



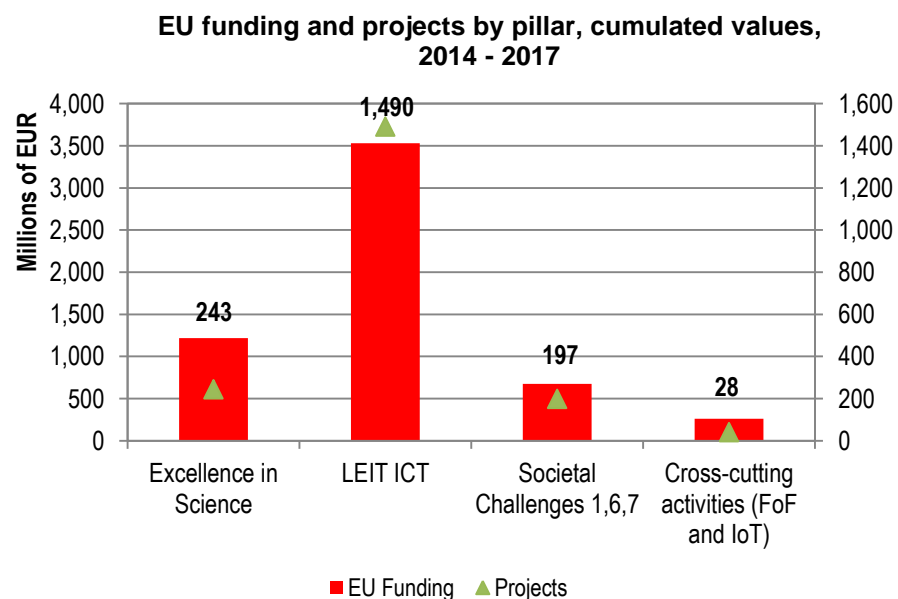
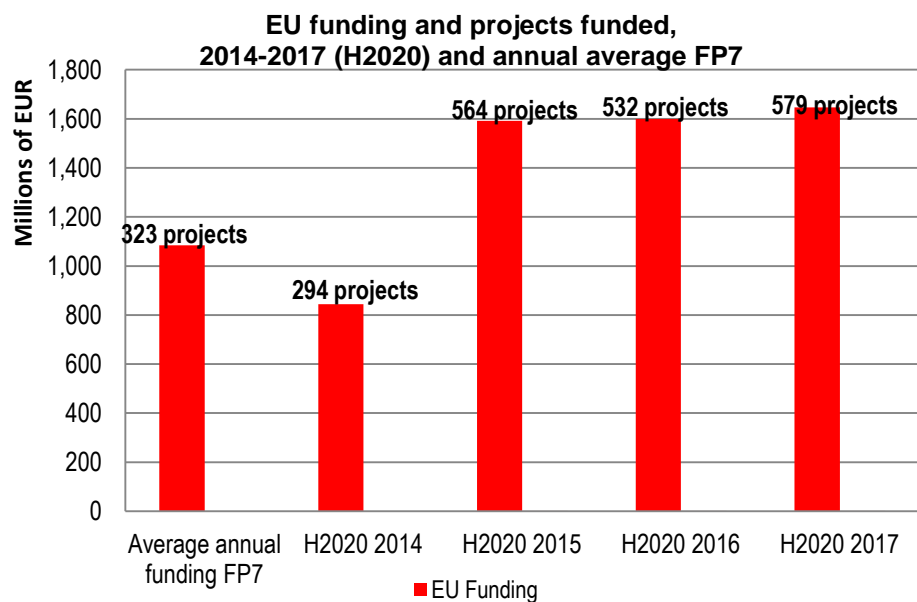
Research and Innovation: ICT projects in Horizon 2020

In its first four years, **Horizon 2020 (H2020)** has allocated EUR 5.7 billion of EU funding to 1 969 projects in the field of ICT, attracting 6 250 organisations.

Annual funding has increased compared with the previous framework programme, FP7, where the average annual funding was EUR 1.08 billion a year. Leadership in enabling and **industrial technologies (LEIT) ICT** (including the SME instrument) accounts for the majority of funding (62 %), participations (63 %) and 76 % of projects.

Excellence in science (e-infrastructures, future emerging technologies (FET) open, FET proactive, FET flagships) accounts for slightly over one fifth of the budget (21 %), 19 % of participations and 12 % of projects. **Societal challenges** (SC) 1, 6 and 7 account for 12 % of the budget, 10 % of projects and 14 % of participations.

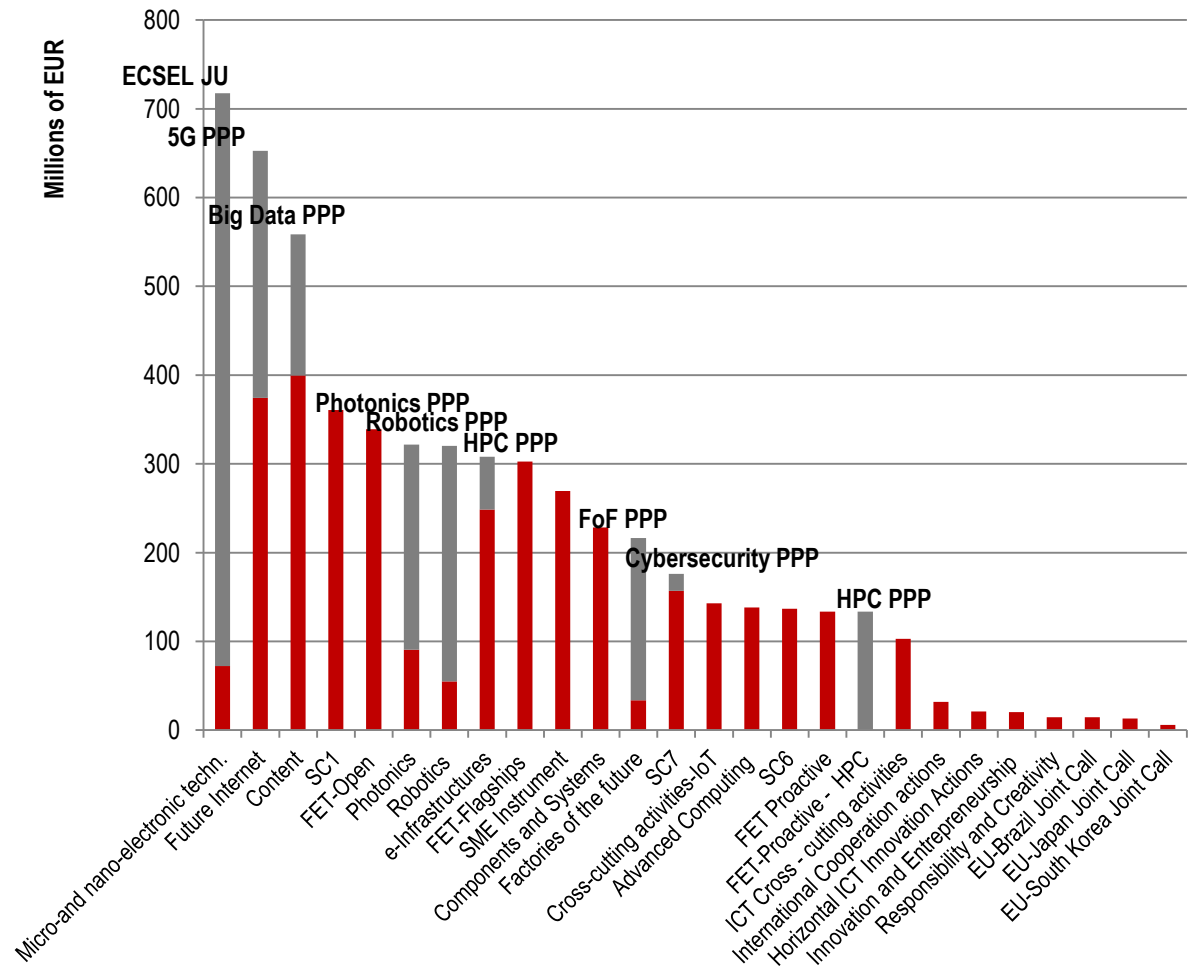
The number of **participants** has also increased compared with FP7, whereby on average 1 830 legal entities took part every year. 48 % of participants are new compared to FP7, and of these, the vast majority (80 %) are private for-profit organisations. So far H2020 has been able to attract 1 674 **new SMEs**.



Micro- and nano-electronic technologies and future networks and internet are the areas that attract the highest number of participants and funding.

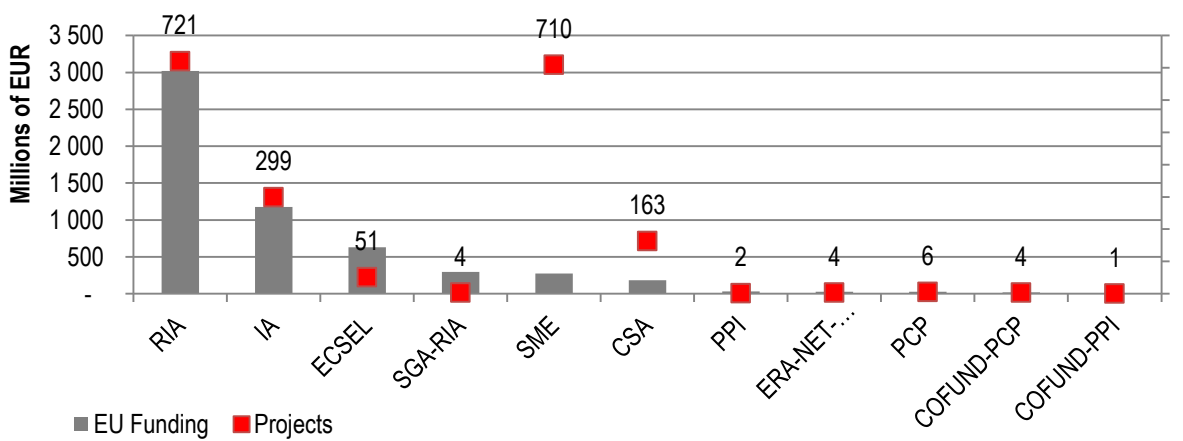
- The area of 'micro- and nano-electronic technologies' includes funding of EUR 645 million for the electronic components and systems for european leadership (ECSEL) joint undertaking.
- Within the strategic objective 'future networks and internet', the contractual private public partnership (cPPP) for 5G accounts for EUR 278 million.
- Within 'content technologies and information management', the big data cPPP account for EUR 159 million, whereas the EU funding to the robotics cPPP amounts to EUR 266 million.
- The cPPPs high performance computing (HPC) and photonics account for EUR 134 million and EUR 231 million, respectively.
- SC1 on 'health, demographic change and wellbeing' receives the highest funding among the SCs: EUR 361 million, followed by SC7 on secure societies (EUR 176 million).
- Projects for inclusive, innovative and reflective societies (SC6) receive EUR 137 million.
- 'FET Open' has total funding of EUR 339 million, FET proactive and the two flagships EUR 134 million and EUR 302 million respectively.

EU funding by Work Programme Area, cumulated values 2014-2017



The principal types of action are those in the area of **research and innovation**.

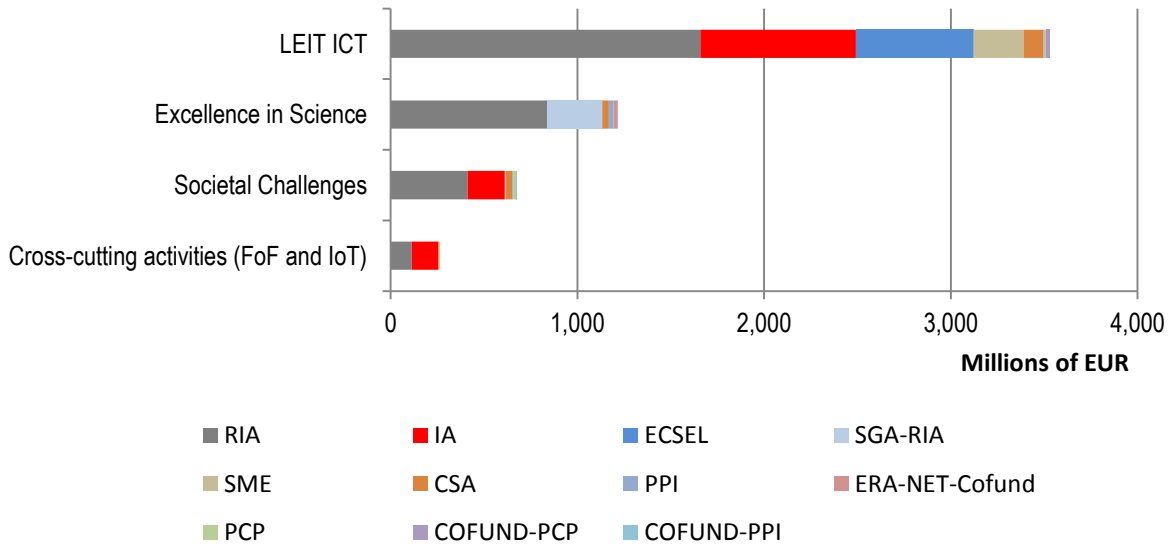
EU funding and projects by type of action, cumulated values, 2014-2017



Research and innovation actions (RIAs) account for 53 % of funding, and 37 % of projects. Innovation actions follow, with 21 % of funding, and 15 % of projects. Coordination and support actions account for 8 % of projects, and 3 % of funding. The **SME instrument projects (LEIT ICT, SC1 and SC6)** account for 36 % of projects, and 5 % of funding. The **three European research area (ERA-NET)** actions (in FET proactive, FET flagships and photonics) account for 0.5 % of funding.

RIAs receive EUR 1 658 million in LEIT ICT, EUR 412 million in SCs and EUR 839 million in excellence in science. Innovation actions (IAs) receive EUR 833 million in LEIT ICT and EUR 200 million in SCs. Coordination and support actions (CSAs) receive EUR 183 million, whereas pre-commercial procurement (PCP) and public procurement for innovation (PPI) actions receive as much as EUR 28 million and EUR 31 million respectively. The ERA-NET actions account for EUR 22 million in Excellence in Science and EUR 6 million in LEIT ICT.

EU funding by type of action and pillar, cumulated values, 2014-2017

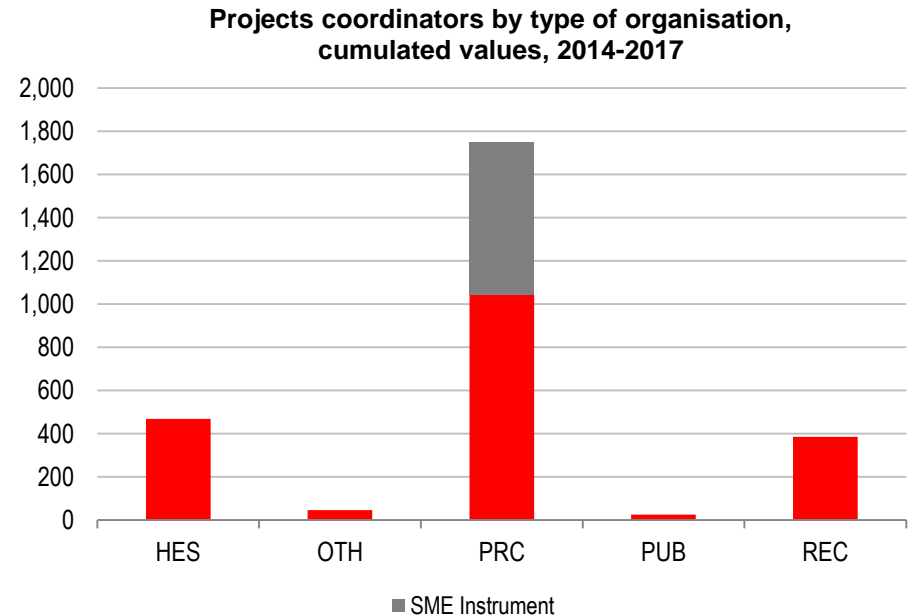
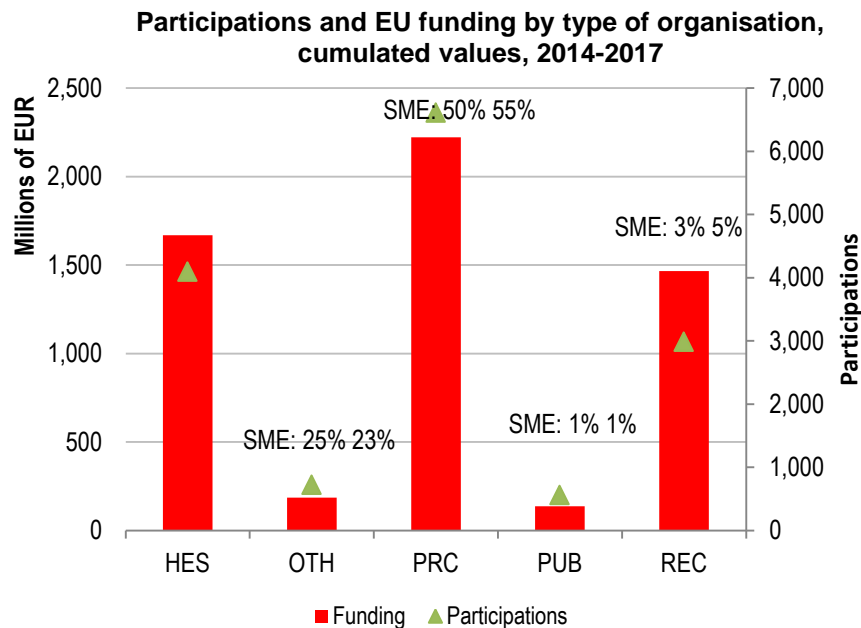


Under H2020 the **business sector** shows an increase in participation compared with FP7, accounting for 44 % of participations and 39 % of the budget, with 21 % of the budget going to SMEs.

Secondary and higher education establishments (HES) and research organisations (REC) taken together account for almost half of all project participations (47 %) and receive the highest funding (55 %). 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 39 % of the budget and 44 % 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 43 % and 53 % of the projects. SMEs coordinate 45 % of projects; however, this is 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 companies coordinate a lower share of projects (10 %) than under FP7 (18 %).

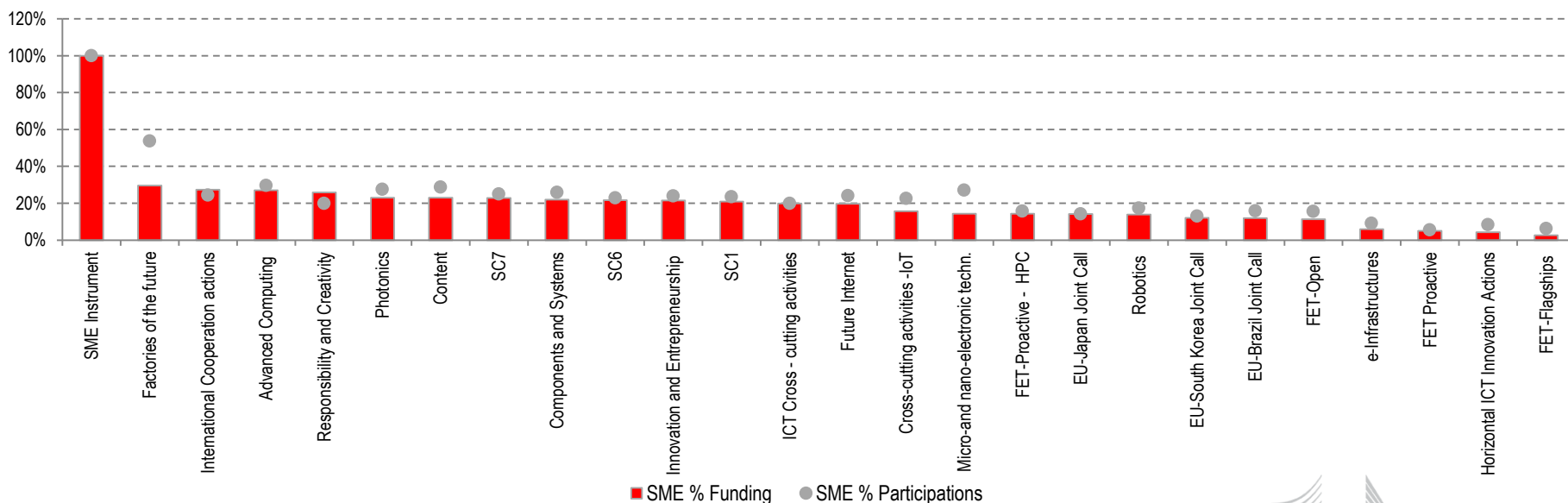


SMEs make up more than 25 % of the participating organisations. The **SME instrument** is designed for for-profit SMEs from any sector.

SMEs make up more than 25 % of the participating organisations and their participation varies according to pillar and work programme area. They are strongly present in 'factories of the future', in 'advanced computing', in 'content technologies', in 'photonics', and in 'micro-and nano-electronic technologies'. The **SME instrument** is designed for for-profit SMEs, including young companies and start-ups, from any sector.

As for the public-private-partnerships and the joint undertakings, the presence of SMEs (in terms of funding) ranges from 11 % in robotics, to 12 % in HPC, 14 % in ECSEL, 17 % in cybersecurity, 18 % in big data, 20 % in 5G, 25 % in photonics, 32 % in factories of the future. In certain Member States, SMEs account for the large majority of the total funding going to the country: in Estonia the share is 61 %, in Hungary 51 %, in Cyprus and Lithuania 47 %, and in Bulgaria 45 %.

The involvement of SMEs by work programme area (as a percentage of total funding and participations), cumulated values, 2014-2017



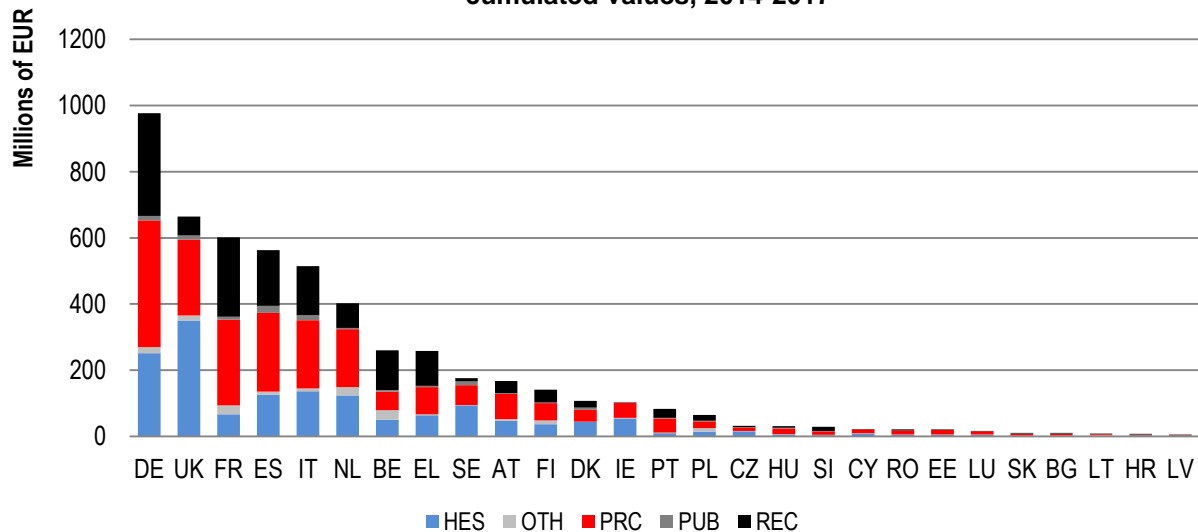
In absolute terms, Germany and the United Kingdom are the biggest recipients of EU funding, but Greece and Cyprus receive the highest funding in relation to the size of their ICT sector.

Germany, the United Kingdom, France, Spain and Italy account for 64 % of total EU funding and 62 % of participations in the first four years of H2020. These countries also lead in terms of projects coordinated (61 %), with Spain ranked in first position.

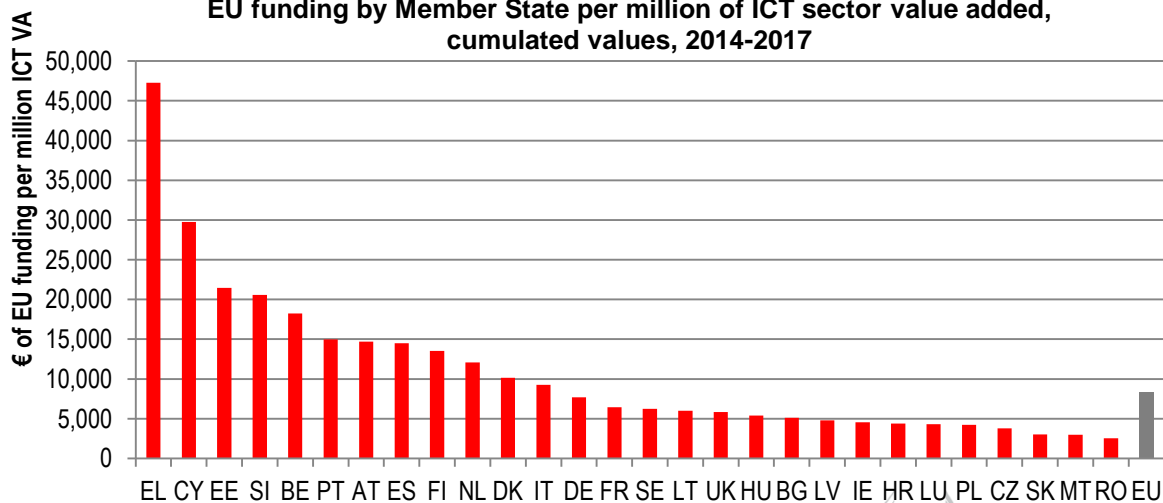
Greece, Cyprus, and Estonia are also among the Member States with the highest amounts of funding compared to the size of their ICT sector.

When looking at the total funding by country and its distribution among H2020 pillars, it is notable that 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 41 % for Malta, to the highest level at 84 % for Lithuania. In Malta, 42 % of funding goes to Excellent Science whereas in Luxembourg this figure is as low as 2 %. In Luxembourg and Romania, 33 % and 30 % respectively of funding is allocated to Societal Challenges.

EU funding by Member State and type of participant organisation, cumulated values, 2014-2017



EU funding by Member State per million of ICT sector value added, cumulated values, 2014-2017



95 % of EU funding in H2020 is allocated to EU Member States, followed by associated countries. Third countries take part in H2020 but with little EU funding (1 %).

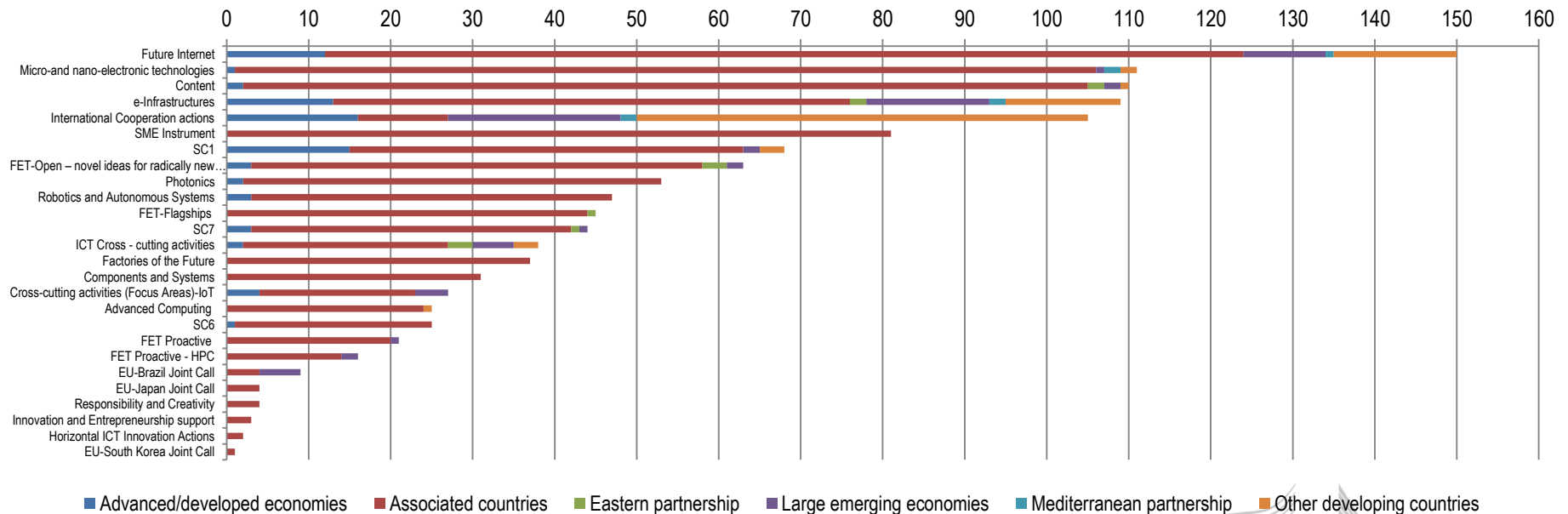
Between 2014 and 2017, 1 229 organisations from countries other than the Member States participated in H2020 projects.

About 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.

The rest of the budget and participations are equally distributed among other third countries.

Most of the projects with international participants fall under the specific objectives ‘future internet’ (150 projects), ‘micro-and nano-electronic technologies’ (111 projects), ‘content’ (110 projects), ‘e-infrastructures’ (109 projects), ‘international cooperation actions’ (105 projects), and ‘SME instrument’ (81 projects).

International participation: number of participations by country group and work programme area, cumulated values, 2014-2017



Notes

This report covers all the projects signed by 31 December 2017.

Annual comparisons are made by taking projects signed by 31 December of the relevant year into account.

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 (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.