



Research and Innovation: ICT projects in Horizon 2020

In its first three years of implementation, Horizon 2020 has allocated **EUR 4 billion of EU funding to 1 369 projects in the field of ICT, attracting **4 832 organisations**.**

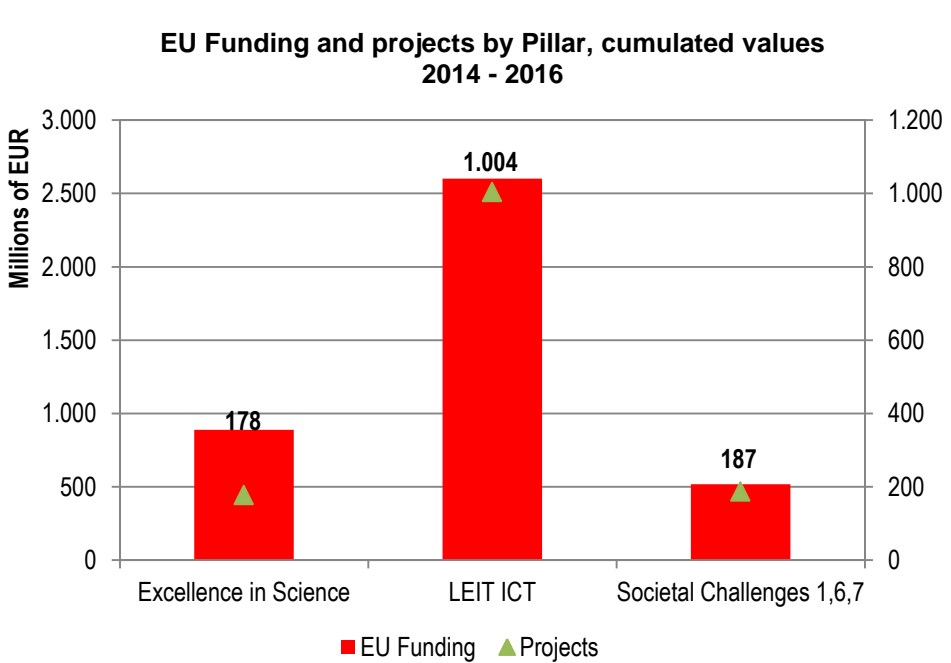
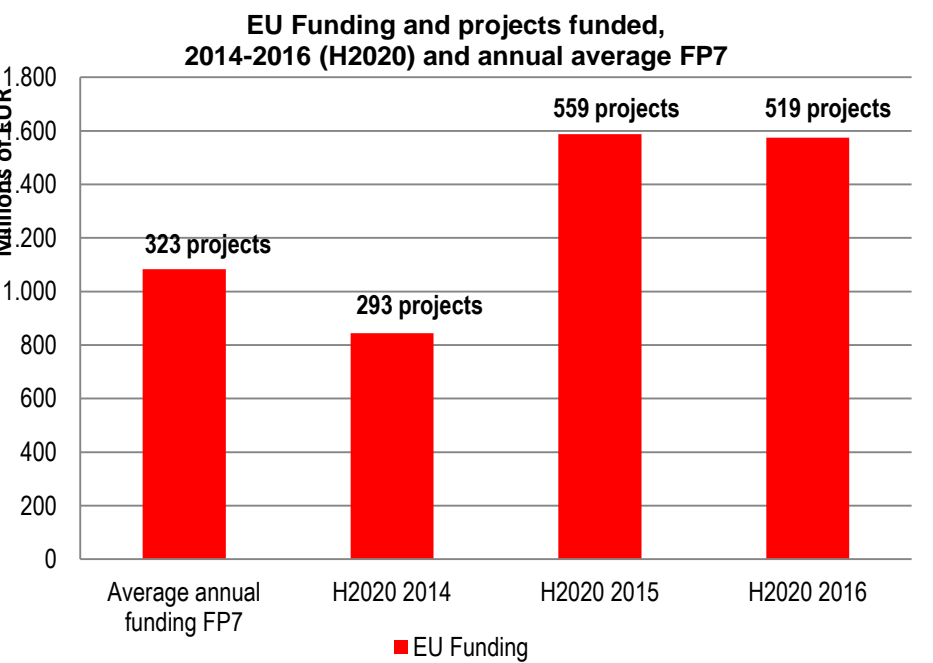
Annual funding has increased compared with the previous Framework Programme, FP7, where average annual funding was EUR 1.08 bn a year. **Leadership in Enabling and Industrial Technologies (LEIT) ICT** (including the SME instrument) accounts for the majority of funding (65 %), participations (64 %) and 73 % of projects.

Excellence in science* accounts for slightly over one fifth of the budget (22 %) and participations (21 %) and 13 % of projects. **Societal Challenges (SC)** 1,6 and 7 account for 13 % of the budget, 14 % of projects and 15 % of participations.

* eInfrastructures, FET Open, FET Proactive, FET Flagships and High Performance Computing

H2020 has been able to attract **new participants**: about 2 000 organisations (41 %) had not participated in FP7. The vast majority (80 %) of new participants are private entities.

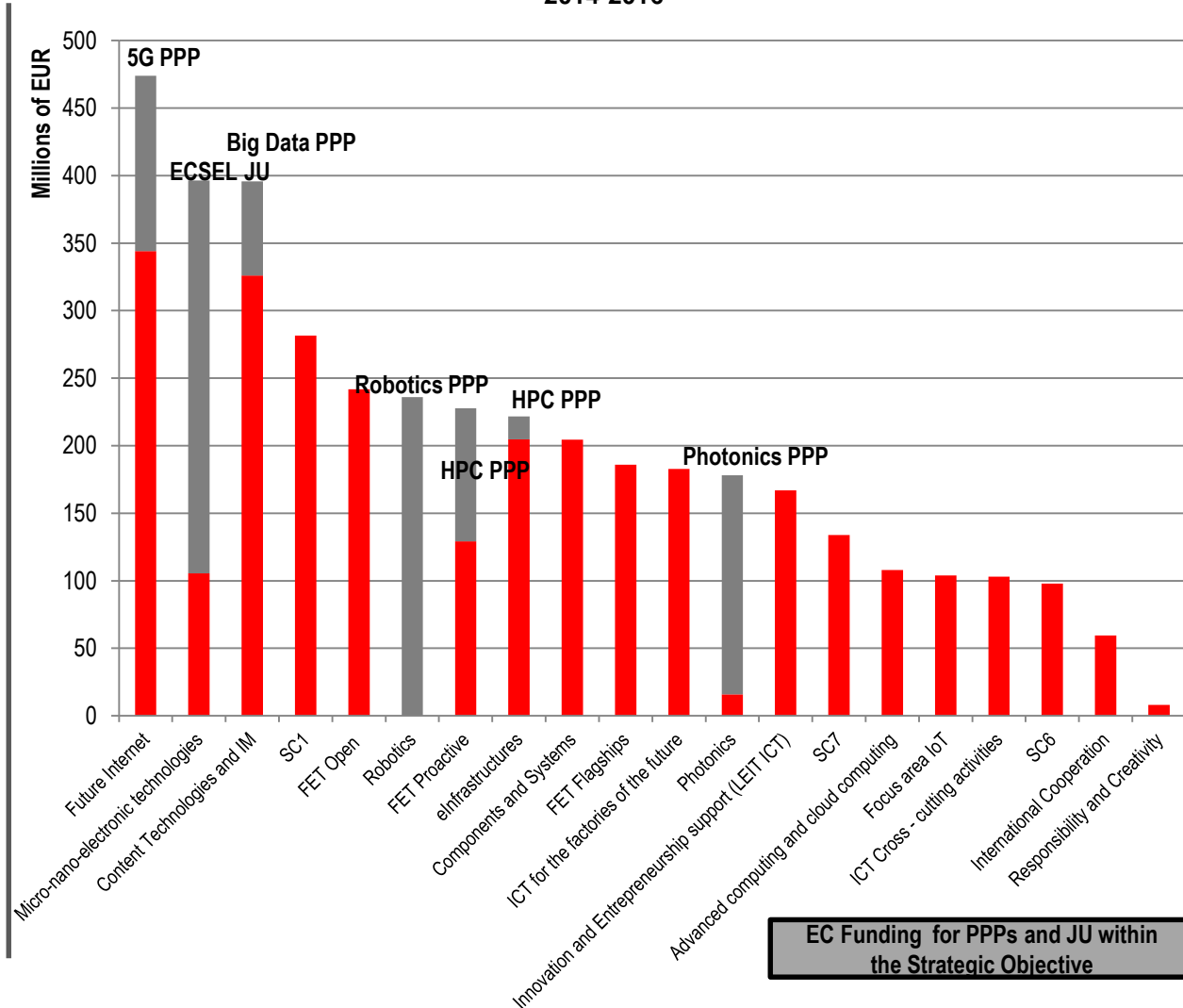
Slightly more than 1 950 SMEs have taken part to H2020 so far, the majority of which (1 086) had not participated in FP7.



Future Internet and Micro – and Nanoelectronic technologies are the areas that attract the highest number of participants and funding.

Within the Work Programme Area 'Future Internet', the contractual **Private Public Partnership (cPPP) for 5G** accounts for EUR 130 m. 'Micro–Nanoelectronic technologies' includes funding for the **Electronic Components and Systems for European Leadership (ECSEL) Joint Undertaking** of EUR 291 m. Within 'Content Technologies and Information Management', the Big Data cPPP accounts for EUR 70 m, whereas the EU funding to the **Robotics cPPP** amounts to EUR 236 m. The **High Performance Computing (HPC)** and **Photonics cPPPs** account for EUR 116 and EUR 162 m, respectively. SC1 on 'Health, demographic change and wellbeing' receives the highest funding among the SCs: EUR 282 m, followed by SC7 on Secure Societies (EUR 134 m). Projects for inclusive, innovative and reflective societies (SC6) receive EUR 98 m. 'FET Open' has total funding of EUR 242 m, FET Proactive and the two Flagships EUR 228 m and EUR 128 m respectively.

EU funding by Work Programme Area, cumulated values 2014-2016



EC Funding for PPPs and JU within the Strategic Objective

Research and Innovation Actions are the prevailing type of action.

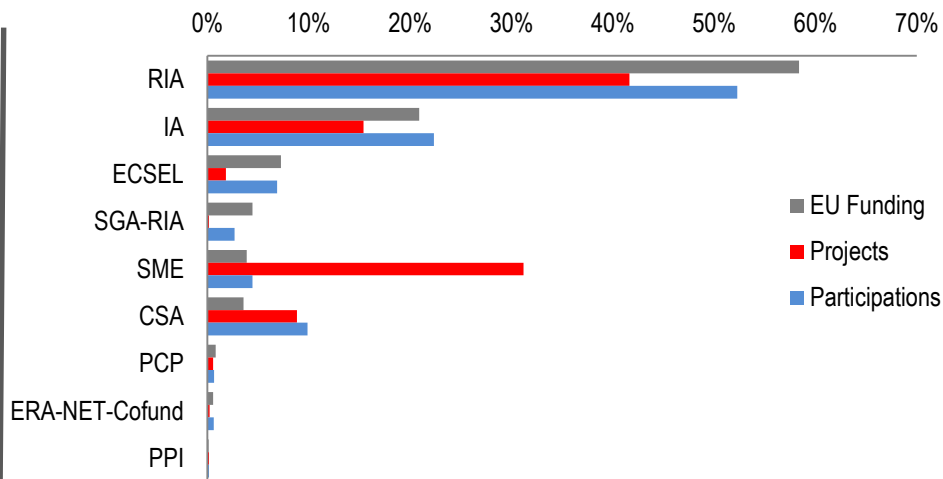
Research and innovation actions account for 58 % of funding, 52 % of participations and 42 % of projects. **Innovation actions** follow, with 21 % of funding, 22 % of participations and 15 % of projects.

Coordination and support actions account for 9 % of projects, 10 % of participations and 4 % of funding.

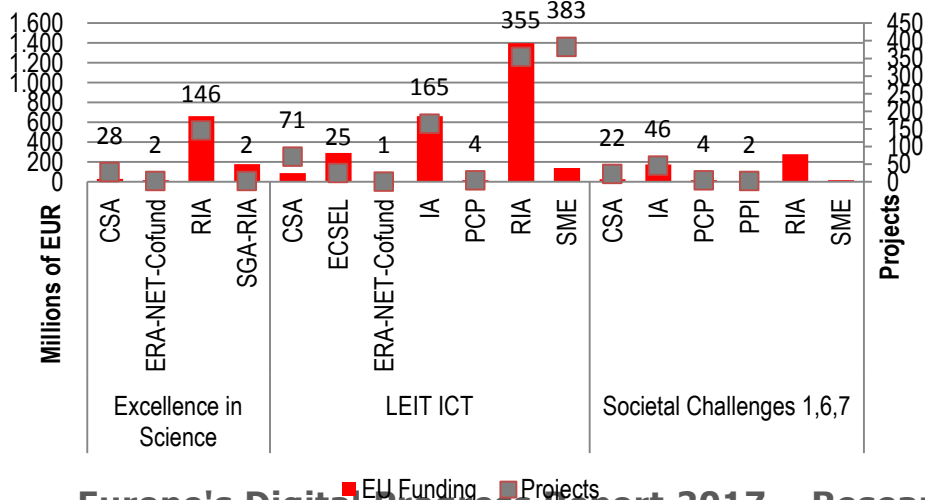
The **SME instrument** projects (LEIT ICT, SC1 and SC6) account for 31 % of projects, and 4 % of funding and participations.

The three **ERA-NET actions** (in FET Proactive, FET Flagships and Photonics) account for 1 % of funding and participations.

EU Funding, projects and participations by type of actions, cumulated values 2014-2016



EU Funding and projects by action and Pillar, cumulated values 2014-2016



The **average project size** differs by action and pillar: RIAs are projects of EUR 3.9 m in LEIT ICT, EUR 4 m in SCs and EUR 4.5 m in Excellence in Science. The average IA receives EUR 4 m on in LEIT ICT and 3.8 m in SCs.

The average size of the CSAs is EUR 1.1 m, whereas Pre-Commercial Procurement (PCP) and Public Procurement for Innovation (PPI) actions are as big as EUR 4.2 m and EUR 2.7 m respectively.

The ERA-NET actions account for an average EUR 8.8 m in Excellence in Science and EUR 5.7 m in LEIT ICT.

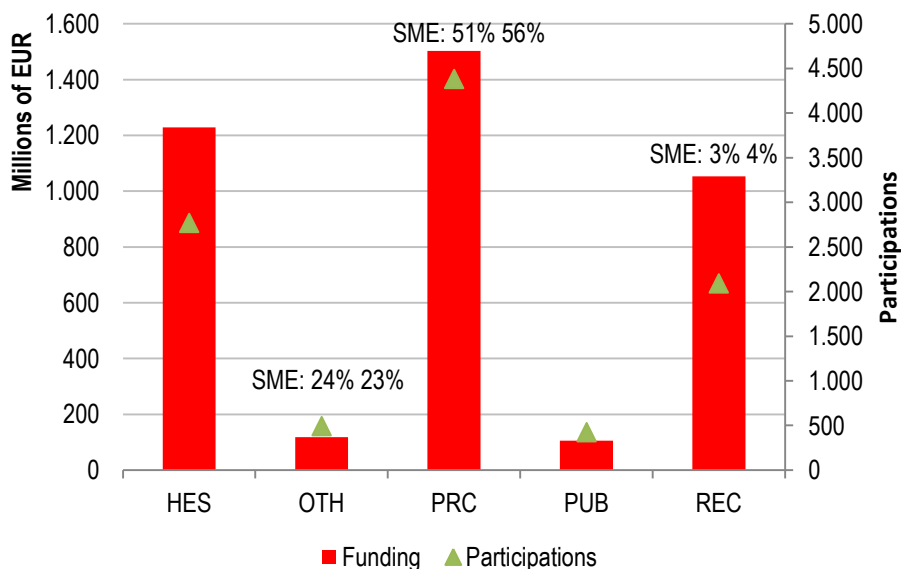
Under H2020 the **enterprise** sector shows an increase in participation compared with FP7, accounting for 43 % of participations and 38 % of the budget, with **21 % of the budget** going to **SMEs**.

Secondary and higher education establishments (HES) and research organisations (REC) taken together account for **half of all project participations** (48 %) and receive the **highest funding** (57 %). Their relative size has decreased in comparison with FP7, where they accounted for 57 % of participations and 64 % of the budget.

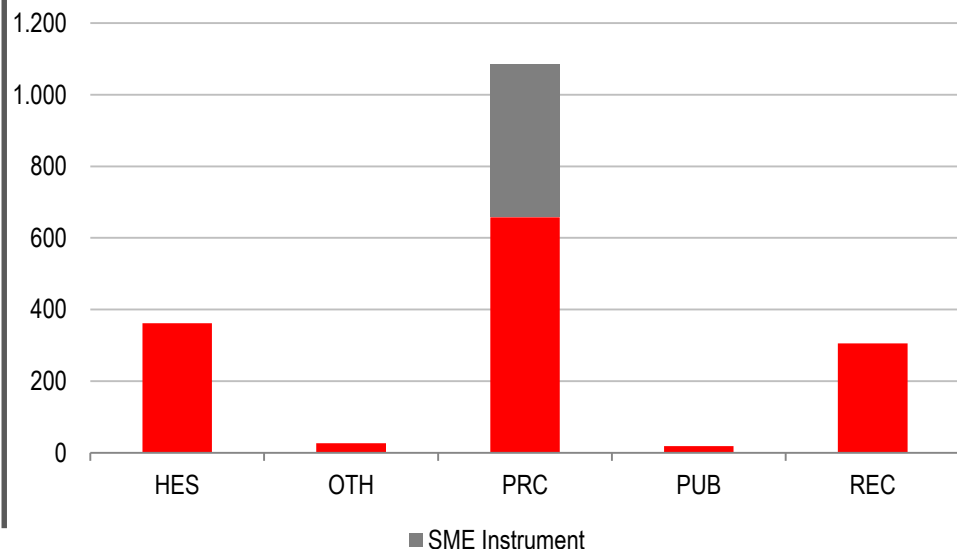
Conversely, there has been an increase in **enterprise participation**, with private organisations (PRC) accounting for 38 % of the budget and 43 % of participations, up from 33 % and 35 %, respectively, under FP7. **Funding for SMEs** has also increased, from 15 % to 21 %, along with the share of SME participations, which has risen from 16 % to 26 %.

HES/REC and **PRC** coordinate 48 % of projects respectively. SMEs coordinate 40 % of projects; this is however influenced by the high number of SME instrument projects. In the other areas, the share of projects coordinated by SMEs is at 9 %, slightly lower than under FP7 (10 %). Large enterprises coordinate a lower share of projects (9 %) compared with 18 % under FP7.

Participations and EU funding by type of organisation, cumulated values 2014-2016



Projects coordinators by type of organisation, cumulated values 2014-2016



SMEs are especially present in the Work Programme area Focus Area **Internet of Things**, **International Cooperation** and **Societal Challenge 6**.

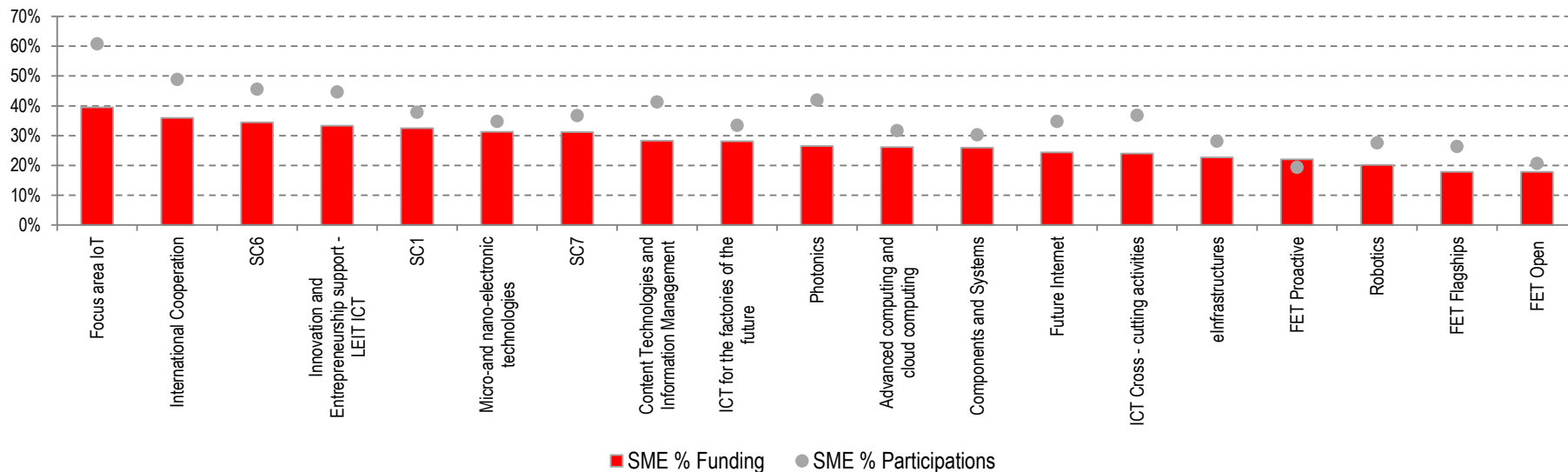
SMEs represent 40 % of participating organisations and their participation varies according to pillar and Work Programme Area. They are very present in the 'Focus Area IoT', in the Societal Challenges and within LEIT ICT in 'Micro-and Nanoelectronic technologies', 'Content Technologies and Information Management' and in 'Factories of the Future'.

The SME Instrument attracted mostly new SMEs: 90% of organisations had not participated in FP7.

SMEs are particularly weak in FET, 'Robotics' and 'e-Infrastructures'. As for the public-private-partnerships and the joint undertakings, the presence of SMEs ranges from 11 % in robotics and in HPC, 13 % in ECSEL, to 17 % in 5G, 19 % in Big Data and 25 % in Photonics.

In certain Member States, SMEs account for the large majority of the total funding going to the country – in Estonia the share is 58 %, in Latvia and Slovakia 55 % and in Hungary 44 %.

**Incidence of SMEs by Work Programme Area
(as % of total funding and participations),
cumulated values 2014-2016**



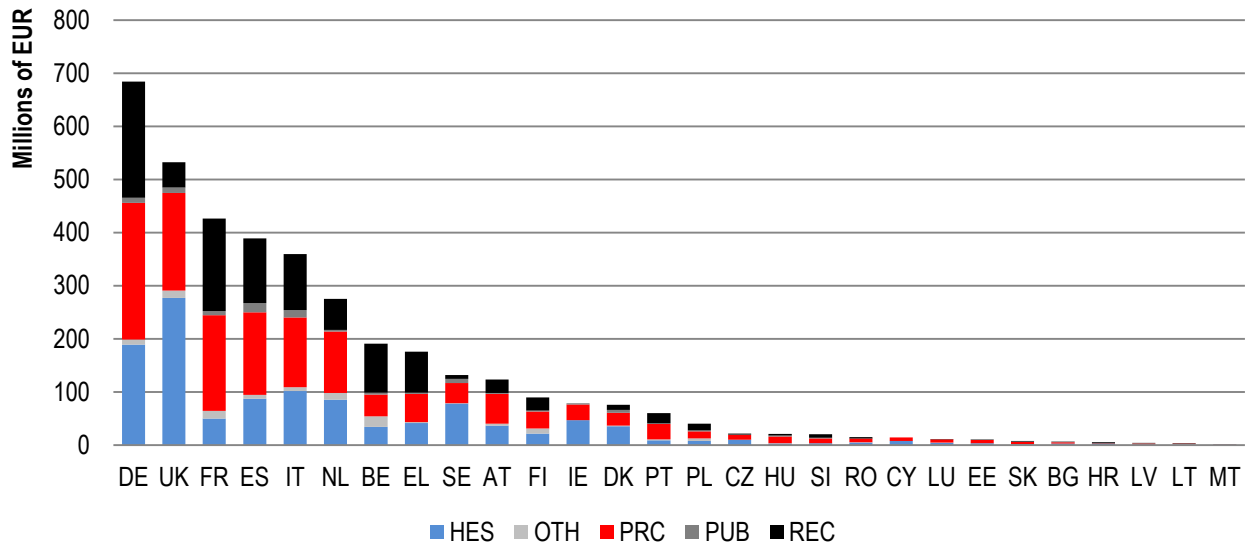
In absolute terms, Germany and the United Kingdom are the biggest recipients of EU funding, but Greece and Cyprus are the countries with the highest funding in relation to the size of their ICT sector.

Germany, the United Kingdom, France, Spain and Italy account for 64 % of total EU funding and 62 % of participations in the first three years of H2020. Participants from Spain coordinate 18 % of projects, from Germany 12 % and from Italy 10 %.

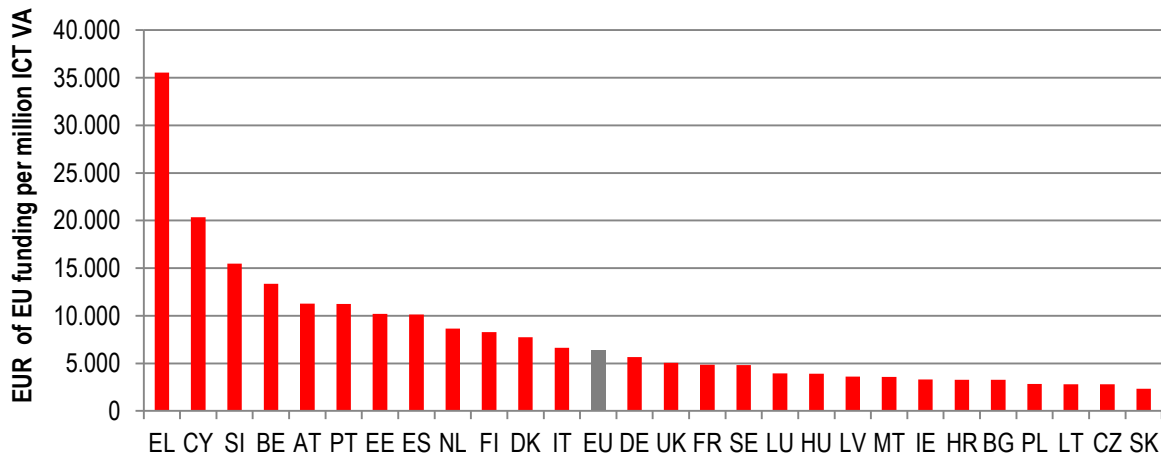
Slovenia, Belgium, Austria and Portugal are also among the Member States with the highest amounts of funding compared to the size of their ICT sector.

When looking at the total funding by country and its distribution among H2020 pillars, in all the countries the majority of funding (out of the total funding for the country) is allocated to LEIT-ICT, ranging from the lowest level at 43 % for Malta, to 80 % for Lithuania. In Hungary and Malta 39 % of funding goes to Excellent Science; Sweden has also 30% of its EU funding in this Pillar. In Luxembourg 37 % of funding is allocated to Societal Challenges, in Romania and Estonia it is 34 %.

EU Funding by Member State and type of participant organisation, cumulated values 2014-2016



EU funding by Member State per million of ICT sector Value Added, cumulated values 2014-2016



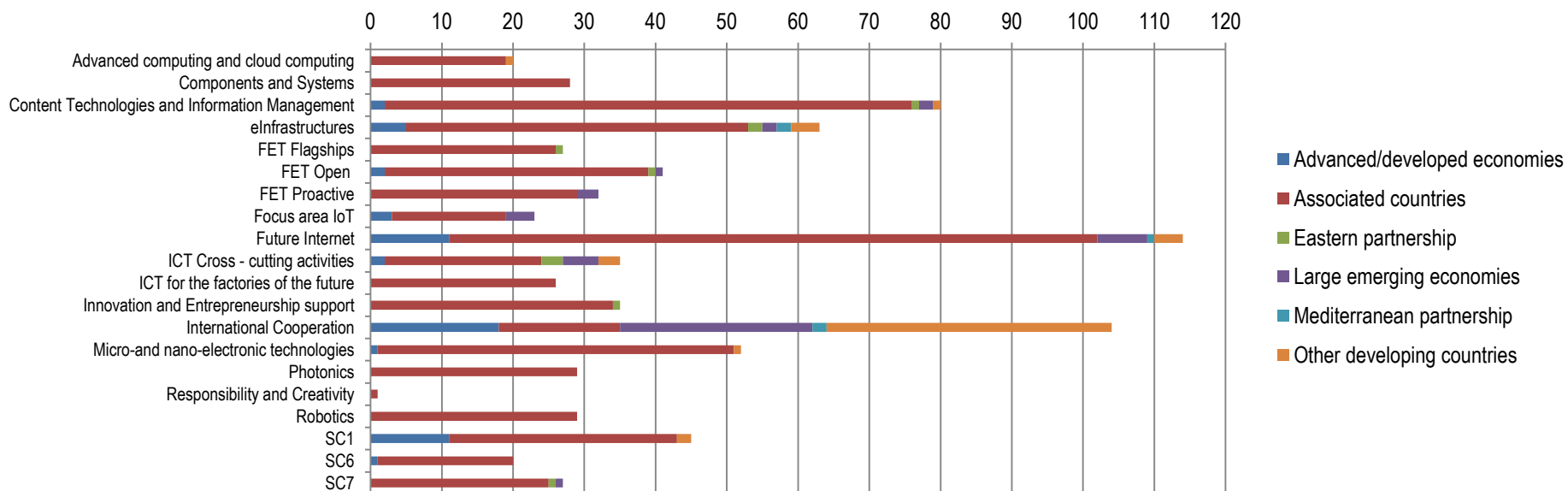
94 % of EU funding for ICT in H2020 is allocated to EU Member States, followed by associated countries. Third countries take part in the Research Programme but with little EU funding.

In the first three years of H2020, 460 organisations from 65 non-EU countries participated in 445 ICT projects. About 5.5 % of participations and funding is allocated to associated countries, mainly due to the presence of research-oriented players such as Norway, Israel and Switzerland.

Most of the projects with international participants fall under the Work Programme Area 'Future Internet' (72 projects), 'Content Technologies and Information Management' (45 projects), 'Innovation and Entrepreneurship support' (32 projects) and 'Societal Challenge 1' (31 projects).

Over three years, EUR 17 m of EU funding were allocated to calls with Japan for R&D cooperation in IoT, Future Internet and Robotics; EUR 7 m in projects in IoT and Cloud Computing with Brazil and EUR 6 m with Korea in the areas of Future Internet, IoT and Cloud Computing. EUR 12 m of EU funding were invested in support to policies and international cooperation for eInfrastructures. In 2016, calls for cooperation with China on Future Internet and with Mexico in ICT were launched (EUR 1 m of EU funding each). EUR 12 m of funding were for International partnership building in low and middle income countries

International participation: number of participations by country group and WP Area, cumulated values 2014-2016



Notes

This report covers all the projects signed by 31 December 2016.

Annual comparisons are made by considering projects signed by 31 December of the relevant year.

Acronyms for types of organisations:

- PRC: Private for profit companies
- PUB: public bodies (excluding research and education)
- REC: research organisations
- HES: secondary and higher education establishments
- OTH: other entities

The following Country Groups are used for the chart on international participation:

- Associated countries (art. 7 of H2020 Regulation): Iceland, Norway, Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey, Israel, Moldova, Switzerland (partial association: Excellent Science Pillar only), Faroe Islands
- Advanced / developed economies: US, Japan, Canada, Australia, New Zealand, Korea, Singapore
- Large emerging economies: BRICS (with South Africa); Mexico, Indonesia, Nigeria and Turkey (the MINT group), South America (Argentina, Chile, Uruguay, Colombia)
- Eastern Partnership: Ukraine, Belarus, Armenia, Azerbaijan, Georgia
- Mediterranean Partnership: Morocco, Algeria, Tunisia, Libya, Egypt, Lebanon, Jordan, Syria
- Other developing countries: all other Third Countries

Source: the report is based on CORDA data elaborated by DG CONNECT. The source of data for ICT Value Added is PREDICT.