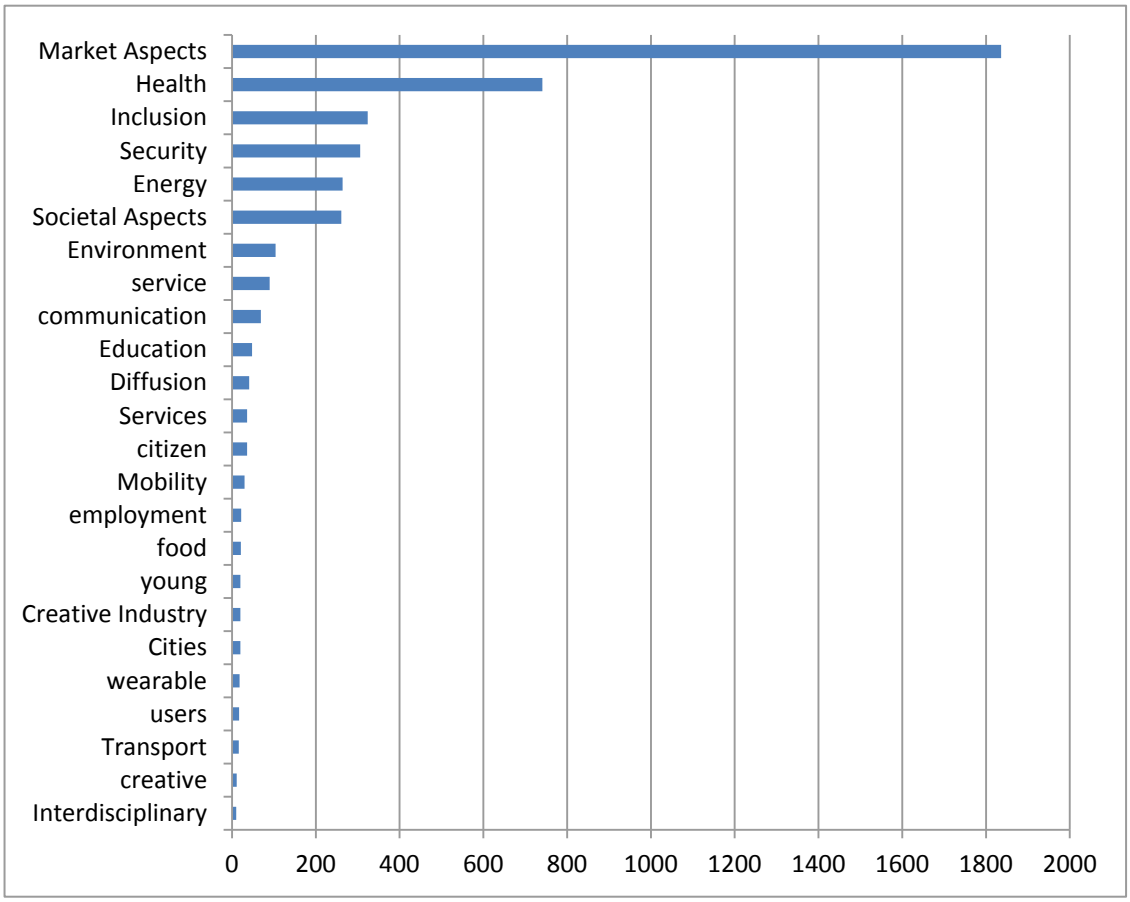
Another interesting finding presented in the support study has to do with the characterisation of projects within each Horizon 2020 pillar. Projects under LEIT ICT have high co-operation intensity (number and frequency of interactions with partners) (51%), high strategic market relevance (45%) and high technological complexity (43%). Project objectives and thematic orientation can also provide an indication of potential results. The analysis of abstract shows a strong **technological** focus of LEIT ICT projects on development of new big data applications, software development, cloud solutions and mobile solutions (Figure 21). As to socio-economic related keywords, the abstract analysis suggests a **clear market orientation of projects** (Figure 22) and also their societal relevance. Health, inclusion (i.e. services that are useful for citizens and society as such, as well as governmental actors), security, energy and societal aspects play a strong role in LEIT ICT. Market related keywords show that LEIT ICT exhibits strong links towards direct commercialisation, with creation of new services and business opportunities prevailing among the keywords and a large number of projects stating that the projects are relevant for SMEs, creation of new start-ups, new business models and business plans.

Figure 86 - LEIT ICT - Technological related keywords of projects



Source: CARSA study.

Figure 87 - LEIT ICT - Socio-economic related keywords of projects



Source: CARSA study.

E.4.3. Progress towards attaining the specific objectives

LEIT ICT has implemented calls for proposals that were directly structured along its main specific objectives. With each topic published generating high quality proposals, all objectives have been addressed and the projects provide a good coverage of the call topics. Based on the information from project abstracts, the orientation towards the development of new markets is clear. Projects refer to the development of business plans and business models, as well as new business opportunities and high market potentials. Entrepreneurship and European start-ups are also prominent keywords that signal potential to reach out to new international market. The above all signals of the progress of LEIT ICT towards the attainment of its specific objectives.

The SME Instrument has contributed to raising the profile of SMEs and the application is relatively easy to navigate. However, the challenge of ODI has been to provide support to a large set of early-stage, high-risk innovative SMEs in the ICT sector due to the high oversubscription.

The Commission is on track to implement the financial targets committed to each cPPP (Table 52). Some contractual Public-Private Partnerships (cPPPs) (taking into account the individual roadmaps, as well as the considering that capacity of organisations to participate in the programme increases over time) are choosing not to employ a linear distribution of the funds over the period but are opting to design larger work programmes towards the end of the funding period. While interviewees consider that the leverage

targets on the private side are realistic and can be met by the stakeholder community as a whole, many of the interviewees, across all cPPP expressed concern that the definition and calculation of this impact will be difficult to achieve, something that may negatively impact the ability of the implementing parties to account for the achievement of their commitments. The expert panel that carried out the evaluation concluded that the approach of strategic partnerships reflected in the related cPPPs is positive, as it is of utmost importance that Horizon 2020 provide an environment which serves as a catalyst to ensure the competitiveness of the European stakeholders in the global market: more than a vast number of projects this requires a strategic partnership between different stakeholders, Member States, and the European Commission Services. Still the review of the implementation of the cPPPs has identified several shortcomings, which could put the intended outcome at risk. Several cPPPs are lacking effective KPIs and definition of how to calculate their progress as well as a proper externalized review or independent advisory boards that provide strategic guidance with respect to global market impact and competitiveness.

Table 52 - Level of achievement of financial targets in cPPPs

cPPP	Individual Assessment
FoF	Horizon2020 funding (1.2bn) is on target. Difficulties in defining the methodology for calculating the leverage effect have been reported. Under several caveats, private leverage is estimated at 3-3.5[16], compared to a target of 4.
Photonics	The public target of EUR 700 million is on target. Leverage target on the private side is 4. While interviewees believe that the nature of photonics investment means that the leverage effect is very likely to be reached, collecting data on the actual level of investment generated as a result of the public spending will be difficult.
Robotics	The public target of EUR 700 million is on target. The private side aims to leverage 3 times this amount. However, difficulties in calculating and proving the actual the leverage effect have been reported by interviewees
Big Data	534 million of public funding has been foreseen in the Memorandum of Understanding, 150mn of have already been planned as part of the current work programme covering 2014-2015. The private side is committed to a leverage factor of 4, which, according to interviewees is well on track to be met.
5G	The public target of EUR700 million is on target. 5G networks cPPP is committed to leverage 3-5 times the public investment, however attempts to estimate the levels of actual investments were difficult.

Source: CARSA Study.

[16] *This is likely to under-estimate the real leverage as it only accounts for organisations directly linked to projects implemented under the cPPP calls while also overestimated the value of public spending (i.e. by lumping multi-annual budgets into the reference calculation of public spending).*

Box 2 - 5G cPPP Assessment of progress after one and a half years of activities

The first set of the 5G cPPP Phase 1 projects is delivering on major building blocks for future 5G communication networks. The first phase of the 5G cPPP implemented through 19 projects cooperating on issues of common interest (e.g. spectrum, standards) represent a major step towards the development of 5G with global reach. The cooperation across them is established by means of technology-oriented working groups, which has already resulted in consolidated views and positions, as well as in the production of white Papers with global reach. Among the numerous significant achievements of the Phase 1 5G PPP projects towards achieving the specific objectives of LEIT, some indicative ones include:

5G-NORMA finished the first design iteration for a novel 5G mobile network architecture and led consensus across related project, with publication of a 5G cPPP architecture White Paper presented to international actors at the 5G Global event in China last June. It covers the flexible allocation of network functions, software-defined mobile network control, and joint optimization of network functions and paves the way towards standardisation work in the context of 3G PP SA group. Flex5Gware has showcased the "Full duplex transceiver". This technology provides gains in the user data rate of up to 50 % and in aggregated data rates (in a multiuser setting) of up to 21 % compared to settings in which full duplex is not available. The proposed full duplex architecture is based on a conventional multiple-input multiple-output (MIMO) hardware architecture, which implies that no significant changes in the hardware will be required to endow MIMO transceivers with full duplex capabilities.

FANTASTIC-5G succeeded in making significant research advances on the link design for spectrum below 6 GHZ and to build a large consensus among partners on waveform design and Service-driven frame design. 5G-Crosshaul presented its Management and Orchestration (MANO) solution for Integrated Fronthaul and Backhaul Networks. METIS-II partners have converged on the overall 5G RAN design, while mmMAGIC has delivered a channel model and a preliminary air interface for mm-wave. These results are currently valorised in the context of the RAN 3G PP standardisation group.

Source: European Commission

E.4.4. Progress towards the overall Horizon 2020 objectives

E.4.4.1. Fostering excellent science in scientific and technological research

Strengthening of ERA is one of the high-level objectives of FP7 that is carried over to Horizon 2020. Although it is too early to draw conclusions about their effectiveness, a number of related actions and new initiatives (ERAnets, the pilot ERA Chairs initiative, "Teaming Competition for Excellence", a more focused international cooperation strategy, etc.) have been introduced in Horizon 2020 to better serve the ERA's objective of promoting scientific and technological excellence of the EU. The expert panel's report highlights that 'mobilising a critical mass of basic research at the EU level has been the right approach to stimulate significant progress compared to the rest of the world and to remove potential roadblocks'.

As demonstrated by the quality of publications in FP7 (see section 5.1), EU funded research contributes to excellence science. As for Horizon 2020, to date the largest majority of publications in peer-reviewed journals were published in Open Access.

The ERANET-Cofund actions in photonics have been a first step to joint programming with Member States. However, there are no elements to assess the effectiveness of these actions.

E.4.4.2. Boosting innovation, industrial leadership, growth, competitiveness and job creation

An **innovation-driven mind set** is apparent amongst participants in Horizon 2020. According to the survey carried out in the context of the support study, the reasons for participation in Horizon 2020 stated by participants are linked to innovation possibilities and the innovation expected from the project is substantial for the majority of coordinators. Over 65% of participants indicated that a motivation of high importance was to address specific scientific or technical challenges. Other motivations that were considered highly important include the exploration of new scientific fields with multidisciplinary approaches (over 45%of participants indicated this as a highly important reason for participating); to develop new products or markets (45%; and to advance scientific knowledge (approximately 60%). Project coordinators were asked to assess the level of innovation expected from project results. 55% of project coordinators assessed that the project would provide substantial innovation. 15% assessed that the project would provide radical innovation. In LEIT ICT research areas, project coordinators reported radical innovation in a number of areas including Future Internet, Components and Systems and ICT cross-cutting activities. Examples include mobile radio access technology and secure-by-design system architectures.

In the areas funded by LEIT ICT European collaboration allows trans-national access to pockets of regional excellence and links actors across the full innovation and value chains, thereby, achieving added value compared to investments from national funding agencies or R&D in the private sector. EU intervention is also necessary to get the major stakeholders and industrial players along the whole R&I value chain into the process of actively defining the roadmap and commit to the implementation (cPPPs). More specifically by area:

- Trans-national initiatives in **new generation of components and systems** sustain value and supply chains that are critical to retaining and growing sustainable European sectoral leadership. In addition, EU funding is more effective in addressing big societal challenges and, most significantly, creating a critical mass of excellence that can compete globally.
- The development of **new generations of networking technologies** is one of the best possible examples where European-level intervention is justified: the standards should in fact be global, not even European. The development and successful deployment of **5G** is clearly too big for any Member State alone.
- Intervention in **Content Technologies and Media** is important to push European Content and Media companies to more innovative scenarios, increasing their capability of innovating and acting at the European Level and to avoid fragmented scenarios on regional level. High level intervention is fundamental not only to familiarize the creative processes and industries with new technological tools, but also, if not above all, to provide evidence on how impact can be generated by introducing greater creativity into digital technologies.
- The impact in **Big Data** cannot be reached at the national level due the large investment needed and the large amount of data, users and pilots needed to test and validate the systems.
- Considering the enormous amount of investment required to be competitive in **semiconductor production**, it is evident that Europe needs to build on its

complementary strengths in material, equipment, chip design and fabless activities, and system integration[17].

- Due to the great diversity of the **photonics** industry covering seemingly unrelated areas like laser welding and medical diagnostics and the fact that the industry is largely made up of SMEs, Pan-European collaboration provides very high value for the individual beneficiaries of the projects.

The experts however noted that infrastructure and capital intensity concentrate benefits in regional clusters, therefore networked and accessible Digital Innovation Hubs and Research infrastructures and increased synergies between Horizon 2020 and regional structural funds are needed in order to achieve higher added value. Also, concerning the SME instrument (but not only) they noted that matchmaking mechanism between applicants and private investors are lacking. Also, the experts stressed that several cPPPs in the field of ICT can increase their effectiveness by defining and executing strategies for developing and extending skills. For instance they noted that Europe's potential in the Factory of the Future is not just driven by technology and markets but also by the skill levels of its workforce.

E.4.4.3. Addressing the major societal challenges

ICT solutions have major contributions in addressing Societal Challenges.

Addressing problems with a European or international dimension, which is a key aim of the Societal Challenge parts of the work programme, was identified by surveyed organisations as an important motivation for applying to Horizon 2020. 55% of participants who replied to the question attached high importance to this reason and 28% saw it as fairly important.

The analysis of abstracts performed in the course of the study provides information on **contribution in addressing societal challenges, in particular SC1, SC6 and SC7**. Concerning health aspects (SC1), healthcare innovations and cost-effectiveness of health systems and the development of related services play a prominent role and LEIT ICT projects are focused on a) the provision of personalised and mobile health services and b) the provision of healthcare systems. Concerning societal inclusion (SC6), the major keywords mentioned are: the participation of citizens and communities, usability, trust, networking, empowering and co-design. As for security aspects (SC7), there are mainly placed within the work programme areas Cross-Cutting Issues, Horizontal ICT and Advanced Computing. Major keywords related to security are privacy, safety, cybersecurity, resilience and cloud security. Furthermore, the results of the survey carried out in the context of the "EU Added Value Study" show that research activities in LEIT ICT are cross-cutting and indicate particularly strong complementarity between this Horizon 2020 area, SC6 and SC1.

Table 53 - Share of projects in LEIT ICT which are expected to have a wider impact on the societal challenges in the next 10 years

Horizon 2020 programme part	SC1	SC2	SC3	SC4	SC5	SC6	SC7
Industrial leadership							
ICT (n = 177)	52,0%	21,5%	32,2%	34,5%	30,0%	55,8%	38,5%

Source: PPMI: Study on European Added Value in Horizon 2020, overview of the survey results.

[17] *An excellent project in this regards is the Horizon 2020 project Ascent (http://www.ascent.network/) which gives access to 14nm CMOS device data, nanoscale test chips and characterization facilities in Tyndall National Institute (Ireland), CEA Leti (France) and Imec (Belgium).*

As reported in section E.2.3, LEIT ICT projects contribute to the fight against climate change (8.6% of LEIT ICT funding).

Box 3 - ICT solutions for health, example of project from FP7

DiscoGnosis: Disc-shaped point-of-care platform for infectious disease diagnosis, 2013-2016, EUR 1.9 million

The project developed the LabDisk, a tool that can diagnose malaria and other febrile infectious diseases simultaneously in just an hour – allowing faster point-of-care treatment and precise drugs administration that could save thousands of lives. The platform created via this project can detect any of the three main classes of pathogens (parasites, bacteria, and viruses) thereby assisting the clinician towards the proper treatment decision. This enables the consortium to adapt the combination of biochemical reagents to detect additional diseases according to the global health needs. This high degree of *adaptability* is one of the most innovative features of the LabDisk. The project has also contributed to *capacity building* in Africa by means of installing one device in Dakar and training the personnel to its use. In this way, a sustainable use at the point of need is ensured. Due to the current Zika virus outbreak, the project partners have expressed their motivation to integrate this virus in the detection panel, thereby responding to the epidemic in a fast, coordinated and efficient way.

E.4.4.4. Spreading excellence and widening participation

Overall, participation of the EU-13 Member States is currently at 6% and funding at 4%. Participation is highest within the area of Horizontal ICT Innovation Actions, and above average in the ICT cross-cutting activities and Factories of the Future. It must be noted that the Horizontal ICT Innovation Actions differ from other actions within the LEIT ICT area. The EU-13 Member States did not participate at all in the International Cooperation activities or the EU-Brazil activities related to ICT research.

To further promote convergence, the panel of independent experts commended the adoption of the Spreading Excellence and Widening Participation instrument. Data show that to date that within this instrument there were 33 LEIT ICT projects contributing to ICT R&I (out of the total 117 projects) for total 21 million, or 18% of the total funding going to the instrument.

E.4.5. Early success stories

Helix Nebula[18] (EC Contribution: EUR 4.7 million). The Science Cloud is a Pre-Commercial Procurement (PCP) initiative for the establishment of a European hybrid cloud platform to support the deployment of high-performance computing and big-data capabilities for scientific research (Europe's Leading Public-Private Partnership for Cloud, aiming at science, research and innovation). Multiple partnerships have been established with industry as solution providers through the PCP Call-for-tender mechanism. Furthermore, through support activities, an expansion activity has been set up to widen the adoption of the science cloud across science and research organisations across Europe and globally. The HNSciCloud is of direct relevance to the European

[18] http://www.hnscicloud.eu/

Cloud Initiative.[19] As science is an early and leading adopter of cloud technology, the science cloud is expected to act as an example for rigorous and trustworthy use of cloud computing in industry and other parts of the public sector.

SMARTER-SI - Smarter Access to Manufacturing for Systems Integration (EC Contribution: EUR 4.532 million). In order to provide access to manufacturing capabilities for SMEs, several European Research and Technology organisations (RTOs) joined efforts and formed SMARTER-SI. The ultimate goal of this project is to test a new concept for small lot production, which is called the Cooperative Foundry Concept. During previous research, all RTOs have built components / parts of systems, i.e. building blocks, which are available and characterised by their high Technology Readiness Level (TRL). The idea is now to combine these building blocks in so-called Application Experiments (AEs), thereby creating innovative Smart Systems which serve SMEs' needs.[20]

FILM265 (EC Contribution: EUR 908,851) has resulted in several advances of video coding, helping European VoD (Video on Demand) providers to have the tools and information required to deploy a new generation of online video services with higher quality, lower bandwidth, and better understanding of the QoE (Quality of Experience) effects of video codecs. The success of the developed encoder has led to the creation of a new company, within the context of the project whose role is to commercialize the new encoder as a standalone application.[21]

E.4.6. Lessons learnt/Areas for improvement

Given the time of the evaluation and the limited number of projects completed, it is too early to provide a fair overview of results and impacts of LEIT ICT. The following outputs can be reported: about **3,650 organisations are participating**, projects are directly **mobilising EUR 1.3 billion** (additional funding to EC contribution), **2,150 publications** have been published (of which 400 publications in peer-reviewed journals), **33 patent applications** filed and **10 trademark applications** made and awarded. There is evidence that completed projects funded through the SME Instrument (ODI scheme) **contributed to the growth** of highly innovative SMEs and start-ups. Furthermore, the abstracts' analysis of projects suggests a **clear market orientation of projects** and their **societal relevance**. Health, inclusion, security, energy and societal aspects play a strong role in LEIT ICT. The majority of participants expect that their projects will result in new **or significantly improved commercial products or services**. This finding is also corroborated by the number of innovations (274) in the form of significantly improved or new products identified by the Innovation Radar. The participants assessed the **forms of support** provided by Horizon 2020 for translating R&I actions into commercially viable results. Prototyping, piloting, testing and demonstration activities were identified as particularly useful; market studies, development of business plans and mentoring on legal and financial matters less so. **Pilot line access** was also identified by the experts as strength of the programme.

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[19] *European policy adopted on 19 April 2016 [COM(2016)178]. The European Cloud Initiative is part of the Digital Single Market policy and related to the policy on Digitising European Industry. Furthermore there is a strong impact on the use of Open Data.*

[20] *Two of the new products facilitated by the SMARTER-SI project are described as „Success Stories" in the brochure „Enhancing the digital Transformation of the European Industry" issued by the European Commission in June 2016.*

[21] *http://www.film265.eu/*

Concerning the five **contractual PPPs** (Photonics, Robotics, 5G, Big Data, Factories of the Future), the expert panel concluded that the approach of **strategic partnerships** is of the utmost importance for Horizon 2020 to provide an environment which serves as a **catalyst** to ensure the competitiveness of the European stakeholders in the global market. However, the review of the implementation of the cPPPs has identified shortcomings, namely the lack of effective Key Performance Indicators (KPIs) and definition of how to calculate their progress. Calculating the leverage factor on the private side is also deemed challenging by stakeholders. Also, the experts stressed that several PPPs can increase their effectiveness by defining and executing strategies for developing and extending skills.

E.5. EFFICIENCY

E.5.1. Budgetary resources

The high number of applications shows that Horizon 2020 programme is very attractive. The high competition in calls is on the one hand positive because it impels excellence among the funded projects and participants, but on the other hand the programme has a finite budget and oversubscription of applications have led to low success rates. The success rate for LEIT ICT is overall 13 % (funding). This rate differs however by instrument (see Figure 88).

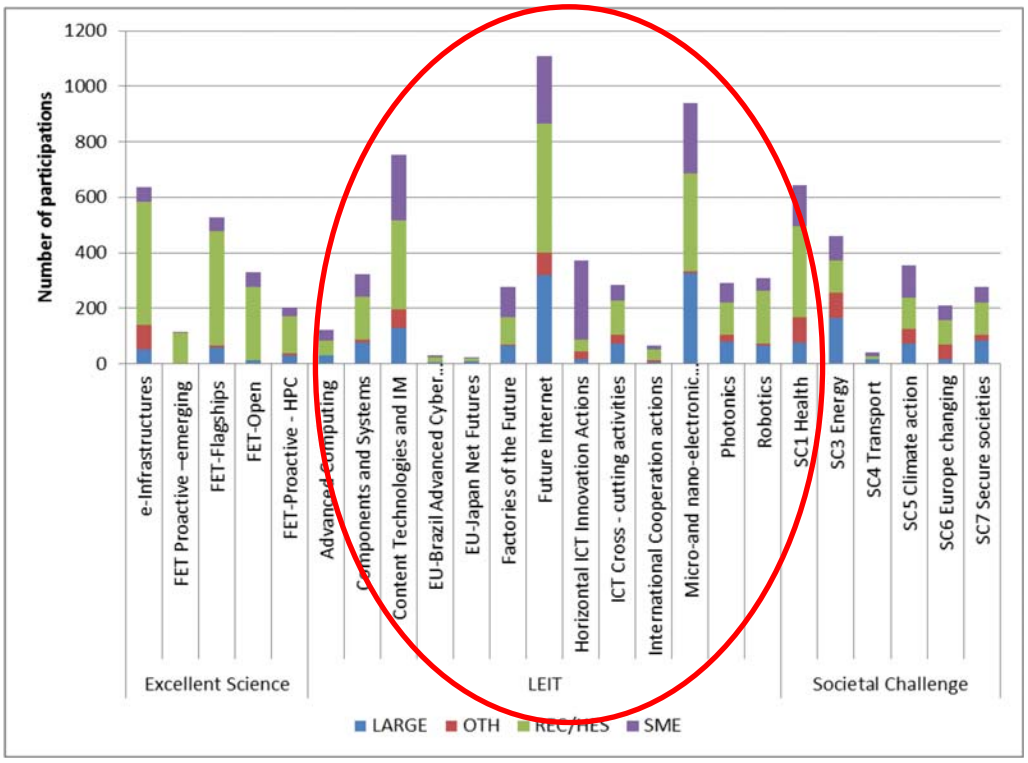
E.5.2. Programme's attractiveness

E.5.2.1. Mobilisation of stakeholders

In comparison with FP7, the participation by type of organisation has changed in favour of highest shares of private commercial participants (up to 68% from 64%), and particularly in terms of EC Contribution and participations, which increased respectively from 36% to 48% and from 41% to 53%). The above data indicate that LEIT ICT has been successful in attracting more industrial participants in the programme – in line with the objective of increasing the innovation impact of the programme, although there are no further elements to fairly assess whether the participants can be judged as "innovators". The experts concluded in the regard that the evaluation process currently lacks information aiming at assessing the innovation potential of the proposers.

The highest numbers of industry participations are in the areas of Future Internet, Micro- and Nano-Technologies and Content Technologies and Information Management. Participations of large enterprises are predominantly concentrated in the areas Micro- and nano-electronic technologies (18%), Future Internet (18%) and Content Technologies (7%). Participations of SMEs are most prominent in the Horizontal ICT Innovation Actions (14%) of total SME participations followed by Micro- and nano-electronic technologies (12%), Future Internet (11%) and Content Technologies and Information Management (Big Data) (11%).

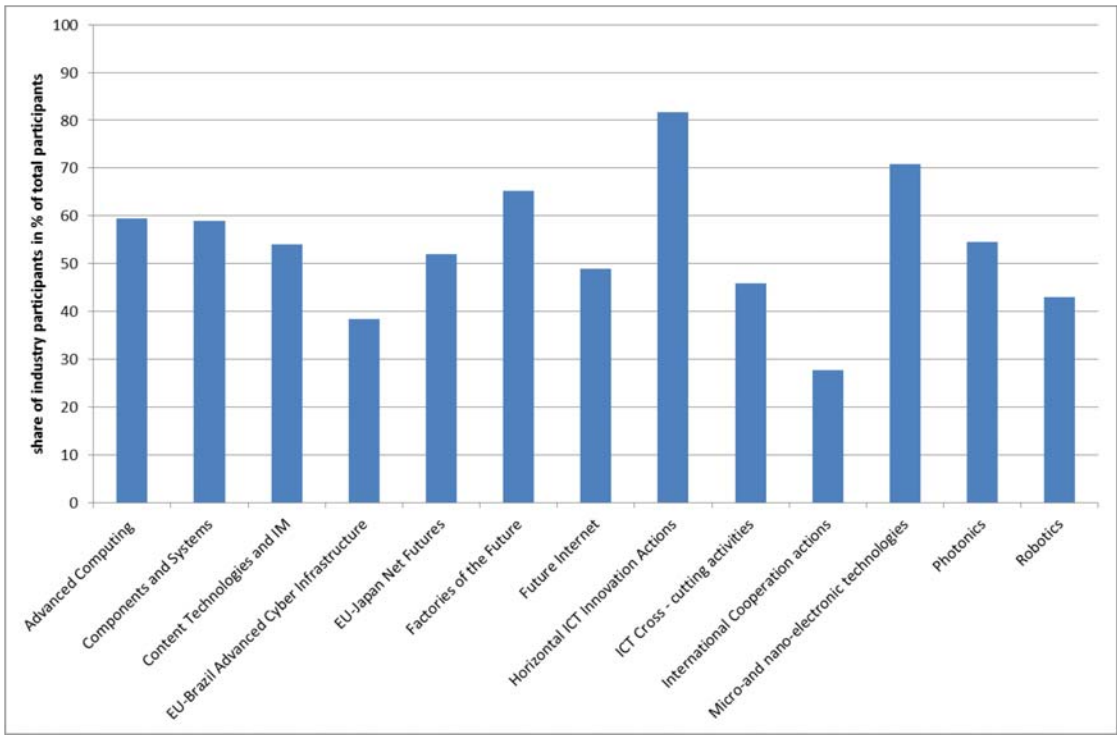
Figure 88 - Number of participations by type of organisation



Source: CARSA Study.

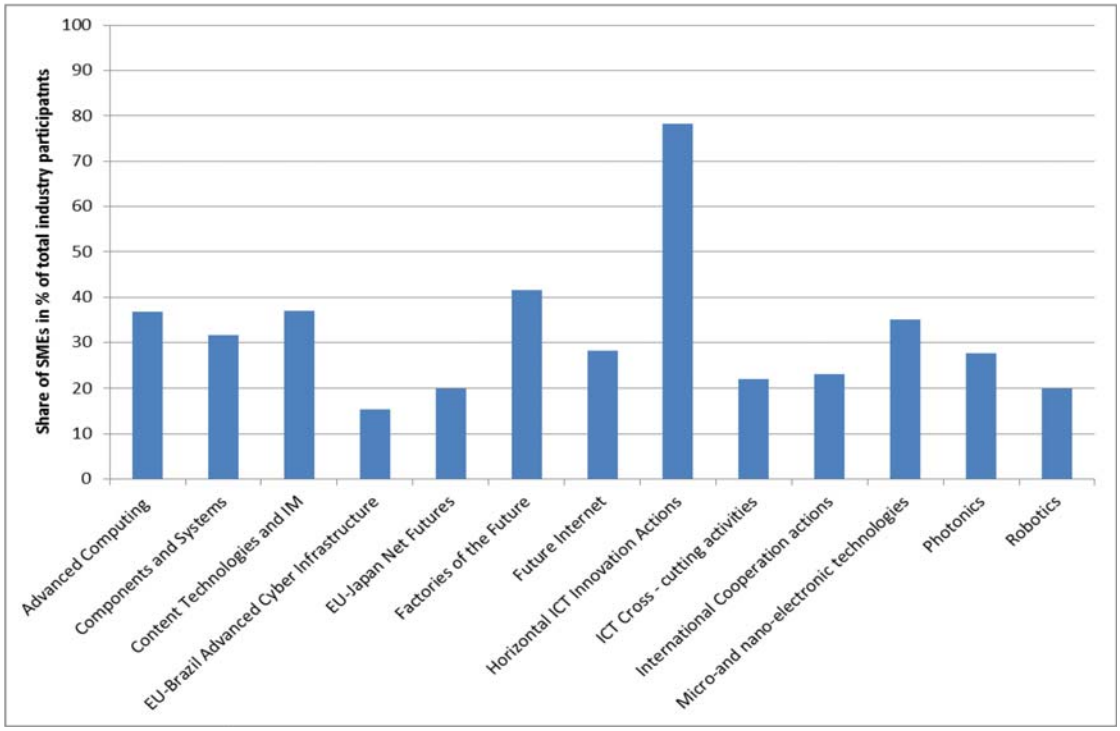
The highest shares of industry participants are in the areas of Horizontal ICT Innovation Actions, within the Micro- and Nano-Technologies and Factories of the Future. The share of SME participants is particularly high in Horizontal ICT Innovation Actions (78%), Factories of the Future (42%), Content Technologies (37%) and Advanced Computing (37%).

Figure 89 - Share of industry participants in % of total participants



Source: CARSA Study.

Figure 90 - Share of SME participants in % of total industry participants

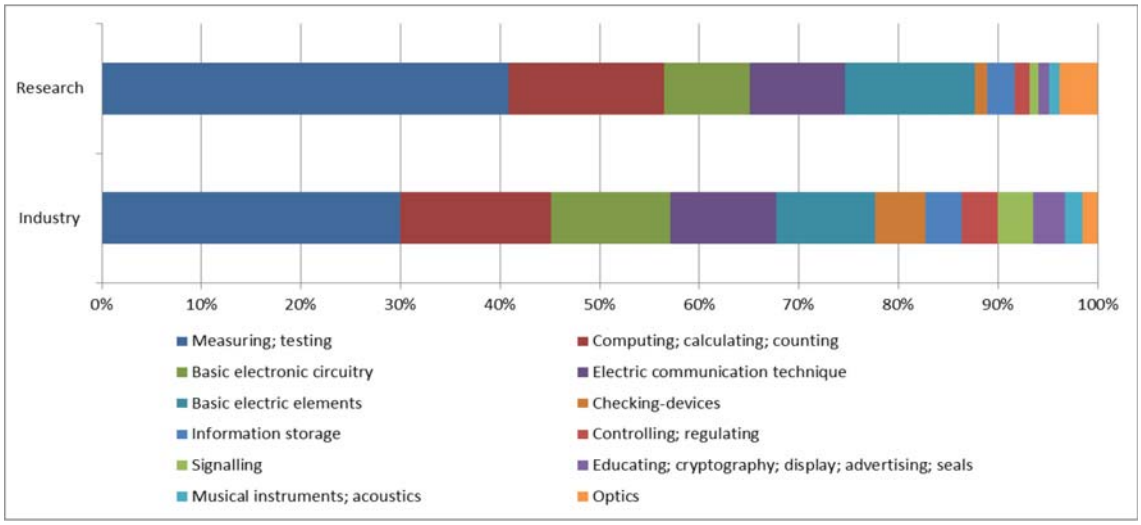


Source: CARSA Study.

Technological profile of participating organisations

Looking at the technological profiles of the participating research organisations and industry participants[22], it can be noticed that the participants mostly belong to the classes of "Measuring and testing", "Computing; calculating; counting", "Electric communication technique", "Basic electronic circuitry" and "Basic electric elements", i.e. the main ICT disciplines. Industry and research participants have overall the same technological profile (Figure 91).

Figure 91 - LEIT ICT - Technological profiles of industry and research participants



Source: CARSA Study.

[22] *Source: CARSA study. The Technological profiles of the Horizon 2020 participants were calculated based on their patenting activities. The study assigned patents to Horizon 2020 participants by cross referencing their names with the names of patent applicants appearing in PATSTAT. For the full methodology please refer to the study report.*

Newcomers

As discussed in section 3.2, LEIT ICT has been able very successful in attracting new participants to the programme, in particular from industry. The share of funding going to newcomers has been in total 17%, thus showing that presence of new industry organisations is rather significant. The share of industry newcomers can be considered very high throughout all areas, with new participants representing as high as 85% of total industry participants of "Horizontal Innovation Actions" – testimony to the success of the SME Instrument, 56% of "Content Technologies and Information Management" and 50% in "Robotics". New SMEs represent a high share of the industry participants in LEIT ICT, throughout all areas. The involvement of SMEs in 'Horizon 2020 ICT' has been to date quite successful. The survey results indicate that SMEs recognise the efforts made to simplify the application procedures but that further improvements are needed. The main barriers identified for their participation were: limited awareness of existing support schemes; difficulties in drafting convincing proposals; difficulties in creating international consortium; and limited financial access to complement EU funds.

There are very few newcomers from Universities and Research Centres (4% of total newcomers), indicating that prior experience for these categories is a rather important prerequisite for participation. However, it would be useful to examine new participations for these cases at a lower organisational level (e.g. University Departments, Institutes/Laboratories within Research Centres), which would enable an assessment of whether new research teams, including those with non-ICT research focus appear under the traditional academic participant labels, but such information is not available.

The participation patterns depend on the varying accent given to innovation by the different types of organisations, as well as on their participation objectives: academic partners still have an important role, but their share is lower than the one of private companies, large enterprises and SMEs taken together. In LEIT ICT these are more often SMEs and to a lower extent large companies that are brought in the consortia to undertake specific tasks in line with their experience and knowhow. According to the interviews carried out in the support study[23], the accent on innovation requires a clear definition of expected outcomes and impact at very early stages of proposal preparation, which also guides the choices for the consortium partners. These have to be made on the basis of concrete competencies and skills that previous collaborators may not possess, which opens the way for new partnerships to be built. As a result, newcomers are more likely to be encountered.

Contractual PPPs

Participation within each cPPP is defined by different characteristics (Table 54), nevertheless all cPPPs display an adequate and satisfactory level of participation in terms of the targeted stakeholders within each field. Furthermore, the number of members of each cPPP is growing, highlighting the positive trend in terms of the level of engagement of the stakeholder community within the cPPPs. Each cPPP aims to engage the full technological value chain comprising of researchers, academia, manufacturers and users. In view of the experts the cPPPs should be more dynamic in adding new players and technology end users to achieve a good balance between technology push and market pull (see also section E.6.1.1).

[23] *CARSA study.*

Table 54 - Characteristics of the membership of cPPP

cPPP	Characteristics of the participation of members
FoF	Overall good participation; High number of associations/grouping of stakeholders; smaller relative number of members from "new" Member States. Open to any interested party. Growing on average 30 members / year. Broader stakeholder community (i.e. outside of the official membership of the cPPP) is engaged.
Photonics	Stakeholder community defined by a very large number of players, which is reflected in the total number of participating organisations (2,500 individual members). The entire value chain is represented (research, manufacturing, users, etc.)
Robotics	Defined by a relatively small number of active members, dedicated to representing the broader community. The European Commission active in promoting the cPPP and checking the profile of participants in order to target communication activities. Broader stakeholder community (i.e. outside of the official membership of the cPPP) is engaged in events organised by the cPPP.
Big Data	A very young cPPP defined by large growth. Membership expanded from 24 to 150 within 18 months. Mostly ICT sector active in the cPPP. Geographical overrepresentation of countries with Big Data experience
5G	34 Members involved in the cPPP, however, high level of engagement beyond this group (approx. 165 organisations involved in projects).

Source: SMART 2105/0060.

A network analysis for the cPPPs in Robotics, Photonics and 5G was carried out in the context of the support study to identify dynamics and relationships of participation, at organisation and country level. The results concerning the participation patterns showed that:

- The 5G cPPP is clearly an industry driven cPPP, which comprises the main European Telecom providers in terms of market share and sales, as well as technology providers in the field. The most prominent participants are the Telecom manufacturers, notably Alcatel, Ericsson, Nokia and Intel; academics and research centres, in particular Fraunhofer, UC3M and CEA, and the Telecom operators Telefonica, Orange and Deutsche Telecom. The betweenness and degree centrality of the 5G cPPP network indicate that Telefonica S.A. and Orange S.A. have a dominant position in the network. Furthermore NEC Europe, Fraunhofer and Atos have significantly higher values of betweenness centrality than the other Top 20 actors
- The key actors of the Robotics cPPP network are Public Research Organisations and Higher Education organisations. Among the Top 20 representatives in terms of betweenness and degree centrality are the internationally recognized institutions central to RDI activities in Europe, such as Fraunhofer, ETH Zürich, as well as the two private companies KUKA and Alstom Inspection Robotics AG.
- The most prominent participants in the Photonics cPPP in terms of degree and betweenness centrality are actors from the higher education and research organisation sector (Fraunhofer Gesellschaft, Interuniversitair Micro-Electronicacentrum IMEC, Universitat Politecnica de Valencia, CNR - Italy, CNRS - France). Enterprises with highest centrality within the network are IBM Research GmbH, STMicroelectronics - a Switzerland based world leader in providing semiconductor solutions and the Austrian based AMS AG.

Participants' satisfaction with the administration and management of the programme is relatively high, as results from the survey show, with the majority of participants and coordinators declaring themselves as being very satisfied or somewhat satisfied with most aspects. However, key areas where some dissatisfaction was expressed included application procedures, proposal evaluation and selection and reporting procedures.

Specific areas of focus raised in the qualitative answers from the survey included suggestions related to simplifying the application procedure and proposal preparation. The application procedure was generally regarded as time consuming, especially when considering the relatively low chances of success. The available time to submit the application before the calls deadline was reported as being too short. The descriptions of the calls were reported as not always being explicit or as being too much directed towards marketable products, thereby putting researchers with low TRLs at a disadvantage. There was a net preference for two-stage applications with a shorter and less time consuming first phase, a timely and useful feedback from the evaluators and a longer and more detailed second phase applications for a small number of potentially successful applicants.

The reporting and feedback mechanisms were another key area of focus in the qualitative answers. The reporting process was described as too time consuming and not always aligned with the needs of the project, and the importance of being able to reach out to the project officer and not only the national contact points was also highlighted by respondents. ICT issues related to the online system and Horizon 2020 participant portal were a third area of focus. Examples of suggestions for improvement were included ensuring the information provided in the application was reflected in the online reporting tools, and there was an interest in more collaborative online platforms for projects. Table 55 presents the survey results.

Table 55 - Degree of respondent satisfaction with the administration and management of LEIT ICT by programme aspect

	Degree of satisfaction	%
Process to define the work programme	Very dissatisfied	3.3%
	Somewhat dissatisfied	16.7%
	Somewhat satisfied	51.4%
	Very satisfied	19.8%
	Do not know	8.8%
Application procedures (call publication, information etc.)	Very dissatisfied	1.6%
	Somewhat dissatisfied	6.6%
	Somewhat satisfied	48.8%
	Very satisfied	41.3%
	Do not know	1.7%
Quality of additional information/clarifications on call objectives	Very dissatisfied	2.5%
	Somewhat dissatisfied	12.8%
	Somewhat satisfied	58.5%
	Very satisfied	22.4%
	Do not know	3.8%
Proposal evaluation and selection	Very dissatisfied	6.2%
	Somewhat dissatisfied	12.3%
	Somewhat satisfied	49.2%
	Very satisfied	28.4%
	Do not know	3.9%

	Degree of satisfaction	%
Grant procedures	Very dissatisfied	3.0%
	Somewhat dissatisfied	7.2%
	Somewhat satisfied	51.4%
	Very satisfied	34.8%
	Do not know	3.6%
Monitoring procedures	Very dissatisfied	2.8%
	Somewhat dissatisfied	9.3%
	Somewhat satisfied	54.0%
	Very satisfied	23.5%
	Do not know	10.4%
Reporting procedures	Very dissatisfied	2.6%
	Somewhat dissatisfied	10.8%
	Somewhat satisfied	56.8%
	Very satisfied	21.0%
	Do not know	8.8%

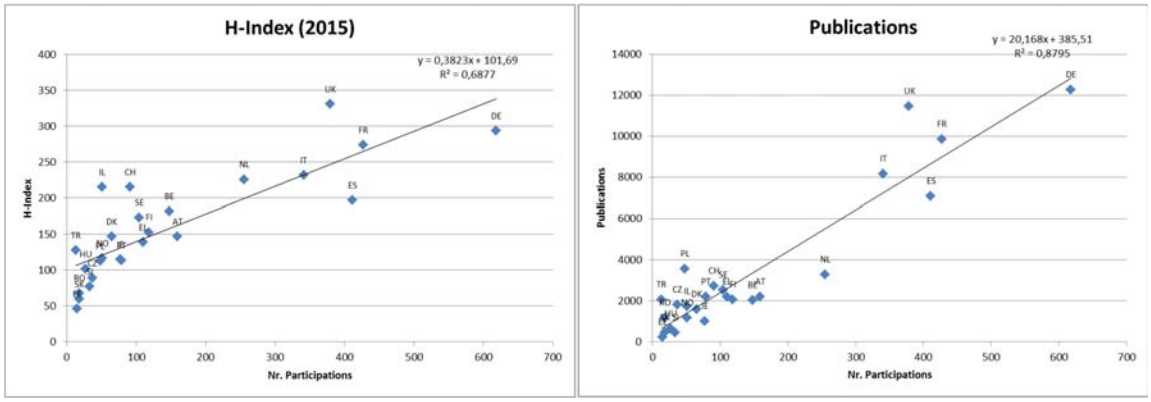
Source: CARSA study.

E.5.2.2. Geographical dimension

As described in section E.2.2.3, five Member States account for the largest shares in total number of participants, participations and funding. Although these are broadly correlated with size, smaller Member States such as the Netherlands, Belgium and Austria account for relatively high shares. The distribution of funding follows the same patterns than for FP7. Country participation patterns also correspond to a large extent to the level of scientific excellence: Germany, France, Spain, the UK and Italy account for the largest share of participations. However, the UK, Italy, Sweden, Switzerland and Denmark have a lower participation rate than their H-Index[24] would suggest and therefore might have the potential for higher numbers of participations and. The study noted that in LEIT ICT country participation patterns do not portray the scientific strengths as in the Excellent Science pillar.

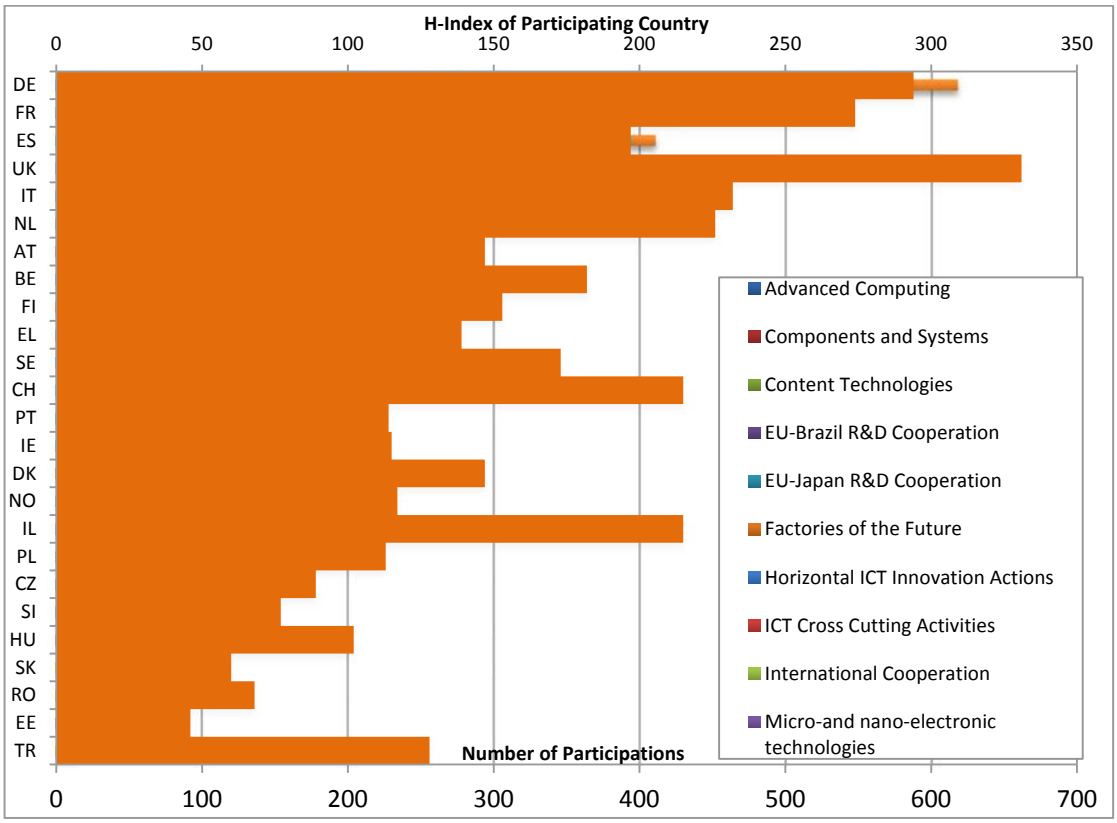
[24] *The h-index is an author-level metric that captures both the productivity and citation impact of the publications of a scientist or scholar: "A scientist has index h if h of his or her Np papers have at least h citations each and the other (Np − h) papers have ≤ h citations each" (Hirsch, 2005). All papers by a scientist that have at least h citations are called the "Hirsch core" (Rousseau, 2006). An h index of 5 means that a scientist has published five papers that each have at least five citations. An h index of 0 does not inevitably indicate that a scientist has been completely inactive: he or she might have already published a number of papers, but if none of the papers was cited at least once, the h index is 0." For countries, an h index of 5 means that this country has 5 researchers which each have at least published 5 papers that have yielded a minimum of 5 citations.*

Figure 92 - LEIT ICT Top 25 country participation



Source: CARSA study.

Figure 93 - H-index of participating countries in LEIT ICT



Source: CARSA study.

Looking at the participation from US, Japan, China, India and South Korea in these projects, the direct participation from the US, Japan, China, Korea and India is marginal. However, when looking at the presence of the **major ICT companies** from the above five countries, the following results are obtained[25]:

- From the Top-20 Chinese ICT companies, only Huawei Technologies participated in Horizon 2020 ICT activities. The company participated via a subsidiary located in Germany. The requested EU contribution is EUR 5 million.

[25] *Data up to March 2016 – it includes also FET and the ICT topics within Societal Challenges.*

- From the Top-60 Japanese ICT companies, 8 (Fujifilm, Fujitsu, Hitachi, Murata, NEC, Sony, Tokyo Electric, Toshiba) participated in Horizon 2020 ICT activities via European subsidiaries. Total requested EU contribution is EUR 14 million.
- From the 5 listed Indian companies, 1 company belonging to TATA industries participated in Horizon 2020 ICT. The requested EU contribution was EUR 0.28 million.
- From the 11 listed South Korean companies, 1 company participated in Horizon 2020 ICT. Samsung Electronics participated via its UK subsidiary. The requested EU contribution is EUR 3.2 million.
- From the 128 listed US based companies, 14 participated in Horizon 2020 ICT via several EU based subsidiaries. The total requested EU contribution of these companies is EUR 45.5 million. IBM (EUR 15.9 million) and Intel (EUR 9.6 million) are the two most important US owned beneficiaries. Both companies are active in Horizon 2020 ICT via several national subsidiaries.

In total, foreign owned companies located in the five countries mentioned above account for 68 million Euros of Horizon 2020 ICT funding.

Contractual PPPs

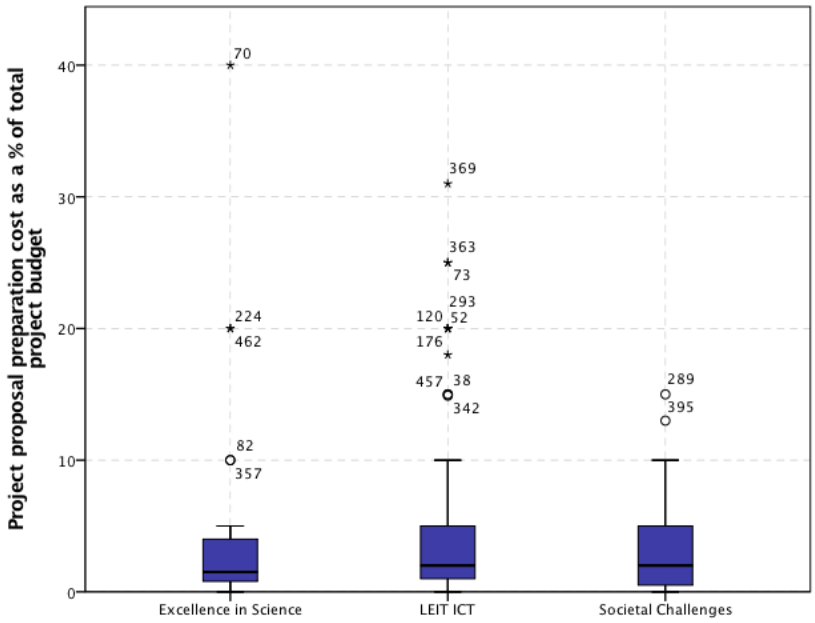
The country network analysis of the total cPPP community shows a dense network of representation consisting of the largest EU Member States. Germany, the United Kingdom, France, Spain and Italy form the core participants of the cPPP network and they also show the highest interactions among each other. A second group of countries, among which are Sweden, Switzerland, Finland, Greece, and Poland show strong interactions with the major players and to central and eastern European Member States, which are clearly situated at the periphery of the network as well as third countries.

- The 5G cPPP country network can be characterised as a network, in which the largest EU Member States form the core. The largest EU Member States co-operate strongly with each other; in addition, some smaller EU Member States, such as Greece, Sweden and Finland play a certain role.
- The country network analysis on the Robotics cPPP shows that that there is only a dense cooperation among a comparatively small numbers of countries, with Germany, the Netherlands, Spain and Italy forming the core network of the Robotics cPPP.
- The Photonics country network shows that Germany, France, the UK, Spain, and Italy are the main actors of the network, which with strong interactions among each other. A limited number of smaller countries (Austria, the Netherlands and Sweden) are also central players within the network.

E.5.3. Cost-benefit analysis

In the survey, project participants were asked about the organisational cost of preparing a proposal. For participants the average cost was reported to be 3.9 person months (for a full-time employee) and approximately EUR 2,330 in travel budget per organisation. From their perspective, project coordinators gave an assessment of the cost of proposal preparation as a share of total project budget. The median share was lowest for higher education institutions (HES) at 1% of total project budget, reaching 3% for large companies and SMEs.

Figure 94 - Reported total costs of proposal preparation as a share of total project budget by pillar (% of project coordinators)



Source: CARSA study.

Overall, evidence from the survey carried out by the support study suggests that, from an organisational perspective, the benefits from participating in LEIT ICT projects exceeded or were at least comparable to the costs associated with preparing and submitting a proposal. 85% of participants in LEIT ICT projects consider that the benefits of their participation in the project identified by the survey exceeded or were comparable to the overall investment made by their organisation Table 56). This can be considered to be a positive finding, especially given that at this interim stage many of the potential project results have yet to be realised and further organisational benefits are likely to come during the remainder of the programme.

Table 56 - Assessment by participants of the benefits of participation in LEIT ICT

Substantially lower than overall investment	**2.3%**
Lower	6.1%
Comparable to overall investment	49.5%
Exceed	29.4%
Largely exceed overall investment	5.9%
Do not know	6.7%

Source: CARSA study.

E.5.4. Lessons learnt/Areas for improvement

LEIT ICT is very attractive, as demonstrated by the number of applications and by the **high rate of newcomers** (43%). Oversubscription has led to very low success rates, particularly for the SME Instrument (6% and 4.7% for Phase I and Phase II respectively) and RIAs (11%). In Horizon 2020 the **participation from the private sector is thus far higher than in FP7**, with private companies accounting for 41% of funding (48% when ECSEL and the SME Instrument are considered). Horizon 2020 has also been successful in engaging more SMEs compared to FP7.

Evidence from the survey suggests that, from an organisational perspective, **the benefits** of participating in LEIT ICT **exceeded** or were at least **comparable to the costs** associated with preparing and submitting a proposal for a very large majority of participants. The majority of participants and coordinators declared themselves as **being very satisfied or somewhat satisfied** with most aspects of **programme management and administration**. However, some dissatisfaction was expressed regarding aspects such as application procedures, proposal evaluation and selection and reporting procedures.