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Horizon 2020 Monitoring Report 2014

Research and Innovation

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Monitoring Report 2014

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1. INTRODUCTION

Horizon 2020 is the European Union's Framework Programme for Research and Innovation (2014-2020).[1] With its dedicated budget of around EUR 75 billion[2] over seven years, Horizon 2020 is the biggest EU Research and Innovation programme ever.

Textbox 1: Priorities and Specific Objectives in Horizon 2020

The first priority of Horizon 2020 is **Excellent Science,** which aims to reinforce and extend the excellence of the Union's science base and to consolidate the European Research Area in order to make the Union's research and innovation system more competitive on a global scale. It consists of 4 specific objectives: (i) the European Research Council (**ERC**), which funds Europe's top researchers through Europe-wide competitions; (ii) Future and Emerging Technologies (**FET**), supporting collaborative research in order to extend Europe's capacity for advanced and paradigm-changing innovation; (iii) the Marie Skłodowska-Curie Actions (**MSCA**) on researcher training, mobility and careers; and (iv) **Research infrastructures**, providing networking and access to these infrastructures and maximising their innovation potential.

The second priority is **Industrial Leadership,** which aims to speed up the development of the technologies and innovations that will underpin tomorrow's business and help innovative European SMEs to grow into world-leading companies. It consists of 3 specific objectives: (i) Leadership in Enabling and Industrial Technologies (**LEIT**) to make Europe a more attractive place for businesses to invest in R&D and innovation; (ii) **Access to Risk Finance**, to strengthen EU support to venture capital and loans for innovative companies; (iii) **Innovation in SMEs actions** (including the SME instrument), which provide tailored support targeting SMEs with the potential to grow and internationalise across the single market and beyond.

The third priority "**Societal Challenges**" responds directly to the policy priorities and societal challenges that are identified in the Europe 2020 strategy and that aim to stimulate the critical mass of research and innovation efforts needed to achieve the Union's policy goals. Funding focusses on the following specific objectives: (i) Health, demographic change and wellbeing; (ii) Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bio-economy; (iii) Secure, clean and efficient energy; (iv) Smart, green and integrated transport; (v) Climate action, environment, resource efficiency and raw materials; (vi) Europe in a changing world - inclusive, innovative and reflective Societies; (vii) Secure societies – Protecting freedom and security of Europe and its citizens.

In addition to the 3 priorities, the legal basis of Horizon 2020 identifies 2 specific objectives: (i) "**Spreading Excellence and Widening Participation**" (SEWP), aiming at addressing the disparities across Europe in research and innovation performance; and (ii) "**Science With and For Society**" (SWAFS), strengthening the social and political support to science and technologies in all Member States.

Investment in research and innovation is essential for Europe's future and it is at the heart of the Europe 2020 strategy for smart, sustainable and inclusive growth[3] and of the priorities of the Juncker Commission. Governments across Europe need to take an active stance in supporting growth enhancing policies, notably research and innovation to reap their benefits in terms of economic prosperity and quality of life.[4] Horizon 2020 is helping to achieve this by coupling research to innovation and by focusing on three mutually reinforcing priorities

[1] Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC.

[2] Following the entry into force of the Regulation (EU) 2015/1017 on the European Fund for Strategic Investments (EFSI), the total budget of Horizon 2020 is set at EUR 74 828,3 million over the 7 years of the programme. The total budget of Horizon 2020 including Euratom is EUR 77 201,8 million. For 2014, the total budget adopted by the Budget Authority amounted to EUR 9,3 billion for Horizon 2020 (EU and Euratom).

[3] Communication from the Commission, Europe 2020: A strategy for smart, sustainable and inclusive growth, COM(2010) 2020 final.

[4] Communication from the Commission, Research and Innovation as sources of renewed growth, COM(2014) 339 final.

and two specific objectives (see textbox 1). The goal is to ensure that Europe produces world-class science and technology that drives economic growth.

For Horizon 2020, the Commission has a legal obligation to monitor continually and systematically its implementation and to report annually and disseminate the results of this monitoring.[5] Monitoring is an integral part of the Commission's Better Regulation agenda. It is a continuous and systematic process of data collection, addressing in particular implementation issues. The Annual Monitoring Report looks at *what* has happened in the implementation of Horizon 2020 and its Specific Programme, but unlike an evaluation, it does not look at *why* something has occurred and it does not issue policy recommendations.

Horizon 2020 marks a shift towards the use of indicators that aim to capture results and impacts. The legal basis of Horizon 2020 specifies a list of compulsory Key Performance Indicators to be taken into account in its evaluation and monitoring system. The fact that for the first time these Key Performance Indicators are identified prior to the start of the Framework Programme is a significant development as this provides a solid and coherent basis for the monitoring and evaluation system for Horizon 2020, coupled with the focus on measuring results and impacts of the Programme. In addition, the legal basis indicates a list of 14 cross-cutting issues that serve to monitor on an annual basis the Horizon 2020 programme implementation.

The implementation of Horizon 2020 is based on multiannual Work Programmes. The Work Programmes are prepared by the European Commission in consultation with stakeholders and with inputs from advisory groups of experts. Each Work Programme (WP) sets out the funding opportunities under the different WP parts through calls for proposals and other actions such as public procurement. Each call for proposals contains topics and each topic describes the specific challenge to be addressed, the scope of the activities to be carried out, and the expected impacts to be achieved.

This first Annual Monitoring Report focuses on the implementation of the Work Programme 2014-2015, which was adopted in December 2013. It covers 58 calls within the Horizon 2020 Work Programme and six calls from the Work Programmes of the Public-Private Partnerships (Joint Undertakings), resulting in 101 call deadlines having closure dates equal to or preceding 31 December 2014.[6]

It includes single stage calls and the second stage of two-stage calls[7], producing results aggregated at call level.[8] All proposals belonging to these calls are covered[9], except non-eligible proposals, which represent only 2% of the total number of proposals submitted.

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[5] Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020, Article 31.

[6] The Annual Monitoring Report 2014 is based on data collected directly from the Common Research Data Warehouse (CORDA) Portal using Commission's internal reporting tools provided by the CORDA team, Unit J4 of Directorate J, Common Support Centre, of the Directorate-General for Research and Innovation (DG RTD). Unless otherwise specified, the source of data in this report is CORDA. Additional information regarding methodology is available in Annex I.

[7] First-stage proposals in 2-stage calls are excluded from the Annual Monitoring Report since they do not provide a full statistical dataset.

[8] It should be noted that calls can include more topics, covering more than one Programme's part, highlighting the integrative approach of Horizon 2020.

[9] Proposals within the continuous calls H2020-Adhoc-2014-20 and EURATOM-Adhoc-2014-20 are limited to those having a submission date before or equal to 31/12/2014.

The statistics on participation are based on grant agreements signed before 1 December 2015, which constitute 97.82% of the successful projects. Details on participation and implementation for each call are presented in Annex III to this Staff Working Document under the relevant Work Programme part to which the call belongs.

The Report also includes the implementation activities of the European Institute of Innovation and Technology (EIT) as well as of the Euratom Research and Training Programme.[10] Annex IV analyses each cross-cutting issue and its indicators.

Next Annual Monitoring Reports will cover calls for proposals closing before 31 December of each year, in order to enable a comparison of the implementation of Horizon 2020 from one year to the next. Evidence provided in the Annual Monitoring Reports will generate factual data that will feed into the Interim and Ex-post evaluations of Horizon 2020.

2. ASSESSMENT OF HORIZON 2020 CALLS CLOSED IN 2014

2.1 Overall participation

Since its inception in December 2013, 101 call deadlines under Horizon 2020 were closed in 2014.[11] Their distribution by Specific Programme's part is listed in table 1:

[10] Council Regulation (Euratom) No 1314/2013 of 16 December 2013 on the Research and Training Programme of the European Atomic Energy Community (2014-2018) complementing the Horizon 2020 Framework Programme for Research and Innovation. Article 21.

[11] The Annual Monitoring Report 2014 is based on data collected directly from the Common Research Data Warehouse (CORDA) Portal, using Commission's internal reporting tools provided by the CORDA team, Unit J4 of Directorate J, Common Support Centre, of the Directorate-General for Research and Innovation (DG RTD).

Table 1: Distribution of calls per specific programme's part

Specific Programme's part	Number of calls deadlines	EU funding to successful projects(EUR million)
Excellence Science		
European Research Council (ERC)	**5**	**1 734,26**
Future and Emerging Technologies (FET)	**5**	**220,05**
Marie-Sklodowska-Curie Actions (MSCA)	**6**	**864,23**
Research Infrastructures (RI)	**6**	**391,05**
Industrial Leadership - Cross-theme		
Leadership in Enabling and Industrial Technologies (LEIT)		**(1 601,32)**
Information and Communication Technologies	**5**[12]	**960,86**
NMBP[13]	**9**	**508,60**
Space	**4**	**131,86**
Access to Risk Finance (ARF)	**2**	**4,56**
Innovation in SMEs (+ SME instrument)	**5 + 2**	**266,12**
Societal Challenges - Cross-theme		
Health, demographic change and wellbeing (SC1)	**3**	**570,06**
Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy (SC2)	**7**[14]	**333,03**
Secure, clean and efficient energy (SC3)	**10**[15]	**615,53**
Smart, green and integrated transport (SC4)	**4**	**589,66**
Climate action, environment, resource efficiency and raw materials (SC5)	**6**	**295,78**
Europe in a changing world - inclusive, innovative and reflective societies (SC6)	**6**	**117,51**
Secure societies - protecting freedom and security of Europe and its citizens (SC7)	**4**	**209,30**
Spreading excellence and widening participation (SEWP)	**3**	**50,12**
Science with and for Society (SWAFS)	**5**	**48,47**
Euratom	**3**	**514,98**
Horizon 2020 Grants to Named Beneficiaries	**1**[16]	**41,81**
TOTAL HORIZON 2020	**101**	**8 467,83**

These calls have attracted 33 792 eligible proposals, including 122 713 applications from 36 139 unique applicants worldwide. Compared to the last year of implementation of the Seventh Framework Programme (FP7), Horizon 2020 has attracted a significantly higher number of eligible proposals (20 739 in 2013 under FP7).

[12] Including the calls ECSEL-2014-1 and ECSEL-2014-2 for the ECSEL Joint Undertaking.

[13] NMBP stands for Nanotechnologies, Advanced materials, Biotechnology and Advanced manufacturing and processing.

[14] Including the call H2020-BBI-PPP-2014-1 for the BBI Joint Undertaking.

[15] Including the call H2020-JTI-FCH-2014-1 for the FCH Joint Undertaking which is shared with SC4 and the call H2020-EE-2014-1-PPP on Energy-efficient Buildings and SPIRE, shared with SC7.

[16] The Grant to Named Beneficiary (H2020-Adhoc-2014-20) encompasses projects in many different areas. These correspond to Identified beneficiary actions (in which the legal entities to be granted are listed in the adopted Work Programme) and Specific Grant Agreements (SGA) awarded in the context of Framework Partnership Agreements (FPA), establishing a long-term cooperation mechanism between the Commission/Agency and the beneficiaries of grants ("partners") and specifying the common objectives, the procedure for awarding specific grants, rights and obligations of each party under the specific agreements.

While on average each unique applicant has submitted 3.4 applications, the number of applications per unique applicant ranges from 1 for 64.28% of unique applicants to more than 100 for 0.45% of unique applicants. 24 367 unique applicants (67.43%) are newcomers, in the sense that they have not received EU funding from FP7.

In terms of EU financial contribution, the total EU funding requested for the 33 792 eligible proposals was almost EUR 55 billion, or about six times the total commitment budget adopted by the Budget Authority for Horizon 2020 for 2014 (EUR 9,3 billion).

2.2 Success Rate

After the evaluation of eligible proposals, 4 524 proposals including 19 220 applications from 8 688 unique applicants were retained (of which 3 713 are newcomers or 42.7%), with a cumulative financial envelope for retained proposals of EUR 7 975,85 million. When looking at success rates, this can be expressed in different ways. The conventional Success Rate in terms of number of eligible proposals is 13.39% (13.18% excluding grants to named beneficiaries); in terms of EU financial contribution requested, it is 14.51% (14.19% excluding grants to named beneficiaries); in terms of number of applications, it is 15.66%; and in terms of number of applicants, it is 24.04%.

18 061 eligible proposals have scored above the high-quality threshold. They include 62 980 applications from 18 762 unique applicants, with a cumulative financial envelope of EUR 31,4 billion. The Adjusted Success Rates are respectively 25.05% of eligible proposals, 25.4% in terms of financial contribution requested, 30.52% in terms of applications, and 46.31% in terms of unique applicants.

After the selection stage, the number of successful projects actually funded under Horizon 2020 rises to 4 809, indicating that 285 projects were retrieved from the reserve list, for a total EU financial contribution going to successful projects of EUR 8 467,83 million (table 1 above).

Definitions of Success Rate

This report applies the following definitions of Success Rates, in terms of:

Eligible proposals: it is equal to the number of retained proposals divided by the number of eligible proposals.

EU financial contribution: it is equal to the EU financial contribution going to retained proposals divided by the EU financial contribution requested by eligible proposals.

Applicants: it is equal to the number of unique applicants (legal entities) in retained proposals divided by the number of unique applicants in eligible proposals.

Applications: it is equal to the number of applications (act of involvement of a legal entity in a proposal) in retained proposals divided by the number of applications in eligible proposals.

Adjusted Success Rates: compared to the conventional Success Rate (calculated on the basis of eligible proposals), the Adjusted Success Rate is calculated using as the denominator the numbers related to High-Quality proposals scoring above threshold, instead of the total numbers related to eligible proposals.

For a definition of the above keywords, the reader is referred to the Glossary (Annex VI).

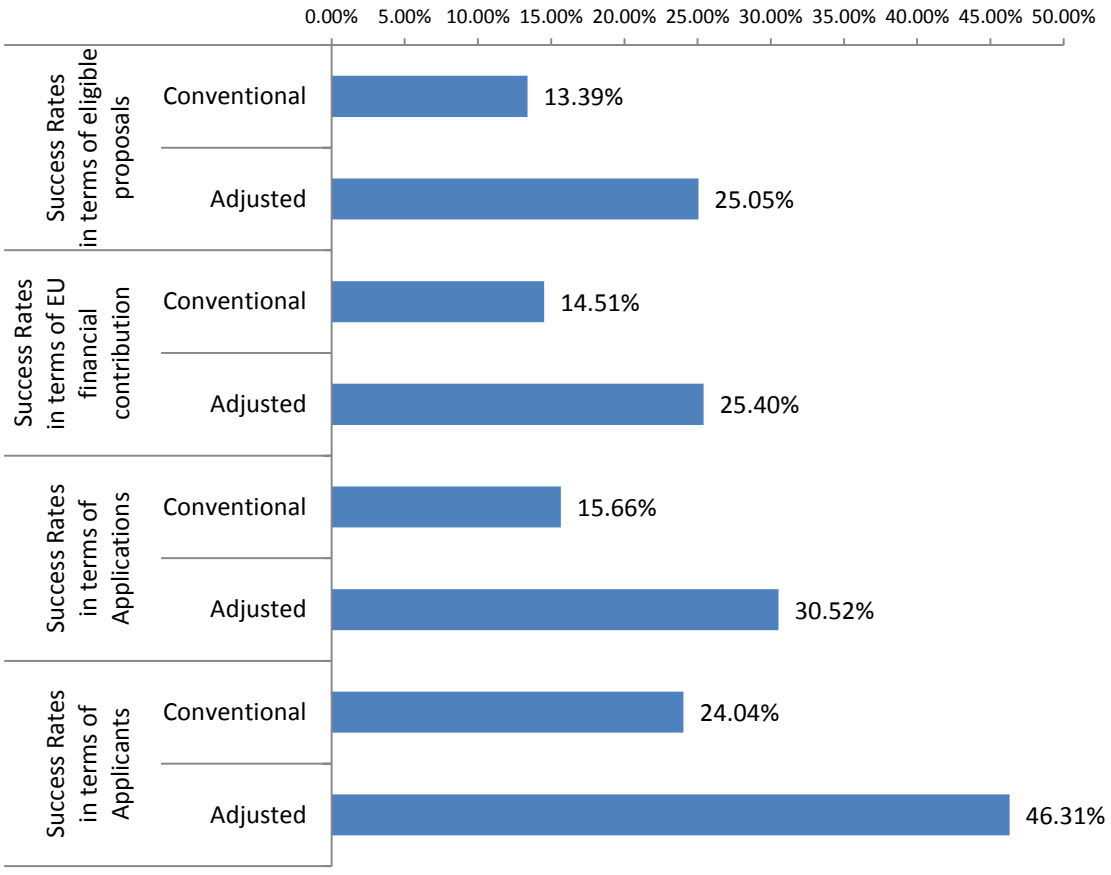
By the cut-off date of 1 December 2015, 4 704 grant agreements had been signed, including 19 595 participations from 8 504 unique participants (of which 3 569 are newcomers), with a

budget allocation to signed grants of EUR 8 363,45 million (table 2). This represents an implementation rate of 97.82% of the number of successful projects and 98.77% of the EU financial contribution to successful projects.

Table 2: Key figures

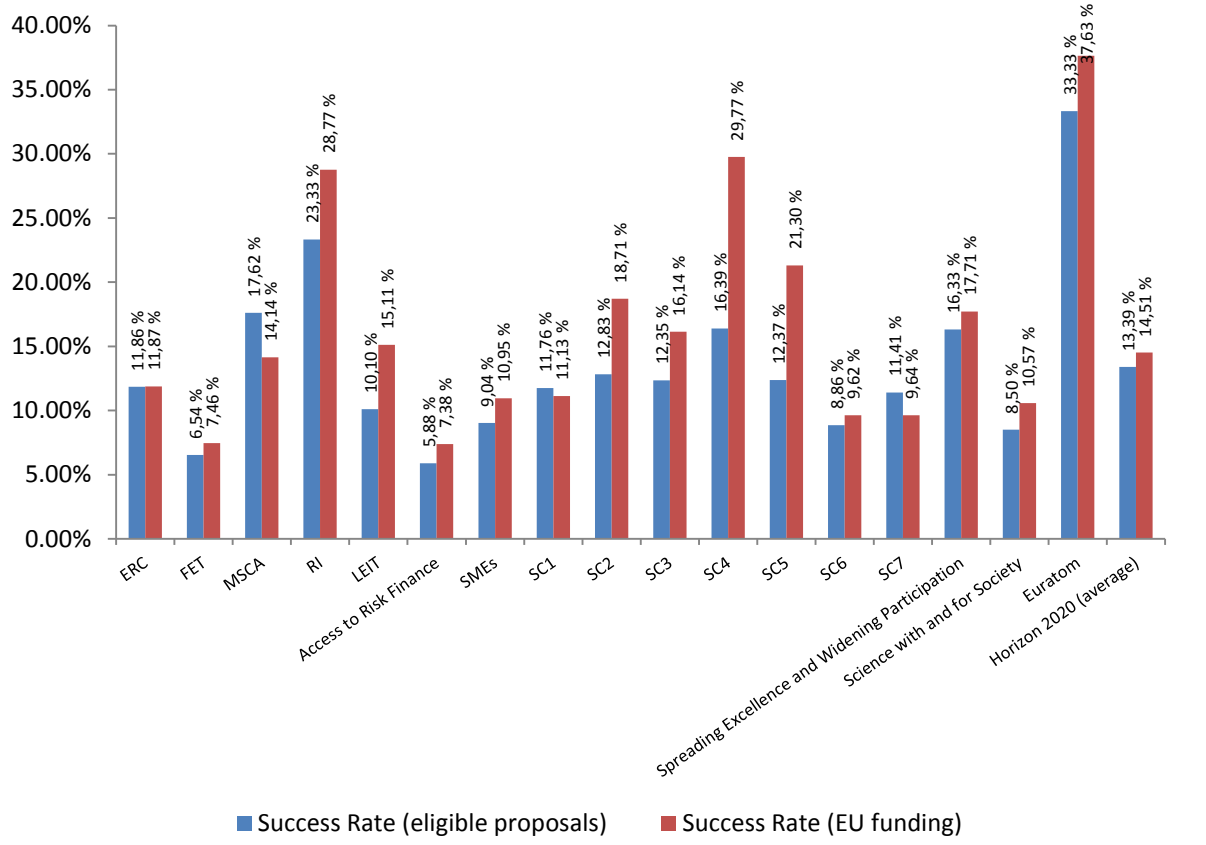
Eligible Proposals			
Number	**Applications**	**Applicants (newcomers)**	**EU financial contribution requested**
33 792	**122 713**	**36 139 (24 367)**	**EUR 54,92 billion**
High-Quality Proposals			
Number	**Applications**	**Applicants (newcomers)**	**EU financial contribution requested**
18 061	**62 980**	**18 762 (9 885)**	**EUR 31,40 billion**
Retained Proposals			
Number	**Applications**	**Applicants (newcomers)**	**EU financial contribution requested**
4 524	**19 220**	**8 688 (3 713)**	**EUR 7,98 billion**
Signed Grants (1 December 2015)			
Number	**Participations**	**Applicants (newcomers)**	**EU financial contribution allocated**
4 704	**19 595**	**8 504 (3 569)**	**EUR 8,36 billion**

Chart 1: Success Rates in Horizon 2020 for 2014 calls



The Horizon 2020 conventional Success Rates in terms of eligible proposals and in terms of EU financial contribution are significantly lower than the average conventional Success Rates under FP7 (respectively 19% in terms of eligible proposals, 19% in terms of EU financial contribution and 22% in terms of unique applicants[17]), while the success rate in terms of unique applicants is slightly higher. In practice, while in FP7, one out of five proposals was finally retained, in Horizon 2020, less than one out of seven proposals is retained.

Chart 2: Conventional Success Rates per specific programme's part



The above chart shows the conventional success rate per Specific Programme part. FET calls have the lowest success rate of the Programme (6.54% in terms of eligible proposals and 7.46% in terms of EU financial contribution) given that only 63 out of 933 eligible proposals were retained. These rates are affected significantly by the results of one call (H2020-FETOPEN-2014-2015-RIA), which received the highest number of proposals within FET calls (638) though only 24 proposals were retained: its success rates were only 3.76% in terms of eligible proposals and 3.90% in terms of EU financial contribution.

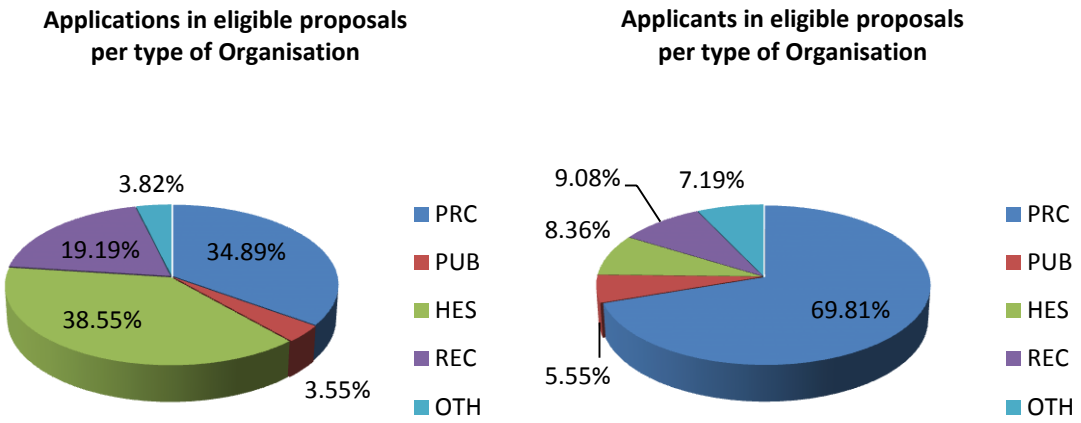
Euratom calls have the highest success rates of all programme parts, given the relatively low number of applicants in the specific focus area of nuclear research in nuclear fission, radiation protection and waste management. Research Infrastructures scores well with success rates of respectively 23.33% in terms of eligible proposals and 28.77% in terms of EU funding. MSCA actions, SEWP and Societal Challenge 4 (Transport) are above the EU average in terms of eligible proposals, which is 13.39%, while Societal Challenges 2 (Bioeconomy), 3 (Energy) and 5 (Climate Action) and LEIT are above the EU average in terms of EU funding, which is 14.51%.

[17] 7th FP7 Annual Monitoring Report 2013: data available in Table B1, p. 93. The Success Rate in terms of applications was not calculated under FP7.

2.3 Participation by Type of Organisation

In line with the practice already established for the monitoring of FP7, the following descriptions and convention codes will be used for distinguishing between different types of organisations: private for profit companies (PRC), public bodies (excluding research and education) (PUB), research organisations (excluding education) (REC), secondary and higher education establishments (HES), and other entities (OTH).[18]

Chart 3: Applications and Applicants in <u>eligible</u> proposals per type of organisation



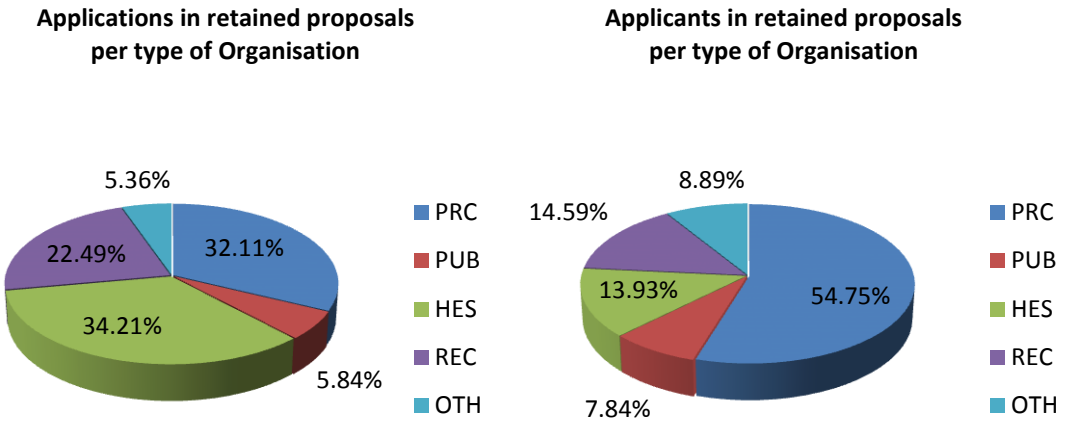
For the 101 call deadlines analysed, almost three quarters of all applications (122 713) were made by HES and PRC organisations (47 309 HES applications and 42 814 PRC applications), while REC organisations ranked third with 23 554 applications, PUB organisations made 4 352 applications and OTH organisations made 4 684 applications (see left part of chart 3).

Looking at unique applicants (right part of chart 3), almost three quarters of the 36 139 unique applicants are listed as private for profit organisations (PRC): this implies that 25 230 different private legal entities have applied for EU research funding (1.69 applications per unique PRC applicant on average). HES organisations, which have submitted a higher number of applications, include only 3 021 unique applicants: on average, every unique HES applicant has submitted 15.7 applications, indicating a high degree of concentration of applications in a few number of unique HES organisations. A similar trend can be observed for unique REC organisations (3 282 applicants) with an average of 7.18 applications per unique REC applicant, while PUB (2 006 applicants) and OTH (2 600) organisations have average applications per unique applicant of 2.17 and 1.80 respectively.

The number of applications from SMEs is 26 311. This represents 21.44% of the total number of applications and 61.45% of PRC applications. The number of unique SME applicants was 15 251, or 42.20% of the total number of unique applicants and 60.45% of the unique PRC applicants, indicating a strong interest of SMEs in applying for research funding.

[18] See also the Top-50 tables by organisation types ranked by EU financial contribution allocated in signed grants, Annex V to the SWD.

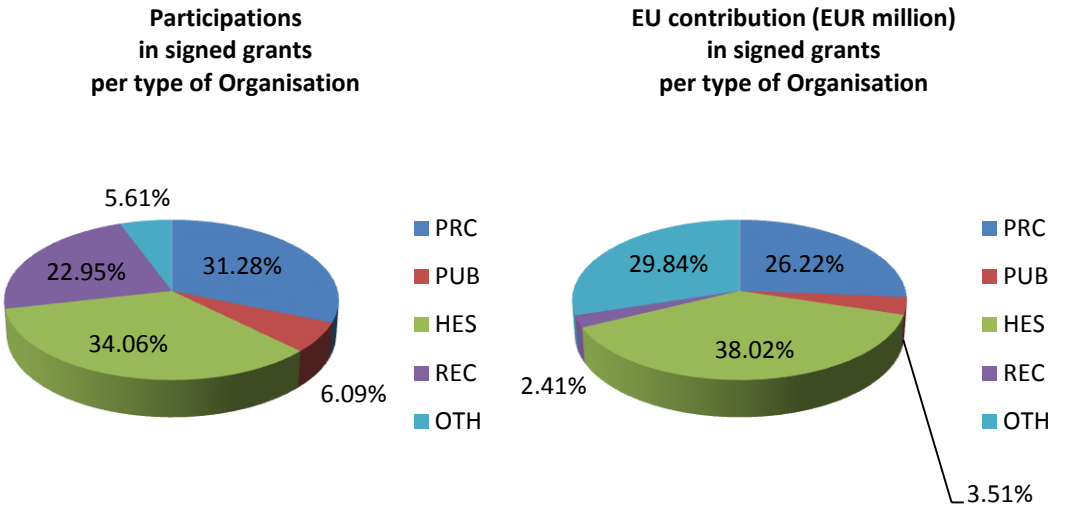
Chart 4: Applications and Applicants in retained proposals per type of organisation



In the 4 524 retained proposals, the number of successful applications is 19 220. HES organisations account for 34.21% (6 575) of the overall number of applications in retained proposals. The HES success rate in terms of applications is 13.90%. PRC organisations have made 32.11% (6 171) of the applications in retained proposals. Their success rate in terms of applications is 14.41%. With 4 322 applications in retained proposals (22.49%), REC organisations have a success rate of 18.35%. The highest success rate in terms of applications is for PUB organisations (1 122 applications in retained proposals or 5.84% of the total) with a success rate of 25.78%, followed by OTH entities (1 030 applications in retained proposals or 5.36% of the total) with a success rate in terms of applications of 21.99%. SME applications in retained proposals are 3 413 with a success rate in terms of applications of 12.97%.

The number of unique applicants in the 4 524 retained proposals is 8 688. 54.75% of all unique applicants are PRC entities (4 757), though with a relatively low success rate in terms of applicants (18.85%) compared to HES institutes, which had 1 210 applicants in retained proposals and a success rate of 40.05%; to REC organisations, which had 1 268 applicants in retained proposals and a success rate of 38.63%; to OTH entities, which had 772 applicants in retained proposals and a success rate of 29.69%; and to PUB entities, which had 681 applicants in retained proposals and a success rate of 33.95%. The SMEs applicants in retained proposals are 2 765 with a success rate in terms of applicants of 18.13%.

Chart 5: Participations in signed grants and EU contribution per type of organisation



By 1 December 2015, the 4 704 grant agreements signed involved 19 595 participations and an EU contribution of EUR 8 363,45 million. While PRC participations account for 31.28% of the total number of participations (6 130), the share of the EU contribution in signed grants allocated to PRC entities is 26.22% (EUR 2 193,02 million). HES entities account for 34.06% of participations (6 675) and 38.02% of the EU contribution (EUR 3 179,76 million). REC organisations have a lower percentage in terms of participation compared to PRC companies (22.95% or 4497 participations) but have an higher percentage in terms of EU contribution (29.84% or EUR 2 495,36 million). PUB and OTH entities have a similar share of participations (respectively 6.09% and 5.61% or 1 194 and 1 099 participations respectively), though PUB have received 3.51% of the EU contribution (EUR 293,88 million) while OTH have received 2.41% (EUR 201,42 million). The SMEs participations in signed grants are 3 711 with an EU contribution of EUR 1 169,20 million.

Table 3: Overview of participations per type of organisation

	PRC (SMEs)	PUB	HES	REC	OTH	Total
Applications (eligible)	42 814 (26 311)	4 352	47 309	23 554	4 684	122 713
Applicants (eligible)	25 230 (15 251)	2 006	3 021	3 282	2 600	36 139
Applications (retained)	6 171 (3 413)	1 122	6 575	4 322	1 030	19 220
Applicants (retained)	4 757 (2 765)	681	1 210	1 268	772	8 688
Participations (signed grants)	6 130 (3 711)	1 194	6 675	4 497	1 099	19 595
EU contribution (signed grants)	EUR 2,2 billion (EUR 1,17 billion)	EUR 0,3 billion	EUR 3,2 billion	EUR 2,5 billion	EUR 0,2 billion	EUR 8,4 billion

As shown in the technical annexes[19], from the Top 50 secondary and higher education institutes (HES) in terms of EU financial contribution received, 14 are based in the UK, 10 in the Netherlands and 6 in Germany, while 4 are based in non-EU countries (Israel and Switzerland). None of the Top 50 HES organisations is based in the EU-13 countries.

From the Top 50 (EU contribution) private for profit (PRC) organisations, 11 are based in France and Germany respectively, five in the Netherlands, and two in non-EU countries (Israel and Norway). No PRC organisations from EU-13 countries appear in the Top 50 list.

From the Top 50 research organisations (REC), nine are based in Germany, seven in France, six in Spain and two in non-EU countries (Switzerland and Norway). Only one REC organisation from an EU-13 country, namely from Slovenia, figures in the Top 50.

From the Top 50 public entities (PUB), eight are based in the UK, seven in Spain, five in Sweden and France respectively, and 4 in non-EU countries (Israel, Norway and Turkey). Two PUB entities from EU-13 countries, namely from Poland and the Czech Republic, figure in Top 50.

[19] See Annex V.

From the Top 50 other organisations (OTH), 14 are based in Belgium, and six in the Netherlands and France respectively. Cyprus, Estonia and Slovenia each have 1 OTH organisation in the Top 50.

From the Top 50 SMEs, 12 are based in the UK, seven in France, five in Germany and Spain respectively, and two in non-EU countries (Norway and Israel). The only EU-13 SME in the list is from Slovenia.

2.4 Participation of EU Member States

The general objective of Horizon 2020 is to build a society and globally leading economy based on knowledge and innovation across the whole Union, while contributing to sustainable development. It supports the Europe 2020 strategy and other Union policies as well as the achievement of the European Research Area (ERA).[20]

The performance indicators for assessing progress against this general objective are Research & Development (R&D) intensity; the Innovation output indicator (IOI); and the Share of full-time equivalent (FTE) researchers, measured as a percentage of the labour force.[21]

The analysis of the Horizon 2020 participation by country will first focus on the performance of EU Member States in relation to these indicators; then EU Member State participations will be examined overall and for each Specific Programme part, in order to identify specialisation trends.

a) Performance Indicators for Horizon 2020 general objectives in EU Member States

Chart 6 below shows how Member States have performed in terms of R&D intensity as a percentage of GDP, in terms of the Innovation Output Indicator compared to the 2010 reference base of 100, and in terms of the share of FTE researchers in the active population. These graphs are generated based on 2014 data, ranked from the highest to the lowest performing Member State, and compared to 2013 – the baseline before Horizon 2020 started.

[20] Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020, Article 5.

[21] Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020, Annex I.

Chart 6: Performance Indicators for Horizon 2020 general objectives (2014 data)

Source: DG Research and Innovation. Data: Eurostat.

Among the EU-15 Member States, Finland, Sweden and Denmark appear in all three graphs among the Top 6 best performing Member States, while Greece, Spain, Portugal and Italy are for the three indicators among the six weakest performing EU-15 Member States. All EU-13 Member States (except Slovenia and Cyprus) score below the EU-28 average in terms of R&D Intensity as well as in terms of Innovation Output and the percentage of researchers in the active population. Among the EU-13 Member States, Bulgaria, Latvia and Croatia figure

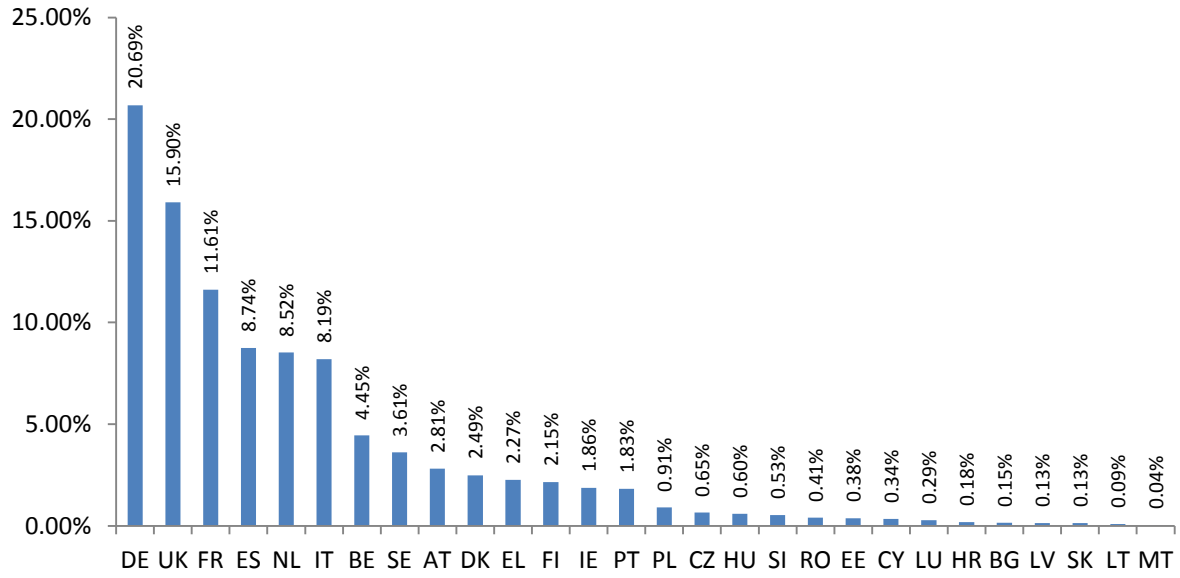
in all three graphs among the five weakest performing Member States, while the Czech Republic and Hungary are always among the Top 5 best performing EU-13 Member States.

As regards progress compared to the baseline (2013), the picture is mixed with the EU not progressing since 2013 in terms of R&D intensity, improving little in terms of researchers as a share of the active population, and progressing somewhat in terms of innovation output. As regards country groups, the top performers did not progress in 2013 in terms of R&D intensity while some EU-13 weak performers were catching up. As regards innovation output, both EU-15 high performers as well as several EU-13 weak performers were improving scores since 2013, whilst for the indicator on researchers as a share of the active population, limited progress is observed for both the strong and the weak performers.

b) EU Member States participations trends

Looking at the distribution of Horizon 2020 funding connected with grant agreements signed by participants in EU-28 Member States within the cut-off date of 1 December 2015, organisations based in Germany have received the largest amount of EU funds (20.69%), followed by those in the UK (15.90%) and France (11.61%). Together with Spain (8.74%), the Netherlands (8.52%) and Italy (8.19%), these Member States have received almost three quarters of the EU funding involved in 2014 calls. The cumulative EU contribution to EU-13 Member States is 4.57%.

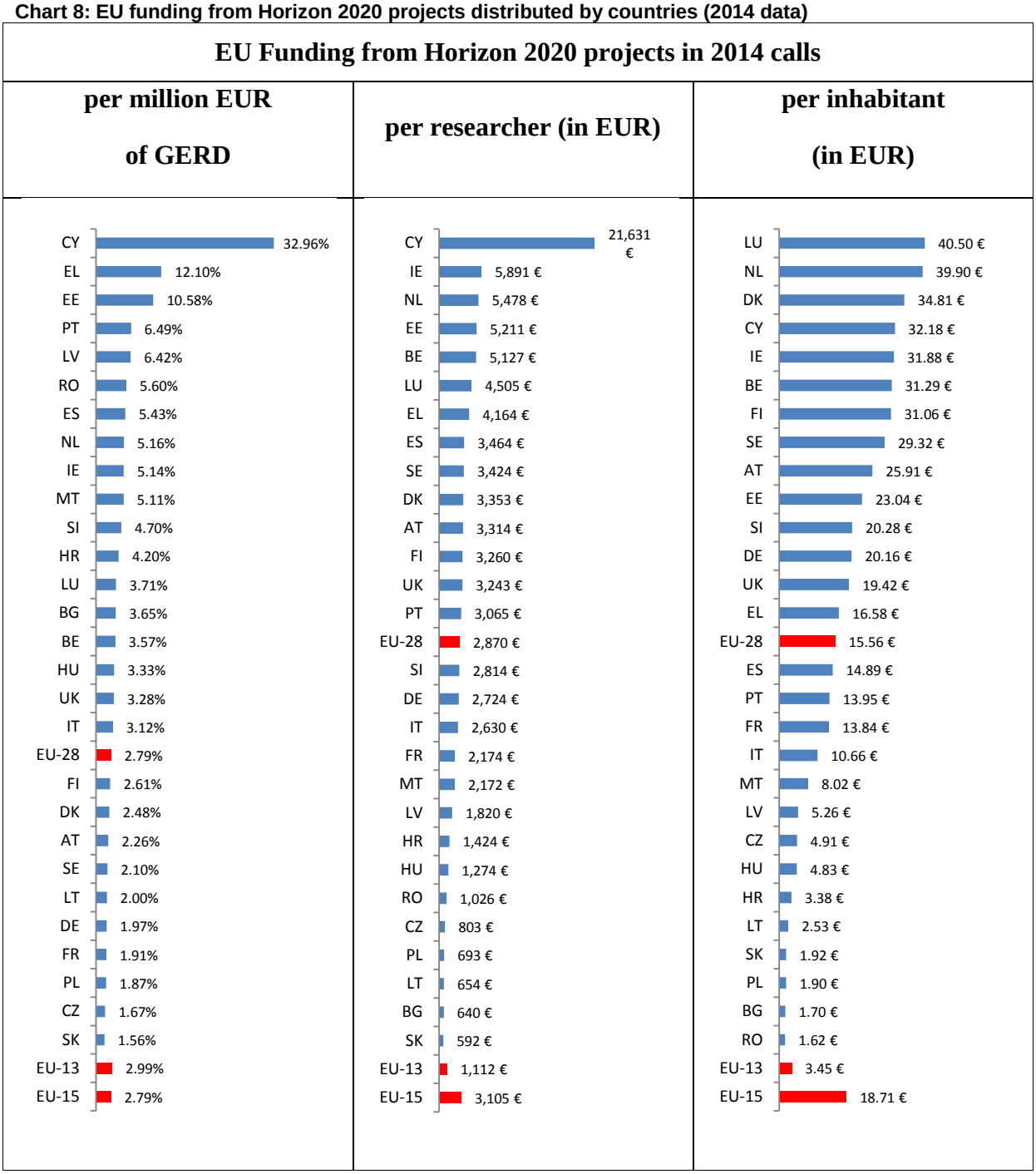
Chart 7: Share of EU contribution in signed grants deriving from 2014 calls per Member State



Source: DG Research and Innovation.

When calculated on the basis of the 2014 national Gross Domestic Expenditure on Research & Development (GERD) (chart 8 below), the 2014 contribution from Horizon 2020 projects represents less than 2% of Germany's GERD and 1.91% of France's GERD – both below the EU-28 average of 2.79%. On the other hand, the 0.04% of Horizon 2020 funds going to Malta represents more than 5% of Malta's GERD. For some countries, such as Estonia and Greece, the EU contribution is above 10% of GERD, while it is almost one third of Cyprus' GERD. Cyprus, Estonia and Slovenia have values close to or above the average in terms of EU funds per researcher and per inhabitant.

Chart 8: EU funding from Horizon 2020 projects distributed by countries (2014 data)



Source: DG Research and Innovation. Data: Eurostat.

c) Success Rates in EU Member States

With respect to success rates, EU Member State performance varies significantly across the three priorities. Thanks to successful applications in the MSCA and Research Infrastructures programmes, Malta, for example, has a relatively high success rate in Excellent Science, suggesting a certain degree of specialisation, while its success rate in LEIT and the Societal Challenges is relatively low. A similar trend can be observed for other EU-13 Member States such as Bulgaria, Hungary, Lithuania and Slovakia. Latvia has a relatively high success rate in Societal Challenges and a relatively low success rate in Excellent Science.

In EU-15 Member States, the trend is a success rate above 10% for each of the three priorities. For some countries, such as the Netherlands, the United Kingdom, Austria and Ireland the success rate is around or above 15% in all three priorities.

Chart 9: Success rate in terms of applications per Member State for the three Horizon 2020 pillars

Applications Success Rate	Excellent Science	Industrial Leadership (LEIT only)	Societal Challenges
Austria	15.0%	17.1%	17.5%
Belgium	13.7%	16.3%	21.1%
Bulgaria	17.4%	6.7%	8.8%
Croatia	11.0%	1.9%	14.1%
Cyprus	9.9%	8.4%	11.2%
Czech Republic	14.4%	12.3%	14.8%
Denmark	16.1%	10.6%	17.9%
Estonia	16.5%	12.8%	16.0%
Finland	10.7%	14.4%	14.1%
France	15.4%	18.7%	19.4%
Germany	15.7%	17.3%	18.4%
Greece	14.2%	12.2%	13.6%
Hungary	13.1%	7.9%	10.1%
Ireland	16.2%	15.9%	14.9%
Italy	10.1%	12.4%	13.0%
Latvia	8.3%	13.0%	22.1%
Lithuania	14.3%	10.7%	7.3%
Luxembourg	10.9%	16.3%	19.6%
Malta	24.1%	6.8%	9.7%
Netherlands	17.4%	16.8%	18.6%
Poland	13.9%	11.2%	11.7%
Portugal	11.9%	10.7%	15.6%
Romania	11.3%	7.1%	12.7%

Slovakia	17.4%	8.6%	11.4%
Slovenia	8.1%	11.3%	13.3%
Spain	13.7%	13.9%	14.7%
Sweden	12.5%	17.1%	18.4%
United Kingdom	16.3%	15.3%	17.4%
EU-28	**14.5%**	**14.5%**	**16.1%**

3. HORIZON 2020 OPERATIONAL IMPLEMENTATION IN 2014

This section assesses Horizon 2020 implementation aspects, focusing in particular on time-to-grant (TTG), simplification, quality assessment of proposal evaluation, redress and ethics. It also includes considerations regarding synergies with other funding schemes. It presents in particular figures on the state of implementation of the European Fund for Strategic Investments (EFSI) and it introduces the new "Seal of Excellence" policy initiative.

3.1 Time-to-grant

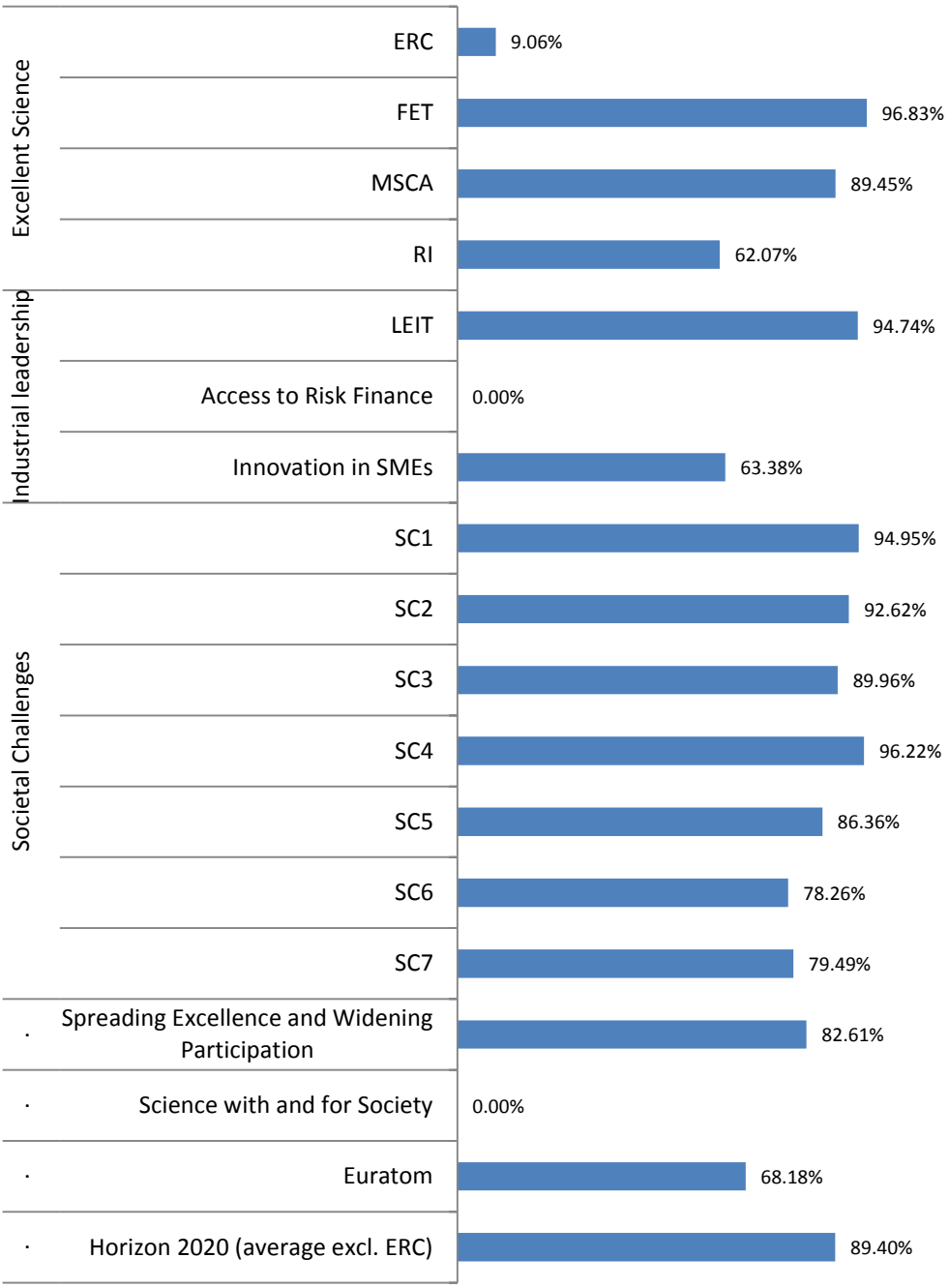
The first year of implementation of Horizon 2020 has shown a significant reduction compared to FP7 with respect to the time elapsing between the closure of a call and the signature of the Grant Agreement (time-to-grant – TTG). Under Horizon 2020, the Commission has committed itself to signing grant agreements within a period of eight months (245 days) for actions other than ERC actions.[22] By 1 December 2015, the percentage of projects (excluding ERC actions) signed within this eight month period was 89.40%, the average time-to-grant being 229.04 days. This constitutes a significant 26.82% improvement compared to the average time-to-grant for the whole of FP7 (313 days).[23]

The TTG reduction can be observed across the whole Programme. The number of grant agreements signed within eight months is above the Horizon 2020 average for calls in the majority of Societal Challenges, in LEIT, in FET and MSCA. The highest percentage was in LEIT-NMBP (99.5%) where only 1 project was signed beyond 245 days (255 days in the call H2020-SMEINST-2-2014). The exceptions to this positive trend are found in calls under Science with and for Society (23 projects with a TTG average of 279 days) and in the calls under Access to Risk Finance (2 projects with a TTG of 248 days) in which no project was signed within the TTG benchmark. 63.38% of the projects under the SME instrument were signed on time.

[22] The ERC has a different, specific, "two-step" evaluation procedure, including the interviews with applicants in Step2 (Starting grants and Consolidator grants). The ERC actions may therefore exceed the Time-to-Grant benchmark, as established in the Regulation (EU) No 1290/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006, Article 20.

[23] 7th FP7 Annual Monitoring Report 2013, p. 43.

Chart 10: % of projects signed within Time-to-Grant benchmark



3.2 Simplification

2014 was the first year of implementation of Horizon 2020. Compared to FP7, the design of Horizon 2020 brought a number of important simplifications:

- A radically simplified funding model, with a single reimbursement rate per project and a single flat rate for covering indirect costs;
- Under the MSCA, the use of simplified forms of grants (unit costs) was radically extended, the funding schemes were streamlined from 11 to 4 and the rules and framework conditions for mobility were unified.
- Streamlined ex-ante checks, including fewer ex-ante financial capacity checks (only on private coordinators) and fewer certificates on financial statements (only one at the project end);

- Reduced requirements for work time recording: no need to complete time sheets for staff working 100% on the project; simplified time recording for other staff;
- Reduced audit burden: the period in which audits can be initiated was shortened from five to two years after the end of the project; a single audit service covering all implementing services was established and the audit strategy is focused on risks and fraud detection;
- An acceleration of the granting processes: the time from call deadline to signature of grant agreement is reduced to 8 months (for the last grant to be signed in a call – compared to the average time to grant of nearly twelve months in FP7);
- Fully paperless proposal and grant management, with the Participant Portal as the single online entry point for all exchanges with applicants and beneficiaries.

In September 2015, the Commission launched an online survey on the perception of the simplification measures by stakeholders, addressed to all contacts in ongoing Horizon 2020 grants. The overall feedback was very positive. There is broad agreement that the simplification measures introduced in Horizon 2020 are useful, the e-signature and the Participant Portal being the front runners (about 90% consider these to be "very beneficial" or "fairly beneficial"). Also for the single reimbursement rate and the single flat rate for indirect costs, the agreement is overwhelming (71% consider the single flat rate to be very beneficial or fairly beneficial, 19% are neutral and only 9% consider it to be not very or not at all beneficial). Broad agreement was also expressed on the 8 months TTG benchmark (85% in favour) and the no-negotiation approach (69% in favour). Less than 20% of the respondents indicate that other funding programmes are simpler than Horizon 2020. When it comes to suggestions for further simplification, only a minority pleads for changing the rules on reimbursement in general or the indirect cost flat rate.

3.3 Synergies with other funding schemes

a. European Fund for Strategic Investments (EFSI)

The European Fund for Strategic Investments (EFSI) aims to overcome the current investment gap in the EU by mobilising private funding for both strategic investments in infrastructure and innovation and also risk finance for small businesses. The Commission expects EFSI to mobilise at least EUR 315 billion in additional investments in Europe over the next three years (i.e. from 2015 up to 2018).

To achieve those results, the Union is providing EUR 21 billion in initial funding, made up of a EUR 16 billion guarantee under the EU budget and EUR 5 billion from the European Investment Bank's (EIB) own resources. EFSI is composed of 2 main windows: an Infrastructure/Innovation window (implemented by the EIB) and a Small and Medium-sized Enterprises (SME) window (implemented by the European Investment Fund).

As research, development and innovation is one of the priority sectors targeted by EFSI, and as the EU Research and Innovation policy has contributed to the financing of the EU guarantee through a redeployment of Horizon 2020 budget (i.e. EUR 2,2 billion), it is important to take stock of EFSI results after one year of implementation regarding research, development and innovation.

As of January 2016[24], 42 projects have been approved by the EIB Board of Directors for financing under the infrastructure and innovation window. Some of these EIB-approved projects are still under assessment by the Commission to grant the EU guarantee coverage under the transitional rules of Regulation (EU) 2015/1017. These projects represent a total investment value of around EUR 25 billion, with EIB funding under the EFSI amounting to EUR 5,7 billion. These projects are situated in Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Poland, Slovakia, Spain, Sweden and the UK. 5% of lending capacity is fully dedicated to 5 RDI-related projects, while at least 16 operations have been identified as having an RDI dimension[25]. One project is co-financed by both EFSI and Horizon 2020 InnovFin Large Projects.

As regards the SME window, as of January 2016, 84 operations have been signed by the European Investment Fund for a total investment value of EUR 25 billion, benefiting SMEs and midcaps in Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain and the UK. More specifically, three products have been implemented until now:

- An increase of the Risk Capital Resources (RCR) mandate of the EIB to the EIF (i.e. an increase of 2.5 billion): This mandate has as purpose to support technology and industrial innovation and targets early to lower mid-market funds that specifically focus on SMEs and midcaps. It is therefore benefitting to target R&I constituencies/stakeholders (innovative SMEs and midcaps);
- A frontloading on 2 existing EU guarantee schemes, due to the unexpectedly high level of market demand on those 2 schemes:
    - COSME Loan Guarantee Facility (i.e. a frontloading of EUR 500 million). Innovative SMEs requesting loans of a volume of up to EUR 150 000 can benefit from this scheme.
    - Horizon 2020 InnovFin SME Guarantee (i.e. a frontloading of EUR 750 million). It implies full direct support benefitting Horizon 2020 programme and R&I constituencies/stakeholders (innovative SMEs and small midcaps).

Under the SME Window, as of December 2015, thanks to EFSI, at least EUR 18,39 billion (i.e. EUR 14,5 from RCR mandate and 3,89 from InnovFin SME Guarantee) of estimated mobilized investments are already relating to R&I constituencies.

b. The Seal of Excellence

The "Seal of Excellence" certificate introduced in October 2015 is awarded to the applicants of excellent proposals that could not be funded under the available call budget. The seal identifies promising project proposals that merit funding from alternative sources (private or public regional, national, European, international). A holder of the certificate can approach these alternative funding sources and present the certificate as a label of a high-quality project proposal. The "Seal of Excellence" offers a unique opportunity for regions and Member

[24] For more information, please refer to the general, country- and sector-specific factsheets made available by the Commission on 15 January 2016 (available at http://ec.europa.eu/priorities/jobs-growth-investment/plan/index_en.htm). For more detailed information on EIB-approved projects, such as location, investment and funding amounts, reference is made to the following website of the EIB: http://www.eib.org/efsi/project-list/index.htm#projects.

[25] For an overview of the actions of EFSI in the area of research, development and innovation, please refer to the sector-specifc factsheet (available at http://ec.europa.eu/priorities/sites/beta-political/files/sector-factsheet-rdi_en.pdf).

States (and any other interested actor) to fully exploit the high-quality Horizon 2020 evaluation process: it makes it possible to easily identify and possibly support high-impact proposals coming from promising innovative companies, with an ambition to grow and compete internationally.

In the current initial pilot phase, the action concerns only proposals applying for the SME instrument and in particular all those SME instrument proposals evaluated above the quality threshold but not receiving Horizon 2020 funding. Later on, it could be extended to cover more areas of Horizon 2020. The Horizon 2020 "SME instrument" has been selected for the introduction of the "Seal of Excellence" because of its relevance to regional and national funders, as the project proposals are mostly led by a single SME and address small-scale R&I actions close to the market with a clear territorial impact. Regions/Member States interested in funding these types of proposals could use European Structural and Investment Funds (ESIF) resources (in line with ESIF priorities and in compliance with national and relevant EU rules) or their own national/regional resources to grant funding without carrying out an additional qualitative evaluation.

Since its introduction in October 2015, the number of certificates awarded under the Seal of Excellence more than doubled between December 2015 (554 certificates awarded) and January 2016 (1 282 certificates awarded). The Members of the Community of Practice, exploring the best possible ways to implement funding schemes in support of high-quality projects with the "Seal of Excellence" through ESIF or other sources, increased from 52 Members in October 2015 to 104 in January 2016.

3.4 Quality Assessment of Proposal Evaluation

In order to receive independent experts' opinion on the quality of the proposal evaluation process and the procedures applied, an anonymous on-line survey of all experts who participated in the evaluation of proposals was carried out.[26] Similar surveys were conducted in FP7. The data collected in the first year of Horizon 2020 confirms that the quality of the evaluation process continues to be rated highly overall. Key figures are presented in Table 2 below. Evaluators were very satisfied with the way in which evaluations were conducted with respect to impartiality, confidentiality and fairness. In particular the level of efficiency of the evaluation task has been rated as 'excellent', 'good' or 'satisfactory' by 96.59% of respondents.

Table 2: Results of the Evaluators' Survey

Evaluators' Survey[27]	2014
Experts invited to participate	8543
Responses received	3278
Respondents finding the quality of the evaluation overall *satisfactory* to *excellent*	96.59%
Respondents rating the quality of the evaluation overall *excellent*	30.02%

[26] The survey is not applicable to ERC experts and therefore the figures in the tables below do not include ERC.

[27] The phrasing of the questions in the Horizon 2020 experts' survey vary from that in FP7, therefore, a comparison with FP7 will not be made.

Respondents, having previously evaluated research proposals for national or international research funding schemes, and rating the EU evaluation process as *good* or *excellent*	79.16%

3.5 Redress

The Horizon 2020 Rules for Participation (Article 16) stipulate that the Commission shall provide an evaluation review procedure for applicants. In line with these requirements, a procedure has been set up that aims to be both efficient and consistent with the principles of transparency and equal treatment that underpin all Commission evaluations. The Commission or funding body is responsible for examining a request for review but the examination will only cover the procedural aspects of the evaluation and not the technical content of the proposal. The evaluation review committee is composed of Commission staff or staff of the relevant funding body who meet in various configurations according to the different calls for proposals. The configurations work independently, and deliver their advice to the responsible authorising officers.

Table 3 below shows the results of the redress procedure for Horizon 2020 calls closed in 2014:

Table 3: Results of the review procedure for Horizon 2020 calls closed in 2014

Redress procedure[28]	2014
Redress request received	730
Redress cases upheld but not leading to re-evaluation	61
Redress cases leading to re-evaluation	21
Redress cases leading to re-evaluation (% of submitted proposals (34 485))	0.061%

3.6 Ethics

Ethics is of high priority in Horizon 2020[29]: all activities carried out under Horizon 2020 must comply with ethical principles and relevant national, EU and international legislation such as the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights. The most common ethical issues include the involvement in research and innovation projects of children, patients and/or vulnerable populations; privacy and data protection issues; research on animals; and dual use/misuse. The avoidance of any breach of research integrity is also of the highest priority. This means in particular avoiding data fabrication and falsification, plagiarism or other research misconduct.

[28] The figures presented in Table 3 include figures for redress cases related to ERC. This was not the case in previous monitoring reports.

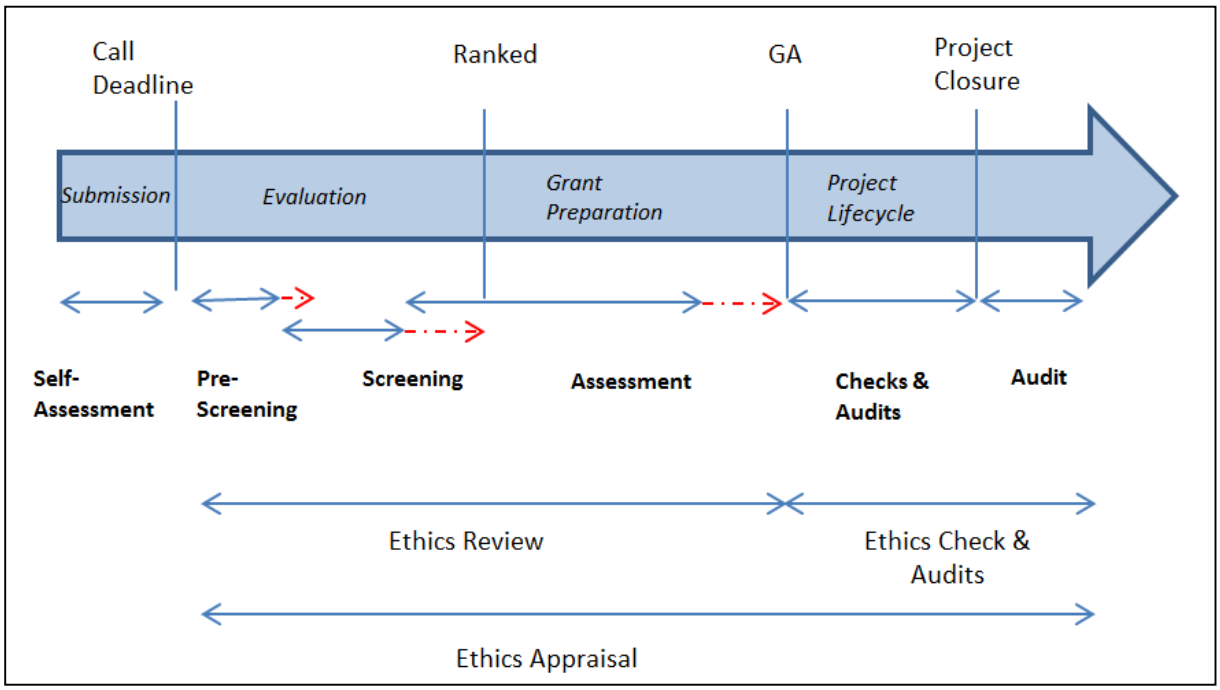
[29] See Horizon 2020 Rules for Participation: Ethics Reviews, Article 14; Horizon 2020 - Regulation of Establishment: Ethical principles, Article 19; and the Model Grant Agreement: Ethics, Article 34.

All activities funded in Horizon 2020 are assessed through the Ethics Appraisal Procedure, illustrated in Figure 1 below. When preparing a proposal, it is required to conduct an Ethics Self-assessment starting with the completion of an Ethics Issues Table. When the proposers identify (potential) ethics issues, they also have to describe how they propose to address them and provide, whenever available, the supporting documents. All proposals above threshold and considered for funding undergo an Ethics Review carried out by independent ethics experts working in a panel. The Review starts with an Ethics Screening and if appropriate, for complex and/or serious cases, a further analysis called the Ethics Assessment is conducted.

After the Grant signature, following the recommendations of the ethics review experts or at the initiative of the Commission services, Ethics Checks will be undertaken for some of the proposals. This has as a main objective to ensure a proper implementation of the above mentioned ethics requirements. In case of substantial breach of ethical principles, research integrity or relevant legislation, the Commission can also carry out an Ethics Audit following the provisions and procedures laid down in the grant agreement (Article 22).

In 2014, 27 proposals went through an Ethics Assessment. No project was stopped at this stage, as they have been all 'cleared' or conditionally 'cleared' (meaning that some ethical requirements have been added in the Grant Agreement). Out of these 27 assessed proposals, 20 were flagged for Ethics Check (follow-up), which will be carried out during the life-time of the project unless the implementation of the concerned actions does not anymore justify it.

Figure 1: The Ethics Assessment Process



The SATORI project, launched in 2014, aims to develop a common European framework for the ethical assessment of research and innovation. SATORI is a platform for the consolidation and advancement of ethical assessment in research and innovation. The 4-year project aims to develop a common framework of ethical principles and practical approaches so as to strengthen shared understandings among actors involved in the design and implementation of research ethics.

In 2014, the Ethics and Research Integrity Sector of DG RTD organised a number of specialised workshops and focused training activities in order to facilitate the uptake of the ethics review procedures by all research-related Commission and Executive Agency staff.

4. IMPLEMENTATION OF PRIORITIES AND SPECIFIC OBJECTIVES

4.1 Excellent Science

4.1.1 The European Research Council

This Programme Part was implemented by the European Research Council Executive Agency (ERCEA), a dedicated implementation structure[30] that handles the operational management of the specific objective "Strengthening Europe's science base in frontier research" of Horizon 2020. The ERCEA executes the scientific strategy established by the ERC Scientific Council and supports the latter in fulfilling its tasks through the management of ERC funding instruments and by enabling the financing of investigator-driven research of the highest quality.

Compared to the average for Horizon 2020 (89.40% excluding ERC projects), the ERC-specific time-to-grant indicator is very low (9.06%), indicating that a significant number of projects have been signed beyond the TTG benchmark. However, as mentioned before, the ERC is not bound by the respect of the TTG benchmark.[31]

The ERC-specific success rates are 11.86% in terms of eligible proposals and 11.87% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are low in particular for the Advanced Grant and Starting Grant calls (including more than half of the proposals received under ERC calls).

The Key Performance Indicator that is particularly relevant for ERC actions is "Share of publications from ERC funded projects which are among the top 1% highly cited". This KPI is expected to produce results under Horizon 2020 only as of 2018, given the considerable time lag between the start of the project and its resulting output in terms of scientific publications and their respective citations. An indicative value for this indicator based on FP7 ERC publications is however very encouraging, as it shows that 7% of ERC publications are among the top 1% highly cited worldwide.

4.1.2 Future and Emerging Technologies (FET)

This Programme Part was implemented by the Directorate-General for Communication Networks, Content and Technology (DG CONNECT) for the calls FETHPC, FETPROACT and FETFLAG, as well as by the Research Executive Agency (REA) for the calls FETOPEN-RIA and FETOPEN-CSA.

The FET-specific time-to-grant indicator is 96.83%, above the Horizon 2020 average (89.40% excluding ERC projects), indicating that almost all projects have been signed within the TTG benchmark. The exception to this is the FETFLAG projects, which, due to their large size and highly complex nature, can hardly fulfil the TTG requirements and 2 FET Proactive project proposals from a reserve list which have been included in the Grant Agreement signature process at a later stage, implying a delay.

The FET-specific success rates are 6.54% in terms of eligible proposals and 7.46% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are low in particular for the FETOPEN-RIA call, because of a high oversubscription, which can be explained by (1) the success of the FETOPEN programme with researchers, (2) the openness of the programme to all disciplines, (3) the low entry ticket to apply (1 stage call; 15 page proposals; resubmission allowed).

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[30] Commission Decision 2013/779/EU establishing the European Research Council and the European Research Council Executive Agency. The latter succeeds the Executive Agency established by Decision 2008/37/EU.

[31] Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006, Article 20.

The Key Performance Indicators that are particularly relevant for FET are "FET Publications in peer-reviewed high impact journals" and "Patent applications and patents awarded in FET". Both are output indicators and results are only expected as from 2018 given that the projects only started in 2015.

4.1.3 Marie Skłodowska-Curie Actions

This Programme Part was implemented by the Research Executive Agency (REA)) and, to a much lesser extent, by DG Education and Culture (EAC). The initial REA mandate was extended until 2024, covering the whole grant management lifecycle of Horizon 2020 projects and the management of the MSCA predecessor actions in FP7. REA was also tasked to assist the Commission in collecting information about the results of projects and in communicating funding opportunities and success stories.

The MSCA-specific time-to-grant indicator is 89.45%, hence slightly above Horizon 2020 average (89.40% excluding ERC projects), while the MSCA-specific success rates are 17.62% in terms of eligible proposals and 14.14% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are brought down in particular due to the very low success rate for the call H2020-MSCA-ITN-2014, which accounts for nearly half of the MSCA budget and had in 2014 a success rate of 10%.

This low success rate is due to the fact that ITN, the main EU instrument supporting structured doctoral training thereby maximising the employability of PhD candidates through high-quality research, interdisciplinary approaches, exposure to industry and international mobility, is a recognised best practice in Europe and enjoys a continuous high demand.

The Key Performance Indicator for the MSCA actions refers to cross-sector and cross-country circulation of researchers. The indicator shows progress towards the targets for Horizon 2020: it is estimated that with the 2014 funding, nearly 9 000 fellowships have been offered under MSCA in support of cross-country and cross-sector mobility.

4.1.4 European Research Infrastructures (RI)

This Programme Part was implemented by Directorate-General for Research and Innovation (DG RTD) for the calls INFRADEV, INFRAIA and part of INFRASUPP, and by DG CONNECT for the calls EINFRA and the remaining part of INFRASUPP.

The time-to-grant indicator for Research Infrastructures is 62.07%, hence below the average of Horizon 2020 calls (89.40% excluding ERC projects), indicating that a number of projects have not been signed within the TTG benchmark. While EINFRA and INFRASUPP calls have a TTG of nearly 100%, the average TTG for Research Infrastructures is affected by some projects including access provision activities or involving international beneficiaries under INFRAIA and INFRADEV calls that had formally required more time to finalise the Grant Agreement Preparation (GAP), in order to correct financial inconsistencies frequently appearing in the proposals for the access component or to have the international partners validated. If these formal extensions are taken into account, the TTG rises to 81.67%.

The success rates for Research Infrastructures are 23.33% in terms of eligible proposals and 28.77% in terms of EU funding requested (EU averages: 13.39% and 14.51% respectively).

The Key Performance Indicator which is particularly relevant for Research Infrastructures actions is the number of researchers who have access to research infrastructures through Union support. Data for this indicator will be collected with the periodic reports, i.e. every 12 or 18 months after the beginning of the project. This indicator is expected to produce results in 2016.

4.2 Industrial Leadership

4.2.1 Leadership in Enabling and Industrial Technologies (LEIT)

This Programme Part was implemented jointly by DG RTD for the NMBP parts, by DG CONNECT for the LEIT-ICT part, and by DG GROW for the LEIT-Space part. The implementation of the LEIT-Space calls has been delegated to two agencies (the Research Executive Agency (REA) for the calls EO, COMPET, PROTEC; and the European GNSS Agency (GSA) for the call Galileo), while the NMBP and the ICT parts of LEIT are managed by DG RTD and DG CONNECT respectively.

The LEIT-specific time-to-grant indicator is 94.74% (EU average: 89.40% excluding ERC projects), indicating that only a few projects have been signed beyond the TTG benchmark (in particular all projects belonging to the ECSEL Joint Undertaking). The LEIT-specific success rates are 10.10% in terms of eligible proposals and 15.11% in terms of EU funding (EU averages: 13,39% and 14,51% respectively). The success rates are particularly low for the calls H2020-EO-2014 and H2020-NMP-GV-2014.

The Key Performance Indicators (KPIs) that are relevant for LEIT actions aim to measure the innovative performance and the output in terms of:

- Number of patent applications and the number of patents awarded in enabling and industrial technologies per EUR 10 million funding by theme;
- Share of private companies introducing innovations in the total number of project participants validated as private companies;
- Number and share of joint public-private publications out of all LEIT publications.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.2.2 Access to Risk Finance (ARF)

The EU delegates to EIB and EIF, as entrusted entities, the implementation and management of its financial contribution to financial instruments. This notably includes activities of product development, selection of financial intermediaries (for indirect products, based on call for expression of interest) or final recipients (for direct products), marketing, monitoring and reporting activities.

The contribution of Horizon 2020 to ensure Access to Risk Finance is measured through the following Key Performance Indicators:

- Total investments mobilised via Venture Capitals Investments: this instrument has been implemented as from 2015 after amendment to the Delegation Agreement between the Commission, the EIB and the EIF. The value for this indicator is therefore not available in this Annual Monitoring Report.
- Risk Finance: Total investments mobilised via debt financing: the EU contribution of EUR 713 million to the EIB and the EIF contribution helped mobilising EUR 13 015 million via debt financing.
- Risk Finance: Number of organisations funded and amount of private funds leveraged: 358 organisations funded and EUR 5 303 million of private funds leveraged.[32]

[32] EIB/EIF operational reports of 30/06/2015.

4.2.3 Innovation in SMEs (SME)

The SME Instrument was implemented by the Executive Agency for Small and Medium-sized Enterprises (EASME), which is running the process of proposal evaluation and preparation and monitoring of grant agreements. EASME is also implementing coaching activities for the SME Instrument beneficiaries. In line with the EU regulation establishing Horizon 2020, over 5% of the total combined budgets for the specific objective LEIT and the priority 'Societal challenges' was allocated to the dedicated SME instrument in 2014-2015.

According to the Work Programme 2014-15,[33] the SME-instrument-specific time-to-grant (TTG) benchmark is 3 months for Phase 1 projects and 6 months for Phase 2 projects. For the successful projects for cut-offs with 2014 deadlines, 2.03% of grants in Phase 1 and 37.31% of grants for Phase 2 were signed on time, i.e. within the above TTG benchmarks. In 2015, EASME put in place some improvements in order to comply better with the specific SME-instrument targets for TTG. It should be noted that in that year, 63.38% of grants within Phase 1 and Phase 2 have been signed within 8 months.

The success rates for the SME-instrument are 9.04% in terms of eligible proposals and 10.95% in terms of EU funding requested (Horizon 2020 average: 13.39% and 14.51% respectively), varying from the lowest in LEIT-ICT (5.67%) to the highest in LEIT-Space (above 50%).

In addition, the budget of the specific objective 'Innovation in SMEs' supported:

a) Eurostars-2, a Joint Programme Initiative (under Article 185), via an EU contribution of EUR 23,7 million, the equivalent of 33% of the participating states' contribution, as foreseen in the Eurostars-2 Annual Work Plan 2014. The remaining EU commitments to Eurostars-2 were carried over to 2015. The Signature of the Delegation Agreement between the Eureka Secretariat (ESE) and the European Commission for the implementation of the Eurostars-2 joint-Programme took place on 18 December 2014.
b) The call *'Enhancing SME innovation capacity by providing better innovation support'* (EUR 9,18 million) and other actions (EUR 24,42 million), in particular new services by the Enterprise Europe Network to enhance innovation management capacities of SMEs.

Particularly relevant for SME actions is the fact that in 2014, 5.55% of the combined budget of the 'Societal Challenges' and the specific objective 'Leadership in Enabling and Industrial Technologies (LEIT)' was committed through the SME instrument call, which is higher than the initial target outlined in the EU Regulation establishing Horizon 2020. In addition, 23% of the total budgets of the 'Societal Challenges' and the specific objective 'Leadership in Enabling and Industrial Technologies' was allocated to SMEs, which is above the 20% target set in the Regulation.

Regarding the contribution of Horizon 2020 to Innovation in SMEs, this is measured through the following Key Performance Indicators (KPIs):

- Share of participating SMEs introducing innovations new to the company or the market;
- Growth and job creation in participating SMEs.

Both KPIs are reported by Horizon 2020 beneficiaries after the end of a project as from 2016, though data is expected to vary significantly in the early stage of the programme. Relevant

[33] Commission Implementing Decision C(2013) 8631 final of 10 December 2013 adopting the 2014-2015 work programme in the framework of the Specific Programme Implementing Horizon 2020 – The Framework Programme for Research and Innovation (2014-2020), C(2014) 1509 final.

data are expected for 2017. Their current value is therefore not available in this Annual Monitoring Report.

4.3 Societal Challenges

4.3.1 Health, Demographic Change and Well-Being

Societal Challenge 1 (SC1)

This Programme Part was implemented by DG RTD and DG CONNECT. The SME actions were implemented by the Executive Agency for SMEs (EASME).

The Health Societal Challenge time-to-grant indicator is 94.95% (Horizon 2020 average: 93.53%, excluding ERC projects), with similar figures for projects financed through the SME instrument (95.83%).

The success rates for the Health Societal Challenge are 11.76% in terms of eligible proposals and 11.13% in terms of EU funding requested (Horizon 2020 average: 13.39% and 14.51% respectively). The success rates of the SME instrument are higher than the average of the Health Societal Challenge (13.31% and 12.16%). The success rates are particularly low for the calls H2020-PHC-2014 (Personalising Health Care).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.3.2 Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research, and the Bioeconomy

Societal Challenge 2 (SC2)

This Programme Part was implemented by DG RTD in the case of certain projects with policy relevance (e.g. dissemination and exploitation projects) and the following Executive Agencies:

- REA
- INEA (for the Blue Growth call – Energy and Transport)
- EASME (for activities related to the SME instrument and for the Blue Growth call – Environment)
- BBI JU (for the BBI-related projects).

The specific time-to-grant indicator for Societal Challenge 2 is 92.62% (Horizon 2020 average: 89.40% excluding ERC projects), with higher figures for projects financed through the SME instrument (98.04%).

The success rates for Societal Challenge 2 are 12.83% in terms of eligible proposals and 18.71% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are significantly lower than the average of the Societal Challenge 2 (8.62% and 8.79%): in fact, the success rates of Societal Challenge 2 excluding the SME instrument are 19.83% and 19.91%.

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications
- New products, processes, and methods launched into the market.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.3.3 Secure, Clean and Efficient Energy

Societal Challenge 3 (SC3)

This Programme Part was implemented by the Commission services when particularly relevant for policy-making (e.g. ERA-NET Cofund actions, support to Stakeholder Platforms) and the Executive Agencies in other cases:

- EASME (for activities in the area of energy efficiency as well as regards the SME instrument);
- INEA (for activities in the LCE and SCC call not carried out by the Commission services).

Within this Societal Challenge, DG CONNECT has been closely involved in some topics and projects for which the centre of gravity of the activities is ICT[34].

The time-to-grant indicator for the Energy Societal Challenge is 89.96% (Horizon 2020 average: 89.40% excluding ERC projects), with high figures for projects financed through the SME instrument (100%).

The success rates for the Energy Societal Challenge are 12.35% in terms of eligible proposals and 16.14% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Energy Societal Challenge (10.00% and 12.86%).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;
- Share of the overall Energy challenge funds allocated to non-fossil-fuel-related activities and market-uptake of sustainable energy solutions.

The first 4 KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

[34] Involvement through sub-delegation.

For the 5th KPI, only around 6% of the budget in the Energy Societal Challenge has been dedicated directly to fossil-fuel-related activities in 2014, thus well below the maximum of 15%[35]. As regards market uptake activities, 15.2% of the budget in the Energy Societal Challenge has been dedicated to such activities thus well in line with the Commission's commitment.

4.3.4 Smart, Green and Integrated Transport

Societal Challenge 4 (SC4)

Following the handover to the Innovation and Network Executive Agency (INEA) in December 2014, this Programme Part is being implemented primarily by INEA. Certain projects with particularly relevant policy content were retained and are being managed in-house by DG RTD, DG MOVE and DG CONNECT.

Within this Societal Challenge, DG CONNECT is responsible for some topics and projects for which the centre of gravity of the activities is ICT[36].

The time-to-grant indicator for the Transport Societal Challenge is 96.22% (Horizon 2020 average: 89.40 excluding ERC projects), with slightly lower figures for projects financed through the SME instrument (94.68%).

The success rates for the Transport Societal Challenge are 16.39% in terms of eligible proposals and 29.77% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Transport Societal Challenge (10.67% and 22.86%).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.3.5 Climate Action, Environment, Resource Efficiency and Raw Materials

Societal Challenge 5 (SC5)

This Programme Part was implemented by DG RTD and DG GROW, except the second stage evaluations which were conducted by EASME. Almost all funded projects are managed by EASME. The 11 exceptions are projects selected under topics that explicitly mentioned the exclusion from implementation by EASME in the Work Programme 2014-2015.

Within this Societal Challenge, DG CONNECT is responsible for some topics and projects for which the centre of gravity of the activities is ICT[37].

The time-to-grant indicator for the Climate Action Societal Challenge is 86.36% (Horizon 2020 average: 89.40% excluding ERC projects), with high figures for projects financed through the SME instrument (100%).

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[35] The budgetary contributions to the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) have not been counted as 'fossil fuels related'.

[36] Involvement through sub-delegation.

[37] Involvement through sub-delegation.

The success rates for the Climate Action Societal Challenge are 12.37% in terms of eligible proposals and 21.30% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Climate Action Societal Challenge (8.73% and 13.27%).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.3.6 Europe in a changing world – Inclusive, Innovative and Reflective Societies

Societal Challenge 6 (SC6)

This Programme Part was implemented mainly by DG RTD and by DG CONNECT. The implementation of the Research and Innovation Actions has been delegated to the Research Executive Agency (REA) while the ERA-NET and Coordination and Support Actions (CSA) were kept in the parent DGs (DG RTD and DG CONNECT).

The time-to-grant indicator for Societal Challenge 6 is 78.26% (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for Societal Challenge 6 is 8.86% in terms of eligible proposals and 9.62% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.3.7 Secure Societies – Protecting freedom and security of Europe and its citizens

Societal Challenge 7 (SC7)

This Programme Part was implemented by the Directorate-General for Migration and Home Affairs (DG HOME), responsible for the calls BES (Border and External Security), DRS (Disaster-resilience) and FCT (Fight against Terrorism and Crime), and DG CONNECT, responsible for the DS (Digital Security) call.[38]

[38] See Annex III.

The time-to-grant indicator for Societal Challenge 7 is 79.49% (Horizon 2020 average: 89.40% excluding ERC projects), with slightly high figures for projects financed through the SME instrument (80%).

The success rates for Societal Challenge 7 are 11.41% in terms of eligible proposals and 9.64% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are higher than the average for the Societal Challenge 7 (17.01% and 16.13%). The success rates are particularly low (below 10%) for the following calls: H2020-DRS-2014 (Disaster Reliance), H2020-DS-2014-1 (Digital Security), and H2020-FCT-2014 (Fight against Terrorism and Crime).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

4.4 Spreading Excellence and Widening Participation (SEWP)

This Programme Part was implemented by DG RTD in collaboration with the Research Executive Agency (REA). The communication and evaluation activities related to the calls "Teaming" (H2020-WIDESPREAD-1-2014) and "ERA Chairs" (H2020-WIDESPREAD 2-2014: ERA Chairs) were carried out by DG RTD and, once completed, their implementation was transferred to the Research Executive Agency (REA). The communication and evaluation activities of the call "Transnational network of national contact points" (H2020-WIDESPREAD-3-2014) were managed by DG RTD, which currently carries on its implementation.

The time-to-grant indicator for the SEWP actions is 82.61% (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for the SEWP actions are 16.33% in terms of eligible proposals and 17.71% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively).

The Key Performance Indicator to measure progress towards Spreading Excellence and Widening Participation is:

- Evolution of the publications in high impact journals in the given research field

The measurement of this indicator will be possible at the end of the projects and will be collected by the dedicated project report. First relevant data available are expected as from 2018. The aggregated data will be available at the completion of all projects. Its current value is therefore not available in this Annual Monitoring Report.

4.5 Science with and for Society (SWAFS)

This Programme Part was implemented by DG RTD with the REA support.

None of the 23 grants signed within SWAFS actions have been signed within the time-to-grant benchmark (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for SWAFS actions are 8.50% in terms of eligible proposals and 10.57% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51%). These overall rates are particularly affected by the low success rates of the call H2020-SEAC-2014-1 (5.71% and 6.82% respectively), which attracted more than half of the SWAFS eligible proposals.

The Key Performance Indicator to measure progress towards Science With And For Society (SWAFS) is:

- Number of institutional change actions promoted by the programme

These KPIs will be reported by the Horizon 2020 beneficiaries, particularly through the projects funded under the Topics ISSI.5.2014.2015 - *Supporting structural change in research organisations to promote Responsible Research and Innovation*, and GERI.4.2014-2015 - *Support to research organisations to implement gender equality plans.* This information will be made available by Horizon 2020 beneficiaries only at the end of their respective projects. First relevant data available are expected as from 2016; hence at this stage the indicator cannot be measured.

4.6 European Institute of Innovation and Technology (EIT)

This Programme Part was implemented by the EIT.

Under the Work Programme 2014-2015, the following priorities have been identified: the consolidation and fostering of the growth and impact of the three first-wave KICs established in 2009, the creation of two new KICs in 2014, the extension of the impact of the EIT beyond KICs by making good practices and experiences of KICs available new stakeholders, including the EIT's Regional Innovation Scheme for areas in Europe with low innovation capacity.

The first wave of the EIT's Knowledge and Innovation Communities (KICs) has steadily grown in terms of budget, activities, and results. The EIT Community was further enlarged through the creation of two new KICs in the areas of healthy living and active ageing (EIT Health) and sustainable exploration, extraction, processing, recycling and substitution of raw materials (EIT Raw Materials), creating a new momentum for and a scaling up of the EIT's contribution to Europe's innovation landscape, sustainable growth and global competitiveness.

In 2014, 632 institutions participated in the three first wave KICs designated in 2009. The total budget requested was EUR 215,3 million. After discussions and revisions of the business plans EUR 218,5 million was allocated, the budget actually consumed in 2014 by the first wave KICs was EUR 187,3 million.

In addition, the EIT Regional Innovation Scheme was introduced in order to enable EIT activities to reach out to regions in Europe with weaker innovation capacity.

4.7 Euratom Research and Training Programme 2014-2018

The European Commission is the executive institution under the Euratom Treaty, and it retains overall responsibility for Community research and innovation policy in the nuclear field, for all related programme and project management, as well as for the coordination of international cooperation with key third countries. The majority of these tasks are undertaken by DG RTD.

The time-to-grant (TTG) indicator for Euratom indirect actions is 68.18% (Horizon 2020 average: 89.40% excluding ERC projects). In some cases with more complicated grant preparation procedure, grants were signed after the imposed maximum TTG period due to the complexity of issues to be solved in the course of the Grant Agreement Preparation (GAP) procedure.

The success rates for Euratom indirect actions are 33.33% in terms of eligible proposals and 37.63% in terms of Euratom funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). Overall, the Euratom-specific success rates are significantly higher than the average Horizon 2020 success rates, due to the high degree of consolidation of research efforts in this domain.

5. PROGRESS ON CROSS-CUTTING ISSUES

Horizon 2020 pays particular attention to cross-cutting issues, which are promoted across all specific objectives of the three priorities. The cross-cutting issues are necessary to develop new knowledge, key competences and major technological breakthroughs and to translate knowledge into economic and societal value.

In the Council Decision establishing the Specific Programme implementing Horizon 2020,[39] the co-legislators agreed on 14 cross-cutting issues that the Commission has to pay special attention to and monitor in the framework of Horizon 2020. Given the monitoring requirements in the legal basis, the Commission has also developed a list of indicators for measuring progress with respect to these cross-cutting issues.

5.1 Contribution to the realisation of the European Research Area (ERA)

Horizon 2020 provides support to Member States and the main stakeholders in implementing the ERA reform agenda across the following key priorities:

1. More effective national research systems (Policy Support Forum)
2. Optimal transnational co-operation and competition on common research agendas, grand challenges and infrastructures (P2P's, ESFRI and ERIC40)
3. An open labour market for researchers facilitating mobility, supporting training and ensuring attractive careers (Euraxess and Resaver)
4. Gender equality and gender mainstreaming in research. Encouraging gender diversity to foster science excellence and relevance (Integrating gender, Science for Society)
5. Optimal circulation and transfer of scientific knowledge to guarantee access to and uptake of knowledge by all (communication and dissemination of programme results, demonstration and pilot projects)

In order to measure the contribution of Horizon 2020 to the realisation of the ERA, the following indicators have been identified:

- Annual number of research positions advertised on EURAXESS Jobs;
- Number of national research infrastructures networked (in the sense of being made accessible to all researchers in Europe and beyond through Union support);
- Number and share of Open access articles published in peer-reviewed journals;
- Number of projects that make scientific data accessible and re-usable and number of scientific datasets made accessible and re-usable;
- Number of Multiannual Implementation Plans adopted by Joint Programming Initiatives.

[39] Council Decision 2013/743/EU of 3 December 2013 establishing the specific programme implementing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Decisions 2006/971/EC, 2006/972/EC, 2006/973/EC, 2006/974/EC and 2006/975/EC, Annex III.

[40] ESFRI: European Strategy Forum on Research Infrastructures; ERIC: European Research Infrastructure Consortium.

The number of research positions advertised on EURAXESS Jobs between 1 January and 31 December 2014 comprised 47 841 job vacancies and 12 384 fellowships.

Preliminary results show that the number of national research infrastructures networked thanks to Horizon 2020 support in the calendar year 2014 was 28 559.

Since Horizon 2020 projects have yet to produce a significant number of scientific publications or datasets, no specific quantitative data on the indicators related to scientific publications can yet be provided in the Annual Monitoring Report 2014.

In 2014, the following 6 out of 10 Joint Programming Initiatives (JPIs)[41] had adopted annual implementation plans:

- A Healthy Diet for a Healthy Life (HDHL)
- Agriculture, Food Security and Climate Change (FACCE)
- Connecting Climate Knowledge for Europe (Climate)
- EU Joint Programme - Neurodegenerative Disease Research (JPND)
- More Years, Better Lives - The Potential and Challenges of Demographic Change (MYBL)
- Water Joint Programming Initiative: Water Challenges for a Changing World (Water)

5.2 Widening Participation

Despite some recent convergence, the research and innovation performance of the Member States remains very different, with large gaps between "innovation leaders" and "modest innovators".[42] Activities under the Spreading Excellence and Widening Participation specific objective are aimed at unlocking excellence in low performing regions, thereby widening participation in Horizon 2020 and contributing to the realisation of the ERA. In a complementary way, synergies with the European Structural and Investment Funds (ESIF) are supported as a way to increase the impact of investments in low performing regions in terms of research and innovation, thereby widening participation in Horizon 2020.

Widening participation is measured through the following indicators:

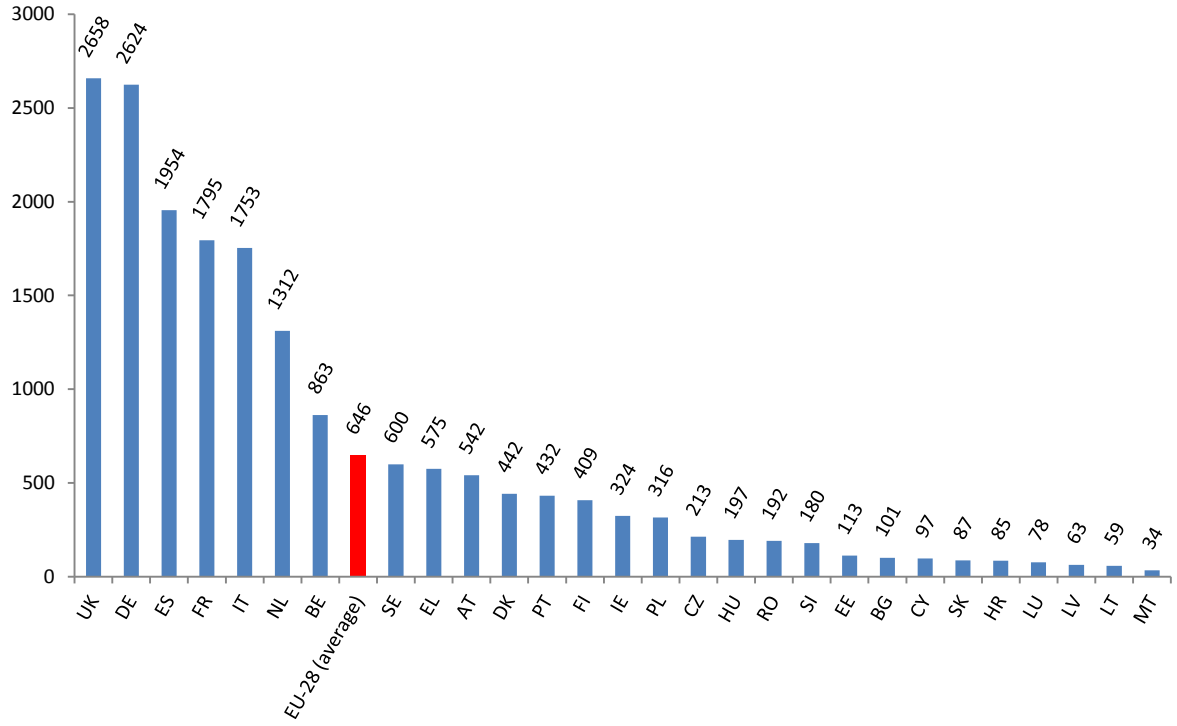
- Total number of participations by EU-28 Member State;
- Total amount of financial contribution by EU-28 Member State (EUR million).

The number of participations in grants signed before 1 December 2015 disaggregated by EU-28 Member States is presented in Chart 11 below:

[41] The remaining four (Antimicrobial Resistance, Cultural Heritage, Oceans, Urban Europe) are in the process of developing their implementation plans.

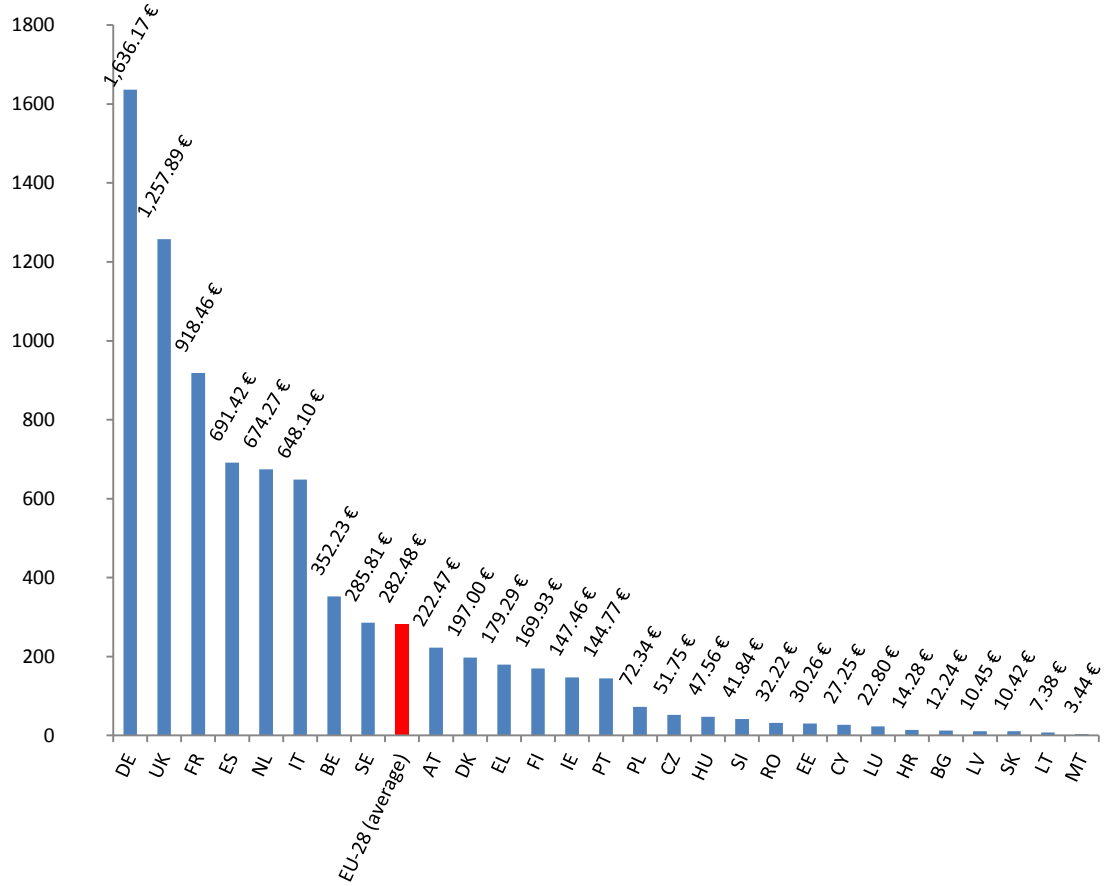
[42] See charts 6, 7 and 8 in section 2.4 above concerning participation of EU Member States.

Chart 11: EU Member States' participations in grants signed before 1 December 2015



The amount of financial contribution by EU-28 Member States for grant agreements signed before 1 December 2015 is presented in chart 12:

Chart 12: EU contribution to grants signed before 1 December 2015 by EU Member States



5.3 SME Participation

In Horizon 2020, SMEs are encouraged to participate across all activities, in particular in the LEITs and Societal Challenges priorities. In line with the target set by the EU Parliament and the Council, SMEs are expected to receive funding amounting to 20% of the total combined budgets of the Societal Challenges and the specific objective LEIT.

Moreover, the co-legislators established that within the target of allocating a minimum of 20 % of the total combined budgets for the Societal Challenges and LEIT, a minimum of 5% of those combined budgets will be initially allocated to the dedicated SME instrument. A minimum of 7% of these total budgets will be allocated to the dedicated SME instrument averaged over the duration of Horizon 2020.

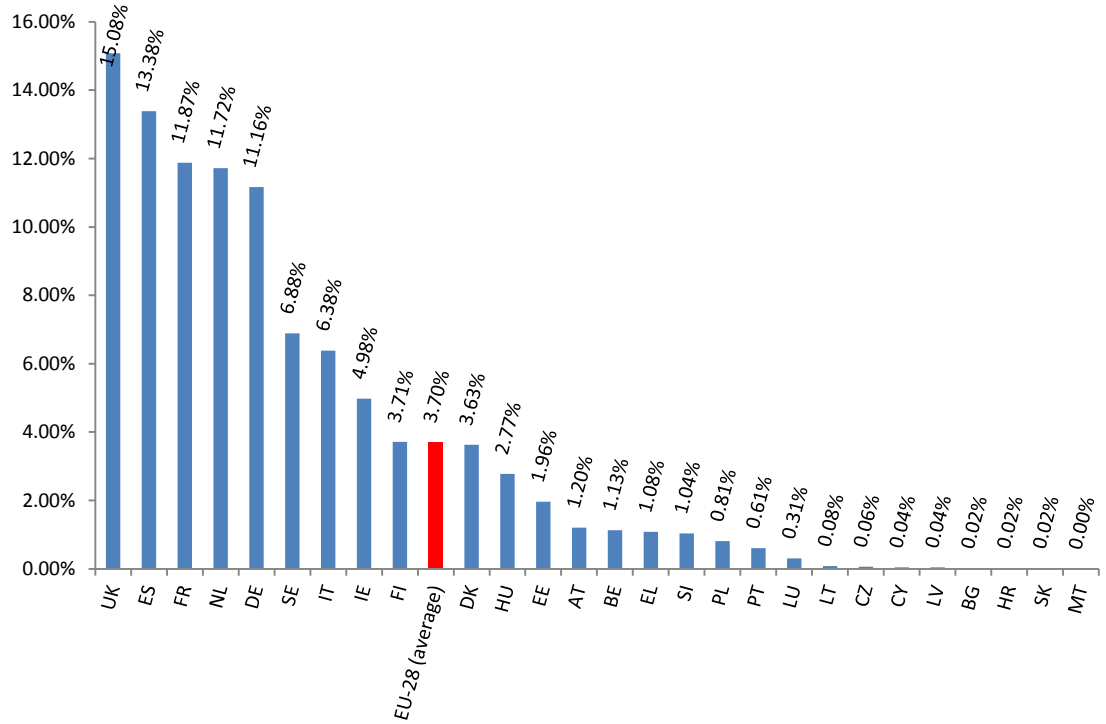
The following two indicators are used to monitor progress with respect to SME participation:

- Share of the EU financial contribution to LEIT and Societal Challenges going to SMEs;
- Share of the EU financial contribution to LEIT and Societal Challenges going to the SME Instrument[43].

Statistics for 2014 show that 23.09% (EUR 1 068 million) of the 2014 budget allocated to LEIT and Societal Challenges (EUR 4 624 million) is allocated to SMEs. This demonstrates that the 20% target has been reached in 2014.

5,51% (EUR 255 million) of the total combined budgets for the specific objective LEIT and the priority 'Societal challenges' was allocated to signed grants from the dedicated SME instrument in 2014. Progress towards meeting the 7% target is therefore well on track.

Chart 13: Share of EU funding allocated to Member States through the SME instrument



[43] On average over the duration of Horizon 2020, within the above-mentioned 20% target.

5.4 Social Sciences and Humanities

Horizon 2020 has integrated Social Sciences and Humanities (SSH) as a cross-cutting issue across the Framework Programme, in addition to being a key component of Societal Challenge 6.

The integration of SSH is measured through the following indicator:

- Percentage of SSH partners[44] in selected projects in all Horizon 2020 priorities (LEITs and Societal Challenges parts) and percentage of EU financial contribution allocated to them.

According to the Commission Report on the integration of SSH in Horizon 2020 published on 15 October 2015,[45] and based on the estimated total funding for the calls for proposals in the LEIT and Societal Challenges parts of the Work Programme 2014 (amounting to EUR 4 billion), EUR 1,1 billion was dedicated to topics flagged for SSH in the calls for proposals. Under these topics, EUR 236 million (i.e. 21%) went to SSH partners. Overall, the share of the budget going to SSH partners amounted to 6% of the estimated total budget of EUR 4 billion. SSH partners account for 26% of the total number of consortia partners in projects funded under topics flagged for SSH (including SC6, which represents 7% of the total).

5.5 Science and Society (Responsible Research and Innovation)

Responsible Research and Innovation (RRI) comprises an inclusive approach to research and innovation, to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of Research and Innovation with the values, needs and expectations of European society.

In Horizon 2020, RRI is measured through the following cross-cutting issue indicator:

- Share of projects where citizens, Civil Society Organisations and other societal actors contribute to the co-creation of scientific agenda and scientific content.

Information regarding this indicator is currently not available. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report. However, estimates based on the experience acquired by the Commission's services suggest that the situation is very uneven across Horizon 2020 lines and that the overall result is lower than expected (3.3%). Nonetheless, the work undertaken in 2014 to mainstream and fully embed this concept in Commission policy points to potential progress in the years to come.

5.6 Gender

Three main objectives underpin the strategy on gender equality as a cross-cutting issue in Horizon 2020:

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[44] An SSH partner is a legal entity (participant) with background in one of the following disciplines: sociology, psychology, economics, law, political science, public and business administration, demography, anthropology (except physical anthropology), geography (except physical geography), peace and conflict studies, human rights, education science, journalism and communication, cultural studies, religion, linguistics, literature, cultural studies, history, archaeology, philosophy, ethics, arts and crafts (list adapted from the UNESCO International Standard Classification of Education, ISCED 2011).

[45] Integration of Social Sciences and Humanities in Horizon 2020: participants, budget and disciplines. Monitoring Report on SSH-flagged projects funded in 2014 under the Societal Challenges and Industrial Leadership. European Commission, 2015 (ISBN 978-92-79-50762-5).

1. Fostering equal opportunities and gender balance in research teams, in order to close the gaps concerning the participation of women;
2. Ensuring gender balance in decision-making, in order to reach the targets of 40% of the under-represented sex in evaluation panels and expert groups and 50% in advisory groups;
3. Integrating the gender dimension in research and innovation content, taking account of relevant biological characteristics as well as social and cultural features of both women and men in research (sex and gender analysis).

The indicators currently used for monitoring Gender equality as a cross-cutting issue in Horizon 2020 are the following ones:

- Percentage of women participants in Horizon 2020 projects;
- Percentage of women project coordinators in Horizon 2020;
- Percentage of women in EC advisory groups[46], expert groups, evaluation panels, individual experts, etc.;
- Percentage of projects taking into account the gender dimension in research and innovation content.

The first two indicators are based on input coming from Horizon 2020 beneficiaries at the level of project reporting and will be available only after a critical mass of projects has been reached as from mid-2016. Their current value is therefore not available in this Annual Monitoring Report.

Within the total of 19 336 experts registered in the expert database for evaluation panels and expert groups, the proportion of women experts is 35.56%. In terms of actual expert contracts signed, the proportion of women experts participating in evaluation panels and expert groups is 36.27%. Regarding gender balance in Horizon 2020 advisory groups in 2014, women participation is 52%.

Information regarding the last indicator is currently not available. Data are collected at the level of project reporting and will be available only after a critical mass of projects has been reached. Preliminary results show that the gender dimension was explicitly mentioned in 63 topics to inform the potential applicants about the importance of taking account of the biological characteristics and/or the social/cultural features of both women and men in their proposals.

5.7 International Cooperation

International cooperation as a cross-cutting issue is expected to achieve, in particular, the objectives of: strengthening the Union's excellence and attractiveness in research and innovation as well as its economic and industrial competitiveness; effectively tackling common societal challenges; and supporting the Union's external and development policy objectives.

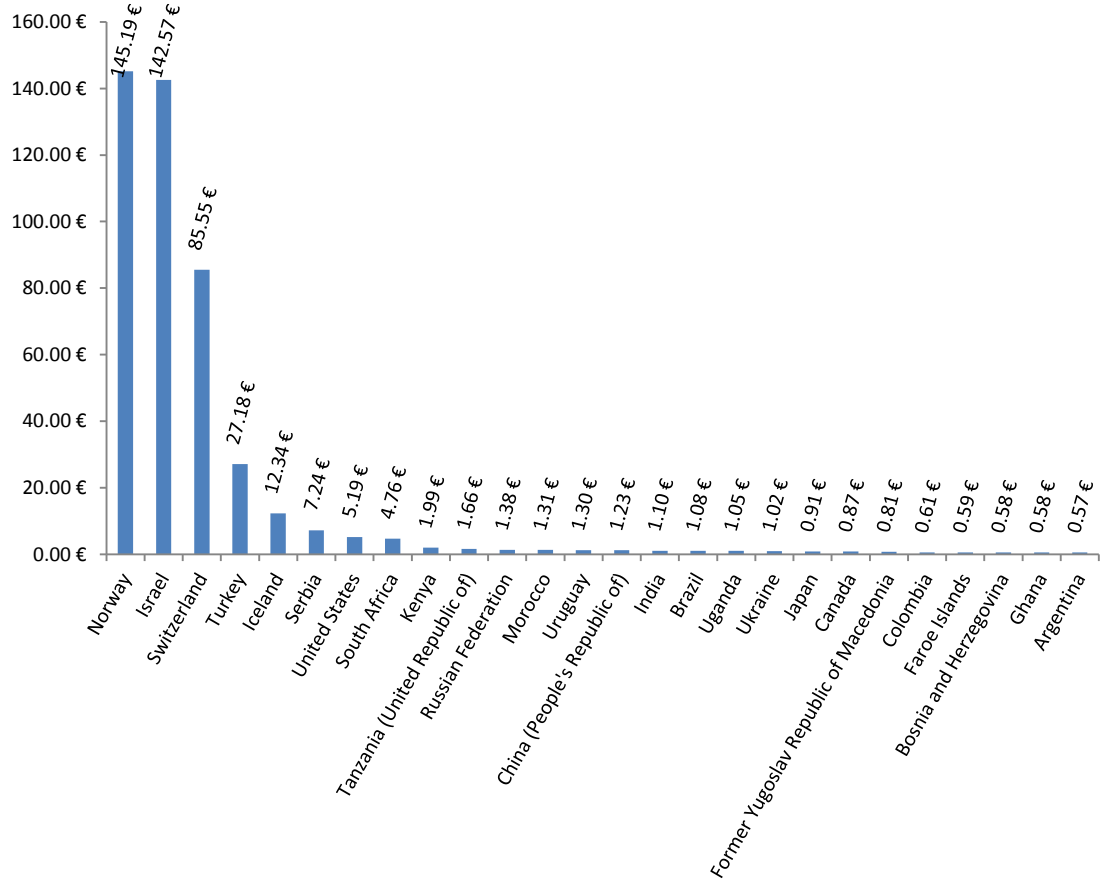
The EU contribution for grants signed before 1 December 2015 to non-EU-28 countries participating in Horizon 2020 is EUR 453,97 million, which represents 5.43% of the EU

[46] Advisory group provide high quality advice to the Commission services during the preparation of the Horizon 2020 work programmes.

financial contribution allocated to signed grants. This represent a significantly lower figure compared to the 10.39% funding allocated to organisations outside the EU in FP7.[47]

Almost two thirds of this EU contribution to non-EU-28 countries went to the associated countries Norway and Israel (one third each). The Horizon 2020 funding to Switzerland, which is only partially associated to Horizon, represents less than one fifth. Among the non-associated third countries, the United States have the highest share (1.14% of the EU contribution to non-EU countries), immediately followed by South Africa (1.04%).

Chart 14: EU Funding to non-EU-28 countries for signed projects in 2014 calls (in EUR million)



International Cooperation as a cross-cutting issue is also measured through the following specific indicators:

- Share of third-country participations in Horizon 2020;
- Percentage of EU financial contribution attributed to third country participants;
- Share of budget of topics in the Work Programme mentioning at least one third-country or region.

Participations from non-associated third countries (excluding Switzerland)[48] in 2014 calls corresponded to 2% of the total number of participations, decreasing from the FP7 baseline calculated over the 7 years of FP7 (4.7%).

[47] 7th FP7 Annual Monitoring Report 2013: data from Table B9, p. 101.

[48] Following the International Agreement associating Switzerland to parts of Horizon 2020 signed on 5th December 2014, Switzerland has an associated third-country status for actions under these parts, while it remains a non-associated third country for the rest.

The EU financial contribution to non-associated third countries (excluding Switzerland) was 0.5% of the overall EU contribution, also below the FP7 baseline of 1.9%.

Identifying suitable themes and partners for targeted international cooperation activities was an important part of the preparation of the first Horizon 2020 work programmes. The impact of this approach is reflected in the increase from 12% (FP7 baseline) to 22% (October 2015) in the indicator on the budget share of Work Programme topics mentioning international cooperation or a specific third-country or region.

5.8 Sustainable Development, Climate Change and Biodiversity

At least 60% of the overall Horizon 2020 budget should be related to sustainable development. Climate-related expenditure should exceed 35% of the overall Horizon 2020 budget, including mutually compatible measures improving resource efficiency.[49] The Commission is tracking information on the financial contribution for biodiversity, in line with the Aichi Biodiversity Target 20, adopted at the 12th meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 6-17 October 2014 in the Republic of Korea[50].

The following indicators have been defined to measure these commitments. Their calculation is based on the so-called "Rio Markers" methodology[51].

- Share of EU financial contribution that is climate-related in Horizon 2020 (EUR);
- Share of EU financial contribution that is sustainability-related in Horizon 2020 (EUR);
- Share of EU financial contribution that is biodiversity-related in Horizon 2020 (EUR).

The contribution of Horizon 2020 to Sustainable Development, Climate Change and Biodiversity is assessed:

– For programmable actions, at the level of the Work Programme's topics.

– For bottom-up actions (e.g. ERC, MSCA), at the level of individual projects.

– For some parts of the programme (e.g. Financial Instruments, EIT), on an ad-hoc basis.

For Horizon 2020 calls closed in 2014, the EU financial contribution for climate-related research and innovation amounted to EUR 1 995 million, corresponding to 24% of the tracked budget, compared to a target of 35%. The financial contribution to Sustainable Development was EUR 3 493 million, corresponding to 46% of the tracked budget, compared to a target of 60%. And the financial contribution to Biodiversity was EUR 317 million, corresponding to 4% of the tracked budget (no target).

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[49] Regulation (EU) No 1291/2013 of the European Parliament and the Council establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020), whereas n.10.

[50] https://www.cbd.int/doc/decisions/cop-12/full/cop-12-dec-en.pdf

[51] Originally developed to calculate the contribution of development co-operation activities to the environment and the Rio Conventions, the Rio markers methodology uses a scoring system of three values, in which activities are “marked” as targeting the environment or the Rio conventions as the “principal" objective (100%) or a “significant" objective (40%), or as not targeting the objective (0%). The contribution of Horizon 2020 is assessed: for programmable actions, at the level of the Work Programme's topics; for bottom-up actions (e.g. ERC, MSCA), at the level of individual projects; for some parts of the programme (e.g. Financial Instruments, EIT), on an ad-hoc basis.

In 2014, the targets were not reached, therefore, even if programmable actions were very close to the climate target (32% compared to 35%) and relatively close to the sustainable development target (50% compared to 60%). The Commission has developed a comprehensive and detailed approach to improve these figures, in particular for tracking the contribution of non-thematic buttom-up actions, and will align the tracking methodology to the UN's newly adopted Sustainable Development Goals.[52]

5.9 Bridging from discovery to market application

Horizon 2020 puts special emphasis on innovation under the second and third priorities (Industrial Leadership and Societal Challenges), which involve the broad use of new instruments that are available under Horizon 2020, in particular innovation actions/projects, innovation procurement and inducement prizes.

The contribution of Horizon 2020 to Bridging from Discovery to Market Application is measured through the following indicators:

- Share of projects and EU financial contribution allocated to innovation actions in Horizon 2020;
- Within the innovation actions, share of EU financial contribution focussed on demonstration and first-of-a-kind activities.

Overall, 202 innovation action projects have been signed in 2014, with a requested EC contribution of EUR 1 071 million. This represents 4.20% of the total number of successful projects signed related to calls closed in 2014 (4 809) and 12.65% of the total EC contribution allocated to these successful projects (EUR 8 467,83 million).

In addition, 12 more Innovation Actions projects have been signed under some of the Joint undertaking calls launched in 2014: 3 projects under FCH2[53] (overall requested contribution of EUR 39,4 million), 6 under ECSEL[54] (overall requested contribution of EUR 106,7 million) and 3 under the BBI JU[55] (overall requested contribution of EUR 36,7 million). Innovation Actions projects in Joint Undertaking calls represent 4.33% of the total EU contribution allocated to successful projects in 2014.

Information regarding the last indicator is currently not available. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report.

5.10 Digital Agenda

The Digital Agenda for Europe, one of seven EU2020 flagship initiatives, has established 'digital' as a policy brand in its own right, by aspiring to make every European digital. The EU’s Digital Single Market Strategy, launched in May 2015, builds on these foundations, aiming to remove regulatory barriers and move from 28 national markets to a single one, to unlock online opportunities and make the EU's single market fit for the digital age.

ICT R&I is key to the realisation of the Digital Single Market. ICT R&I has dedicated topics in all Horizon 2020 pillars:

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[52] http://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf

[53] Fuel Cells and Hydrogen 2.

[54] Electronic Components and Systems for European Leadership.

[55] Bio-based Industries.

- Excellent Science: advanced research to uncover radically new technological possibilities and ICT contributions to support research and innovation are addressed respectively under the parts "Future and Emerging Technologies" and "Research Infrastructures" (eInfrastructures);

- Leadership in Enabling and Industrial Technologies (LEIT): research and innovation of activities on generic ICT technologies either driven by industrial roadmaps or through a bottom-up approach are mostly addressed under the part "Information and Communication Technologies";

- Societal challenges: multi-disciplinary application-driven research and innovation leveraging ICT are addressed in the different "Societal Challenges".

This cross-cutting issue is monitored through the following indicator:

- Share of EU financial contribution that is ICT Research & Innovation related in Horizon 2020 (EUR).

This indicator will allow tracking spending devoted to digital R&I throughout the Programme and will be an important input to the assessment of progress made towards the Digital Single Market objectives. Information regarding the EU financial contribution to ICT R&I outside specific topics is currently missing. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report.

5.11 Private Sector Participation

Private Sector Participation is strongly present in all Programme parts, in particular in relation to public-private partnerships, SME participation (most notably through the SME instrument), Access to Risk Finance and Societal Challenges.

The following indicators have been identified for measuring achievements towards Private Sector Participation.

- Percentage of Horizon 2020 beneficiaries from the private for profit sector;

- Share of EU financial contribution going to private for profit entities (LEIT and Societal Challenges).

As mentioned above, Private-for-Profit entities (PRC) represent more than 60% of the applicants in retained proposals accounting for 6 130 participations or 31% of the total number of participations in signed grants. Private sector participation in the EIT actions is 64%.

Private-for-Profit entities (PRC) received EUR 2 193 million or 26.22% of the total EU contribution to signed grants. Within the LEIT and Societal Challenges cumulative budgets, the share of the EU financial contribution going to private entities is 43.66% (EUR 2 019 million).

Private Sector Participation continues to be important in Horizon 2020. The trend established under FP7, where private for profit organisations accounted for a quarter of the total number of applicants and a third of the total amount of requested EU contribution in retained proposals[56], is confirmed.

[56] 7th FP7 Annual Monitoring Report 2013.

5.12 Funding for PPPs and P2Ps

In certain strategic areas, formal partnerships with the private sector and/or Member States are the most effective way to meet the objectives of Horizon 2020 in terms of major societal challenges and industrial leadership. That is why a series of Public-Private Partnerships (PPPs)[57] and Public-Public Partnerships (P2P)[58] under Horizon 2020 with industry and with Member States have been established.

The Commission has developed the following indicators to monitor this cross-cutting issue:

- EU financial contribution for PPP-P2Ps;
- PPP leverage: total amount of funds leveraged through Article 187 initiatives, including additional activities, divided by the EU contribution;
- P2Ps leverage: total amount of funds leveraged through Article 185 initiatives.

For calls closed in 2014, the EU financial contribution to retained proposals for PPPs under Article 187 of the Treaty on the Functioning of the European Union (TFEU) amounted to EUR 286,22 million[59] for 47 retained proposals. The EU financial contribution to retained proposals for contractual PPPs (cPPPs) was EUR 818,6 million for 158 retained proposals. The EU financial contribution to the 207 successful projects in Art. 185 initiatives was EUR 58,5 million while the full public funding to these retained proposals amounted to EUR 178,1 million.

2015 was the first year of actual implementation of the calls launched by Article 187 initiatives. As no grants were signed in 2014, it is not possible to report on the actual investments from industry partners and other sources (e.g. Member States contributions). The first results on the funds leveraged through Art. 187 initiatives will be published in the next Annual Monitoring Report.

The leverage effect resulting from the Article 185 initiatives and ERA-NET Cofund actions for 2014 can be estimated as follows:

- The investment (public funding only) from participating states for successful projects resulting from Art. 185 initiatives calls closed in 2014 is estimated to be EUR 178,1 million, of which the Union contribution is EUR 58,5 million. This corresponds to a leverage effect of 2:1: each euro of EU contribution resulting in the allocation of 2 additional euros from participating states.
- The investment (public funding only) from the participating states in the 11 ERA-NET Cofund actions of 2014 is estimated at EUR 250 million, of which the Union

[57] Seven institutionalised PPPs were launched in 2014: Clean Sky 2, Fuel Cells and Hydrogen 2 (FCH 2), Innovative Medicines Initiative 2 (IMI 2), Electronic Components and Systems for European Leadership (ECSEL replacing ARTEMIS and ENIAC), Bio-based Industries (BBI), Single European Sky Air Traffic Management Research (SESAR) and Shift2Rail. In addition, nine contractual PPPs were already fully operational in Horizon 2020 in 2014. They are: Factories of the Future (FoF), Energy-efficient Buildings (EeB), European Green Vehicles Initiative (EGVI) and, Sustainable Process Industry (SPIRE), Advanced 5G Network Infrastructure (5G), Robotics, Photonics, High Performance Computing (HPC) and Big Data Value (this latter started fully in 2015).

[58] The four Art.185 initiatives launched in 2014 are the Active and Assisted Living R&D Programme (AAL 2), the European and Developing Countries Clinical Trials Partnership 2 (EDCTP 2), the European Metrology Programme for Innovation and Research (EMPIR) and Eurostars 2 (for SMEs).

[59] This contribution derives from 4 calls launched by Fuel Cells and Hydrogen 2 (FCH 2), Bio-based Industries (BBI) and Electronic Components and Systems for European Leadership (ECSEL replacing ARTEMIS and ENIAC). Calls under Innovative Medicines Initiative 2 (IMI 2) are excluded given that IMI2 integration with the CORDA database is currently incomplete.

contribution is up to EUR 92,4 million. This corresponds to a leverage effect of 1.7:1. In addition, it is expected that the participating states will mobilise additional funds of at least EUR 200 million in additional calls they organise without Union co-funding, increasing the expected leverage to 3.9:1.

5.13 Communication and Dissemination

Horizon 2020 requires that the Commission implements information and communication actions in support of the programme and identifies a number of specific actions to be supported, awareness-raising of funding opportunities; increasing participation; providing assistance and promoting the dissemination of results, including raising public awareness of the benefits of research and innovation.

Dissemination and exploitation of research results are strongly encouraged in Horizon 2020. Dissemination is making the new knowledge available for others, while exploitation is making use of it – i.e. by the private sector (for commercial exploitation) and the public sector (for policies, regulation and the like).

This cross-cutting issue is measured through the following indicator:

- Dissemination and outreach activities other than peer-reviewed publications.

This is an output indicator, which is based on information reported by Horizon 2020 beneficiaries after the end of a project. Therefore, information is not available in this Annual Monitoring Report.

The legal basis of Horizon 2020 (Article 28) provides also that the programme will contribute to the corporate communication of the Union's political priorities to the extent that they are related to its general objective.

In 2014, Horizon 2020 contributed to a corporate communication pilot campaign, led by DG COMM, with a view to properly highlight, among other EU policies, the role of research, development and innovation in people's everyday life as well as its contribution to growth and jobs. The campaign was launched in 2014 ("EU Working for you") and continued until mid-2015. Through mainstream media it showed the EU's added value in a tangible and lively way, reaching citizens directly. The campaign is part of a general effort to deliver a clearer message about how the EU, through its programmes and policies, helps to achieve economic growth and create jobs.

The campaign was measured through output (115 million people reached during the campaign) and short-term result (28 million people aged 15+ recall seeing at least one ad) indicators.[60]

5.14 Participation patterns of independent experts

In line with the Horizon 2020 Rules for Participation, independent experts are selected for the evaluation of proposals following an open call for applicants, to individuals, and to organisations. Individuals are selected from the database on a call-by-call basis.

[60] European Union, Working for you campaign.

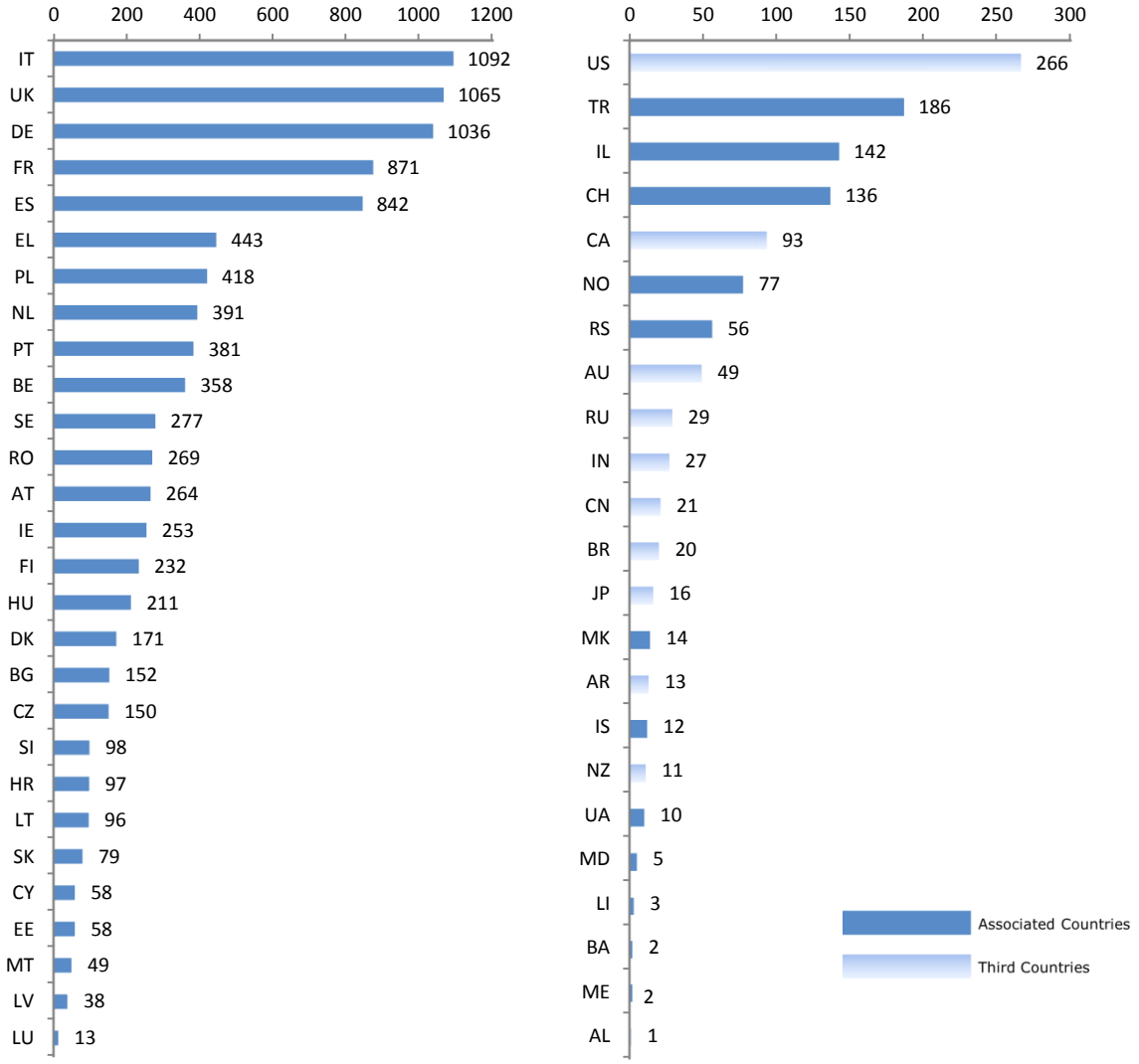
When appointing independent experts, the Commission seeks a balanced composition within the expert groups and evaluation panels in terms of various skills, experience, knowledge, geographical diversity and gender, and taking into account the situation in the field of the action. Where appropriate, a private-public sector balance is sought. Measures are also in place to ensure a healthy turnover of experts.

This cross-cutting issue is measured through the following indicators:

- Proposal evaluators by country;
- Proposal evaluators by organisational type of activity.

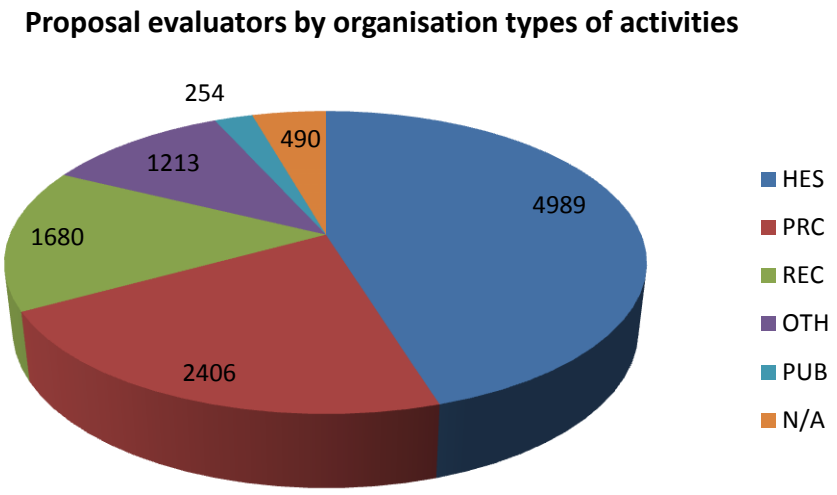
Just above 11 000 evaluators have been implicated in the evaluation of proposals. The graphs below show their distribution both in the EU and in third countries (chart 15).

Chart 15: Proposals' evaluators per country (grand total: 11 032) from the EU-28 (left) and third countries (right)



Evaluators with an academic background (HES) make up a relative majority (45.2%) of the 11.032 evaluators, with more than one fifth of the evaluators (21.8%) coming from the private sector (PRC). 15.2% are from research centres (REC) and 11% from other entities (OTH), while only 2.3% are from public entities.

Chart 16: Proposals' evaluators by organisations' type of activities (grand total: 11 032)



6. EXAMPLES OF PROJECTS FUNDED HORIZON 2020

At this stage of the implementation of Horizon 2020, relatively few projects financed by 2014 calls in Horizon 2020 have been started and the majority of funding is yet to be spent. For illustrative purposes, an exercise was carried out by Commission services to select a number of examples of projects funded that have the potential to bring major technological breakthroughs, in particular with reference to the new strategic focus for Horizon 2020 in order to maximize its contribution to "Open innovation", "Open Science" and "Open to the world".[61] Annex III provides an overview of the most promising stories per specific Work Programme part.

6.1 Examples of projects funded in the area of Open innovation

The CO-PILOT[62] project aims to develop an open access infrastructure for SMEs interested in the production of high quality (multi-)functional nanocomposites on a pilot scale. The field of nanocomposites has made significant progress in recent years (compound annual growth rate of 18%) with many different types of nanocomposites exhibiting radically enhanced properties for a wide range of industrial applications.

The development of the pilot plant infrastructure will be achieved by including different types of nano-composites as model systems. CO-PILOT aims to set new standards for high-quality nanoparticle production with the assistance of in-line nanoparticle dispersion quality monitoring. The project started in January 2015 and will last for three years.

The P4SB project[63] aims at a sustainable and environmentally friendly bioconversion of oil-based plastic waste into fully biodegradable counterparts by means of deeply engineered,

[61] Communication on the Response to the Report of the High Level Expert Groups on the Ex Post Evaluation of the Seventh Framework Programme, COM (2016) 5 final, p.5.

[62] CO-PILOT - Flexible pilot scale manufacturing of cost-effective nanocomposites through tailored precision nanoparticles in dispersion (H2020-NMP-PILOTS–2014). More information on: http://www.h2020copilot.eu

[63] P4SB - From Plastic waste to Plastic value using Pseudomonas putida Synthetic Biology (H2020-LEIT-BIO-2014-1) More information on: http://www.p4sb.eu

whole-cell bacterial catalysts. This addresses the market need for novel routes to valorise the gigantic plastic waste streams in the European Union and beyond, with direct opportunities for SME partners of P4SB spanning the entire value chain from plastic waste via Synthetic Biology to biodegradable plastic. The expected result is a full biobased process which will reduce the environmental impact of plastic waste and create a second generation carbon source for industrial biotechnology. This could generate new opportunities for the European plastic recycling industry and help to achieve the ambitious recycling targets set by the European Union for 2020.

The key objectives of CPVMatch project[64] are to realise solar cells and modules working at a concentration level with a high efficiency. The combination of ultra-high efficient cells and optical concentration will allow to significantly reduce the costs of solar electricity and to reduce the environmental impact.

6.2 Examples of projects funded in the area of Open science

GEANT 2020[65] is a framework partnership agreement (FPA) that is expected to deliver the most advanced and reliable backbone network in the world for supporting 50 million researchers and students in 10 000 institutions across 40 countries in Europe and with an additional global reach of 65 countries. It is also expected to pioneer federated access to informatics resources as a ba sis for Open science.

50 partners, from all EU countries and beyond, collaborate under OpenAIRE2020[66], a large-scale initiative aiming at promoting open scholarship and substantially improving the discoverability and reusability of research publications and data. It combines networking capacities and technical capabilities in order to deliver a robust infrastructure to support the European Open Access policies and to increase the impact of European public research funding.

The overall objective of PLOTINA[67] is to enable the development, implementation and assessment of self-tailored Gender Equality Plans (GEPs) with innovative and sustainable strategies for the Research Performing Organizations (RPOs) involved. This objective will be achieved by: (i) stimulating a gender-aware culture change; (ii) promoting career-development of both female and male researchers to prevent the waste of talent, particularly for women; (iii) ensuring diversification of views and methodologies (in this case by taking into account the gender/sex dimension and analysis) in research and teaching.

In context of the European economic crisis, ADEMEU project[68] is at the frontier of dynamic macroeconomic research, and the project is expected to generate new knowledge that will be used to provide a rigorous assessment of the current institutional framework, and detailed proposals for improving it. It is expected tp also be a focal point in debates among academics, policymakers and other stakeholders regarding the implementation of new policies. The scope of the project will include a full consideration of political economy and legal dimensions to alternative institutional reforms.

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[64] CPVMatch - Concentrating Photovoltaic modules using advanced technologies and cells for highest efficiencies (H2020-LCE-2014-1). More information on the project's website: https://cpvmatch.eu/

[65] H2020-EINFRA-2014-2

[66] Open Access Infrastructure for Research in Europe 2020 (H2020-EINFRA-2014-1).

[67] PLOTINA - Promoting gender balance and inclusion in research, innovation and training (H2020-GERI-2014-1)

[68] ADEMEU - Resilient and sustainable economic and monetary union in Europe (EURO-1-2014).

6.3 Examples of projects funded in the area of Openness to the world

The BODEGA project[69] will investigate and model Human Factors in border control to provide innovative socio-technical solutions for enhancing border guards' performance of critical tasks, support border management decision-making, and optimize travellers' border crossing experience. BODEGA will develop a toolbox which integrates the solutions for easy adoption of the BODEGA's results by stakeholders in border control. This toolbox will integrate ethical and societal dimensions to enable a leap of border control towards improved effectiveness and harmonisation across Europe.

The EVIDENT project[70] highlights the opportunity Horizon 2020 provides in reacting to public health emergencies with appropriate and ad-hoc mobilisation of research funding. EVIDENT is one of the five projects funded under the Ebola Emergency Procedure. The project aims to study interactions between the Ebola virus and the host which will provide answers regarding the pathophysiology and transmissibility of the disease, and will help better guide the planned clinical trials on vaccines and potential treatments, as well as the management of patients. EVIDENT has also identified novel biomarkers of outcome with potential to be used in clinical management, to inform current vaccine trials, and to develop post-exposure immunotherapy against Ebola.

The goal of the TRUST Project[71] is to catalyse a global collaborative effort to improve adherence to high ethical standards around the world. TRUST will open up new horizons in improving adherence to high ethical standards in research globally. The project's strategic output are three sets of tools based on participatory engagement covering all continents: (i) a global code of conduct for funders, (ii) a fair research contracting on-line tool and (iii) a compliance and ethics follow-up tool, which takes limited resources into account.

7. RESULTS OF THE STAKEHOLDERS' SURVEY

In September 2015, the Commission services carried out the annual survey of Horizon 2020 National Contact Points (NCPs) of EU Member States and third countries. NCPs provide highly professional support services for potential beneficiaries and are an essential component of Horizon 2020 implementation. The annual survey of National Contact Points is one of the key elements of the Annual Monitoring Report, as it focusses on the achievements of the overall objectives of Horizon 2020 as perceived and observed at national and/or regional level. However, the views expressed in this survey are limited to NCPs and cannot be considered as representative of the whole stakeholder community.

The aim of this NCP survey was to collect views, comments and suggestions on Horizon 2020 participation and implementation issues. In particular, the survey covered questions on the attractiveness of the Programme for stakeholders; on the relevance of Horizon 2020 objectives with Research and Innovation needs and in relation to the EU-2020 strategy; on the coherence with other EU funding sources and on the added value of the EU intervention.

The questionnaire was sent to 1 050 NCP from all 28 Member States, 14 associated countries and 86 third countries. 349 answers were received which means a response rate of 33,2 %.

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[69] BODEGA – BordDErGuArd: Proactive Enhancement of Human Performance in Border Control" (H2020-BES-2014)

[70] EVIDENT – Ebola Virus Desease (H2020-Adhoc-2014-20). More information on: http://evident-project.eu/

[71] TRUST - Creating and enhancing TRUSTworthy, responsible and equitable partnerships in international research - H2020-GARRI-2014-1

The highest number of answers came from France 44 (12.6 % of the total) followed by Spain 23 (6.5%) and Germany 22 (6.3 %), Norway and Italy with 12 (3.4 %), while non-associated third countries have contributed collectively with 14 answers (4,01%).

The survey has helped to identify some interesting trends.

According to the respondents, cooperation between science and society (71%) and between science and business (86%) is well addressed. The majority of respondents expressed a positive opinion on Horizon 2020 ensuring a right balance between participation from universities, business-oriented and other research institutes (61%). There is a strong agreement that Horizon 2020 improves participation from the private sector (73%) and SMEs (75%). 60.7% recognize that Horizon 2020 ensures adequate opportunities for public-private partnership, though participation from newcomers (32%) and young researchers (51%) is not adequately stimulated.[72]

In relation to the cross-cutting issues, Horizon 2020's perceived contribution to the ERA is fairly positive ('agree' and 'strongly agree' above 60% of the replies on average for three questions). The gender balance is seen positively or very positively by almost 70% of the respondents as well as the integration of the gender dimension in research context (62%). Less than 50% think that Horizon 2020 adequately supports Social Science and Humanities (SSH) and Responsible Research and Innovation (RRI) (45% and 47% respectively).

The NCPs have also been asked to express their opinion on the contribution of Horizon 2020 to growth and jobs, which are part of the Juncker Commission's political priorities. NCPs are, however, one specific group of stakeholders in the Horizon 2020 context and cannot be considered as expressing a representative opinion on the political priorities. The NCPs have given a medium-to-low rate to the ability of Horizon 2020 to support jobs, growth and investment (35% of respondents 'agree' or 'strongly agree') and to develop the Digital Single Market (32%), while figures are stronger in relation to boosting the Energy Union and fighting Climate Change (51%), as well as in making Europe a stronger global actor (60%).

Regarding the complementarity with other EU activities, Horizon 2020 is seen as matching well the Europe 2020 priorities (66% of respondents rate it 'high' or 'very high' and less than 3% 'low' or 'very low') but the relations with ESIF and EFSI are perceived significantly less well (22% had a 'high' or 'very high' perception of this complementarity), with a strong component perceiving it 'low' or 'very low' (24% for ESIF and 21% for EFSI) while the majority have 'average' (31% and 26% respectively) or 'no opinion' at all (22% and 30%). Again it should be reminded that these views, limited to NCPs, cannot be considered as representative of the whole stakeholder community.

The majority of the respondents (73%) 'agrees' or 'strongly agrees' that Horizon 2020 has widened participation of all Member States (10% 'disagree' or 'strongly disagree') while 58% have a positive perception of Horizon 2020's role in promoting participation of regional actors (with a more uncertain 30% that 'neither agree nor disagree') or international participation (50% 'agree' or 'strongly agree'). The NCPs attribute a significant role to Horizon 2020 in shaping national and regional R&I policy in 55.7% of the replies, with an additional 33.5% that rate this role as 'average'. The EU added value of Horizon 2020 is 'high' or 'very high' for 68% of the respondent and for only 4% it is 'low' or very 'low'.

A full overview of the survey results can be found in Annex II.

[72] The percentages indicate the share of positive ('agree' and 'high') and very positive ('strongly agree' and 'very high') values.

8. FP7 RESULTS

While Horizon 2020 is up and running, the projects financed through the FP7 are still producing results. The Commission is no longer under legal obligation to publish an annual monitoring report of FP7. However, given the significant results and impacts that FP7 projects can still produce, the Commission services will continue to report on FP7 in the Annual Monitoring Reports of Horizon 2020.

This section will focus on participation patterns related to FP7 projects whose grant agreements were signed in 2014, based on e-CORDA extraction date of 11 November 2015. It also presents updated figures regarding the 9 FP7 indicators.

8.1. FP7 Participation Patterns in 2014

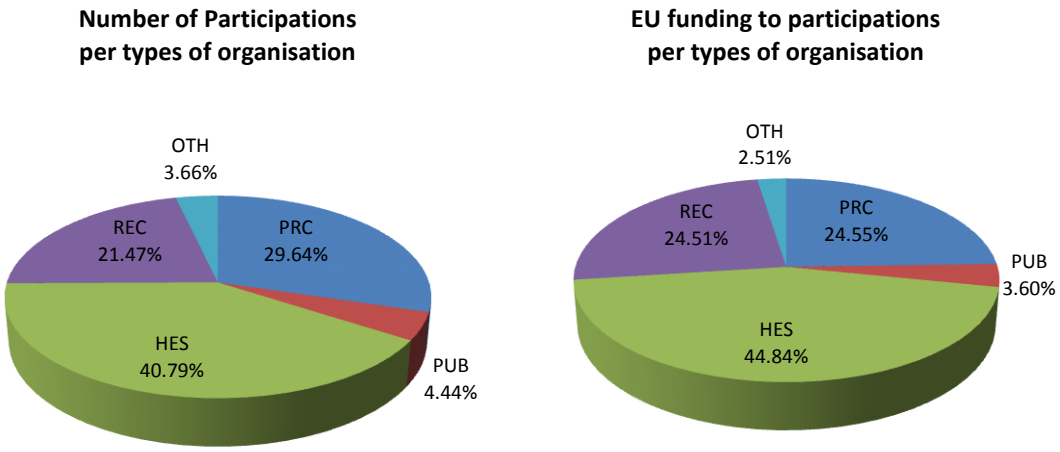
The number of FP7 projects signed in 2014 was 2 274, including 5 817 participations. The EU financial contribution to these projects amounted to EUR 2 939,41 million. As shown in table 4 below, the PEOPLE Programme accounted for over half of the signed grants in 2014 (1 375), followed by the IDEAS Programme (531). COOPERATION Programme included more than half of the number of participations (2 993 grant holders) in these signed grants. More than 80% of the EU contribution to grants signed in 2014 went to COOPERATION and IDEAS Programmes, with projects under Cooperation Programme receiving the highest share of EU funding to signed grants on average, while projects in Ideas Programme had the highest share on of EU funding per grant holders on average.

Table 4: FP7 grants signed in 2014

SPECIFIC PROGRAMME	NUMBER OF SIGNED AGREEMENT	NUMBER OF GRANT HOLDERS	EU FUNDING TO SIGNED GRANTS (million EUR)	AVERAGE EU FUNDING TO SIGNED GRANTS (million EUR)	AVERAGE EU FUNDING TO GRANT HOLDERS (million EUR)	TOTAL PROJECT COST (million EUR)	EU FUNDING IN % OF PROJECT COST
COOPERATION	283	2993	1351,54	4,78	0,45	3199,95	42,24%
IDEAS	531	661	1056,62	1,99	1,60	1.057,46	99,92%
PEOPLE	1375	1500	415,20	0,30	0,28	564,16	73,60%
CAPACITIES	82	631	111,54	1,36	0,18	146,68	76,04%
EURATOM	3	32	4,50	1,50	0,14	6,66	67,57%
TOTAL	2274	5817	2937,41	1,29	0,50	4974,91	59,04%

More than one third (2 373) of all participations were from Secondary and Higher Education Establishments Organisations (HES), who also received the most significant share (EUR 1317,97 million) of the EU funding to grants signed in 2014. Private for profit (PRC) entities had a higher number of participations (1 724) compared to non-profit Research Organisations (REC) (1 249) though the EU contribution to PRC and REC was almost equivalent (EUR 721,50 million and EUR 720,36 million respectively). The SMEs participations were 1 010 or 17.36% of the total grant holders and the EU contribution to SMEs was EUR 331,02 million (the average funding to SME grant holder is 0,33 million).

Chart 17: Distribution of participations and EU contribution to participations by types of organisation



Regarding the distribution of participations per country, the cumulative number of participations from entities based in one of the EU-28 Member States was 5 187. Associated and candidate countries obtained 508 participations (mainly from Switzerland, Norway, Israel and Turkey) and third countries had 122 participations (of which 12 from the United States and Ukraine, 9 from China).

In terms of EU funding received by entities per EU Member States, the table 5 below provides figures on the total EU funding from FP7 projects signed in 2014, as well as a comparative figure of EU funds received per inhabitant and as a percentage of the Member States' Gross Domestic Expenditure in R&D (GERD) (2014 data):

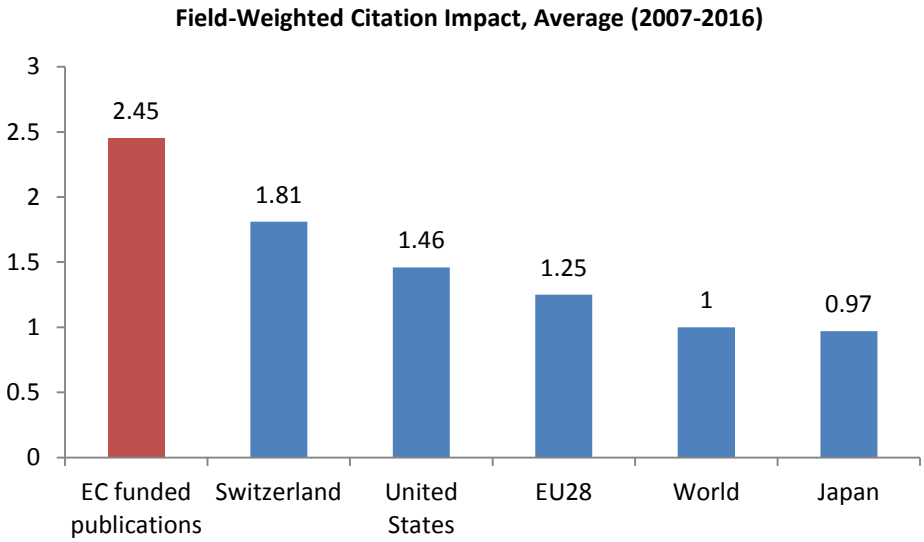
Table 5: Distribution of EU funding per Member State (2014 data)

EU Funding from FP7 projects signed in 2014					
	Total (in EUR million)	**per inhabitant (in EUR)**	**Number of inhabitants**	**per million EUR of GERD**	**GERD (in EUR million)**
EU-28	**2.615,17**	**5,15**	**508.191.116**	**0,92%**	**283.009**
Austria	69,82	8,13	8.584.926	0,71%	9.833
Belgium	147,01	13,06	11.258.434	1,49%	9.875
Denmark	72,74	12,85	5.659.715	0,91%	7.952
Finland	45,83	8,38	5.471.753	0,70%	6.512
France	412,28	6,21	66.352.469	0,86%	48.108
Germany	331,47	4,08	81.174.000	0,40%	82.866
Greece	40,03	3,70	10.812.467	2,70%	1.482
Ireland	39,02	8,43	4.625.885	1,36%	2.871
Italy	222,56	3,66	60.795.612	1,07%	20.770
Luxembourg	4,55	8,09	562.958	0,74%	614
Netherlands	262,82	15,55	16.900.726	2,01%	13.075
Portugal	33,60	3,24	10.374.822	1,51%	2.229
Spain	223,54	4,81	46.439.864	1,76%	12.725
Sweden	118,42	12,15	9.747.355	0,87%	13.612
United Kingdom	496,17	7,66	64.767.115	1,29%	38.323
EU-15	**2.519,86**	**6,24**	**403.528.101**	**0,93%**	**270.847**
Bulgaria	1,92	0,27	7.202.198	0,57%	335
Croatia	5,34	1,26	4.225.316	1,57%	340
Cyprus	7,36	8,69	847.008	8,90%	83
Czech Republic	8,63	0,82	10.538.275	0,28%	3.091
Estonia	10,61	8,08	1.313.271	3,71%	286
Hungary	18,68	1,90	9.849.000	1,31%	1.429
Latvia	1,10	0,56	1.986.096	0,68%	163
Lithuania	1,76	0,60	2.921.262	0,48%	370
Malta	1,09	2,55	429.344	1,62%	67
Poland	12,56	0,33	38.005.614	0,33%	3.864
Romania	11,63	0,59	19.861.408	2,02%	575
Slovakia	8,26	1,52	5.421.349	1,23%	670
Slovenia	6,37	3,09	2.062.874	0,72%	890
EU-13	95,31	0,91	104.663.015	0,78%	12.162

8.2. FP7 publications added value

Excellence was the overarching aim of FP7.

The effectiveness of the programme and its EU added value is demonstrated by the fact that the Field-Weighted Citation Impacts[73] of FP7 funded publications is almost two times higher than the one of an average EU publication and higher than the one observed in Switzerland, USA and Japan.



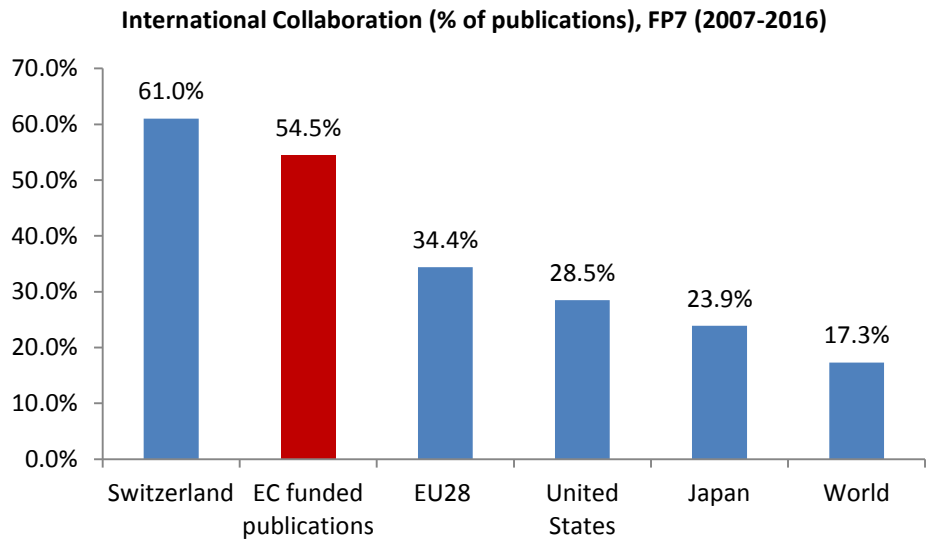
Source: SciVal based on Corda-Sesam-Respir data[74]

FP7 also strongly supported International Collaboration[75] which resulted in significantly more publications co-authored at international level (54.5%) than the EU and world averages (34.4% and 17.3% respectively).

[73] Field-weighted citation impact divides the number of citations received by a publication by the average number of citations received by publications in the same field, of the same type, and published in the same year.

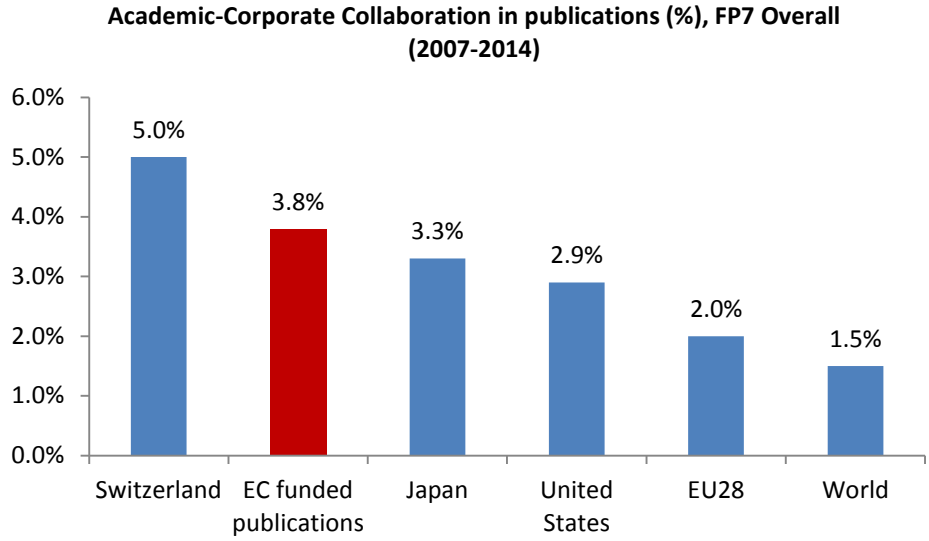
[74] The analysis was made with SciVal using Scopus database. The Scopus database maintained by Elsevier covers around 51 million records from 22 000 peer- reviewed journals "in the fields of science, technology, medicine, social sciences, and arts and humanities" going back to 1995. Only those publications which were validated by a digital object identifier (DOI) and identified in the Scopus database are counted. This represents about 80 % of all publications which have been reported.

[75] The International Collaboration is defined as international co-authorship in publication.



Source: SciVal based on Corda-Sesam-Respir data

Finally, FP7 publications score higher than the rest of the world in terms of share of Academic-Corporate Publications[76] demonstrating FP7's capacity to attract authors from the private sector.



Source: SciVal based on Corda-Sesam-Respir data

[76] Academic-Corporate Collaboration indicates publications with both academic and corporate affiliations.

8.3. State of play on FP7 indicators

Indicator		Target	Results/latest state of play
1	Projects that achieved all or most of their objectives…	90% (by 2013)	98 %[77]
2	... of which projects that achieved all of their objectives	75% (by 2013)	47 %[68]
3	Share of EU financial contribution to Industry (*)	The target depends on the specific thematic area under the Specific Programme "Cooperation" (between 40% for NMP and 3 % for SSH) (by 2013)	24.6 %[78]
4	Share of EU financial contribution to SMEs	15% (by 2013)[79]	17.4 %[80]
5	Projects producing specific outputs disseminated to policy makers	75% (by 2013)	95%[81]
6	Number of international prizes and awards to ERC grant holders	200 (by 2020)	134[82]
7	Number of scientific publications by ERC grant holders	~40,000-60,000 (by 2020)	~20,000[83]
8	Number of international scientific users having benefited from access to Research Infrastructures	30,000 (by 2013)	18,300[72]
9	Percentage of users satisfied with services offered by research infrastructures participating in Integrating Activities (good to very good overall appreciation)	>97% (by 2013)	97%[72]

[77] Source: CORDA/SESAM, Sep 2015.

[78] Source: CORDA, Oct 2014.

[79] For the budget of the Cooperation SP, the following activities are not included: grants to the European Space Agency (ESA), JTIs, General Activities such as the CORDIS services, the horizontal ERA-NET scheme, research organisations in the EU, strengthened coordination with EUREKA, scientific and technological cooperation activities carried out in the COST and the European Metrology Research Programme.

[80] Source: AAR 2013, Oct 2013.

[81] Source: AAR 2013, Nov 2013.

[82] Source: AAR 2013, July 2013.

[83] Source: AAR 2013, Dec 2013.

9. CONCLUDING REMARKS

The first Annual Monitoring Report under Horizon 2020 is a comprehensive publication encompassing the analysis of the implementation of Horizon 2020 through its calls closed in 2014. It helps identifying the most important issues related to performance as measured by the Key Performance Indicators, implementation aspects and participation trends.

Regarding **performance**, the first Report only covers the results on a limited number of Key Performance Indicators, given that it is too early to report on most of these output and results indicators. At this very early stage of implementation of Horizon 2020, the focus of this exercise has been mainly based on input indicators, while output and results of the Programme will build on the outcome of completed projects. 2014 has also been a year of transition from FP7 to Horizon 2020 and the Report presents achievements of some of the key improvements established by Horizon 2020, notably in terms of simplification.

Implementation aspects have shown the good result achieved in terms of reduction in Time-to-Grant compared to FP7, but it also shows that further effort is needed in order to ensure **data quality and gathering processes**, in line with a more strategic and professional monitoring and evaluation system that the Commission is currently building.

Special attention has been paid to the following participation trends:

a) **Oversubscription**: Horizon 2020 is a very attractive programme, as demonstrated by the high number of eligible proposals (33 792) and applications (122 713). The success rate of Horizon 2020 is 13.39%. The oversubscription is particularly evident when looking at the success rate in FP7, where this percentage was 19% on average over the seven years.

b) **EU-28 participation rates**: Legal entities based in one of the EU Member States (EU-28) have submitted 86.7% of the total number of applications in eligible proposals. In terms of EU funding for signed grants allocated to Member States, almost 75% of the total financial contribution resulting from calls for proposals went to 6 EU-15 countries (Germany, the United Kingdom, France, Spain, the Netherlands and Italy), while the cumulative contribution to EU-13 countries is 4.57%. If calculated on the basis of the 2014 national Gross Domestic Expenditure in Research & Development (GERD), the contribution of Horizon 2020 constitute a significant share of EU-13 countries investment in R&D.

c) **Public-Private and Public-Public Partnerships**: While it has not been possible to report on the actual investments from industry partners and other sources in PPPs, the investment from participating states in Art. 185 initiatives is estimated in EUR 178,1 million, of which the Union contribution is EUR 58,5 million. This corresponds to a leverage effect of 2:1: each euro of EU contribution resulting in the allocation of 2 additional euros from participating states; in the 11 ERA-NET Cofund actions of 2014, the investment from participating states is estimated at EUR 250 million, of which the Union contribution is up to EUR 92,4 million. This corresponds to a leverage effect of 1.7:1. In addition, it is expected that the participating states will mobilise additional funds of at least EUR 200 million in additional calls they organise without Union co-funding, increasing the expected leverage to 3.9:1.

Progress on the **cross-cutting issues** has been assessed, with a particular focus on Sustainable Development, Climate Change and Biodiversity. For Horizon 2020 calls closed in 2014, the EU financial contribution for Sustainable Development, Climate Change and Biodiversity amounted respectively to EUR 3 493 million (46% of the tracked budget), EUR 1 995 million (24% of the tracked budget) and EUR 317 million (4% of the tracked budget). In 2014, the targets were therefore not reached, even if programmable actions were very close to the climate target (32% instead of 35%) and relatively close for sustainable development (50% instead of 60%). The Commission is already measures to improve these figures, and will align the tracking methodology to the UN's newly adopted Sustainable Development Goals.

This first Annual Monitoring Report of Horizon 2020 shows that the implementation of Horizon 2020 contributes to the new strategic focus for Horizon 2020 in order to maximize its contribution to "Open innovation", "Open Science" and "Open to the world".

Horizon 2020 has fostered **Open Innovation**: Private-for-Profit entities (PRC) represent more than 60% of the applicants in retained proposals and have tabled 6 130 participations, or 31% of the total number of participations in signed grants, receiving EUR 2 193 million or 26.22% of the total EU contribution to signed grants. Within LEIT and Societal Challenges cumulated budget, the share of EU financial contribution going to private entities is 43.66% (EUR 2 019 million).

Statistical results for 2014 show that 23.09% (EUR 1 068 million) of the 2014 budget allocated to LEIT and Societal Challenges (EUR 4 624 million) is allocated to SMEs, meaning that the 20% target has been reached. In line with Horizon 2020, 5,51% (EUR 255 million) of the total combined budgets for the specific objective LEIT and the priority 'Societal challenges' was allocated to signed grants from the dedicated SME instrument in 2014. Progress towards meeting the 7% target is therefore well on track.

Horizon 2020 has promoted **Open Science** with frontier research under the European Research Council (ERC), amounting to a financial contribution of EUR 1 734 million, EUR 220 million for Future and Emerging Technologies (FET), Marie Skłodowska-Curie Actions (MSCA) have received funding for EUR 864 million and Research Infrastructures projects for EUR 391 million.

Overall, 6% of the budget went to SSH partners and SSH partners account for 26% of the total number of consortia partners in projects funded under topics flagged for SSH. The gender dimension was explicitly mentioned in 63 topics to inform the potential applicants about the importance of taking into account the biological characteristics and/or the social/cultural features of both women and men in their proposals.

Horizon has contributed for the EU to remain **Open to the World**. Common global societal challenges, like health, food, energy, transport, climate change, make international cooperation an increasingly important dimension because science and innovation can present technological solutions for sectoral policies and foreign affairs. While the overall third country participation is lower compared to FP7, Horizon 2020 themes are more suitable and targeted to international cooperation activities compared to the FP7: the share of budget of topics where international cooperation or a specific third-country or region was specifically mentioned in the call text has increased from 12% (FP7 baseline) to 22% in October 2015.

The next edition of the Annual Monitoring Report will keep analysing these trends, focussing in particular on changes occurred compared to previous Horizon 2020 implementation years.

ANNEX I: METHODOLOGY

This first Annual Monitoring Report focuses on the implementation of the Work Programme 2014-2015, which was adopted in December 2013. It covers 58 calls within the Horizon 2020 Work Programme and six calls from the Work Programmes of the Public-Private Partnerships (Joint Undertakings), resulting in 101 call deadlines having closure dates equal or preceding 31 December 2014. It includes a Grant to Named Beneficiary under Horizon 2020 (H2020-Adhoc-2014-20) and one under Euratom (EURATOM-Adhoc-2014-20) for which closure date is set to end December 2020.

The Annual Monitoring Report 2014 is based on data collected directly from the Common Research Data Warehouse (CORDA) Portal, using Commission's internal reporting tools provided by the CORDA team, Unit J4 of Directorate J, Common Support Centre, of the Directorate-General for Research and Innovation (DG RTD). It includes 1-stage calls and second stage in 2-stage calls[84], producing results aggregated at call level.[85] All proposals belonging to these calls are covered[86], except non-eligible proposals, which represent only 2% of the total number of proposals submitted.

Two calls belonging to the Research Fund for Coal and Steel (Coal RFCS-2014-1 and Research-Fund-for-Coal-and-Steel-2014-2020) have been excluded as they do not belong to Horizon 2020. The Report also does not include the call EIT-KICS-2014 (statistics on EIT are presented separately, but are excluded from the overall computing) and two prizes (H2020-Prize-Innovation-SOFT-2014 and H2020-WIPRIZE-2015). Similarly, 2 calls from the Innovative Medicines Initiative (IMI2) Joint Undertaking are excluded from the overall computing because statistics from IMI2 are not currently integrated in the CORDA database; nonetheless, available figures regarding the implementation of IMI2 are provided in Annex III under the Health Societal Challenge. The monitoring of JRC direct actions is carried out through the Annual Activity Reports and by the JRC Board of Governors based on the information contained in the JRC Annual Report. JRC direct actions are hence also excluded. Finally, the type of action "Framework Partnership Agreements (FPA)" is excluded because there is no grant associated to them.

The statistics on participation are based on grants agreements signed before 1 December 2015. Details on participation and implementation for each call are presented in Annex III to the Staff Working Document (here below) under the relevant WP's part to which the call belongs. The Report also includes the implementation activities of the European Institute of Innovation and Technology (EIT) as well as of the Euratom Research and Training Programme.[87] Annex IV analyses each cross-cutting issue and its indicators.

Next Annual Monitoring Reports will cover calls for proposals closing before 31 December of each year, in order to enable a comparison of the implementation of Horizon 2020 from one year to the next. Evidence provided in the Annual Monitoring Reports will generate factual data that will feed into the Interim and Ex-post evaluations of Horizon 2020.

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[84] First-stage proposals in 2-stage calls are excluded from the Annual Monitoring Report since they do not provide a full statistical dataset.

[85] It should be noted that calls can include more topics, covering more than one Programme's part, highlighting the integrative approach of Horizon 2020.

[86] Proposals within the continuous calls H2020-Adhoc-2014-20 and EURATOM-Adhoc-2014-20 are limited to those having a submission date before or equal to 31/12/2014.

[87] Council Regulation (Euratom) No 1314/2013 of 16 December 2013 on the Research and Training Programme of the European Atomic Energy Community (2014-2018) complementing the Horizon 2020 Framework Programme for Research and Innovation. Article 21.

Within the purposes of the Annual Monitoring Report, it has been essential to verify the appropriateness and accuracy of the data collection system. During the preparation of this document, the Commission services were confronted with incomplete data sets for 10 indicators for which information should have been collected during Grant Agreement Preparation.[88] In order to solve these implementation issues, a recovery exercise has recently been launched to collect the missing information retroactively. The completion of data sets will occur in the first half of 2016.

The second Annual Monitoring Report, covering calls closed in 2015, is set to be published by the end of 2016. It will also present newly updated figures for 2014 calls to facilitate comparability between 2014 and 2015 results.

ANNEX II: RESULTS OF THE STAKEHOLDERS' SURVEY

In September 2015, the Commission carried out the annual survey of Horizon 2020 National Contact Points (NCPs) of EU Member States and third countries. NCPs provide highly professional support services for potential beneficiaries and are an essential component of Horizon 2020 implementation. By spreading awareness, giving specialist advice, and providing on-the-ground guidance, they ensure that Horizon 2020 opportunities become known and readily accessible to all potential applicants, irrespective of sector or discipline. The annual survey of National Contact Points is one of the key elements of the Annual Monitoring Report, as it focusses on the achievements of the overall objectives of Horizon 2020 as perceived and observed at national and/or regional level. However, the views expressed in this survey are limited to NCPs and cannot be considered as representative of the whole stakeholder community.

The aim of this survey was to collect views, comments and suggestions on Horizon 2020 participation and implementation issues. In particular, the survey covered questions on the attractiveness of the Programme for stakeholders; on the relevance of Horizon 2020 objectives with Research and Innovation needs and in relation to the EU-2020 strategy; on the coherence with other EU funding sources and on the added value of the EU intervention.

The questionnaire was sent to 1 050 NCPs from all 28 Member States, 14 associated countries and 86 third countries. 349 answers were received which means a response rate of 33.2%. The highest number of answers came from France 44 (12.6% of the total) followed by Spain 23 (6.5%) and Germany 22 (6.3%), Norway and Italy with 12 (3.4%), while non-associated third country have contributed collectively with 14 answers (4,01%).

The survey was composed of 30 multiple-choice questions and 1 open question at the end. The 30 questions have been clustered according to four categories:

1) **Horizon 2020 as a policy tool**: it includes questions of general political interest, at national and regional level, as well as questions on complementarity with other EU activities.
2) **Open Science**: it addresses questions related to the role of science in boosting cooperation with the society at large, including business, as well as gender and ethics issues.
3) **Open Innovation**: questions in this section focus on Horizon 2020 contribution to the private sector, including public-private partnerships, as well as on the most pressing challenge of creating jobs and growth.

[88] These 10 indicators related to 1 KPI (Energy) and 7 cross-cutting issues (SSH; RRI, Gender, International Cooperation, Sustainable Development/Climate/Biodiversity, Innovation Actions; Digital Agenda).

4) **Open to the World:** questions with an international dimension, including on the role of Europe as a global actor, have been clustered in this section.

Horizon 2020 as a policy tool

The majority of the respondents (73%) 'agrees' and 'strongly agrees' that Horizon 2020 has widened participation of all Member States (10% 'disagree' or 'strongly disagree') while 58% have a positive perception of Horizon 2020's role in promoting participation of regional actors (with a more uncertain 30% that 'neither agrees nor disagree') or international participation (50% 'agree' or 'strongly agree'). The NCPs attribute a significant role to Horizon 2020 in shaping national and regional R&I policy in 55.7% of the replies, with an additional 33.5% that rate this role as 'average'. The EU added value of Horizon 2020 is 'high' or 'very high' for 68% of the respondent and for only 4% it is 'low' or very 'low'.

Complementarity of Horizon 2020 with Europe 2020 priorities is evaluated 'high' or 'very high' by 66% of the respondents and 'low' or 'very low' by less than 3%. Asked to give their opinion on the synergies between Horizon 2020 and the European Structural and Investment Funds (ESIF), the NCPs community expressed it as follow: 22% had a 'high' or 'very high' perception of complementarity, with a strong component perceiving it 'low' or 'very low' (24%) while the majority have 'average' (31%) or 'no opinion' at all (22%). Similarly, the synergy with the European Fund for Strategic Investment (EFSI) is not perceived strongly, given that 22% of respondents rate it as 'high' or 'very high', almost 22% as 'low' or 'very low', 26% as 'average' and 29.5% as 'no opinion'.

Open Science

86% of respondents consider that Horizon 2020 provides sufficient opportunities for cooperation between science and business (less than 3% 'disagree' or 'strongly disagree') and 71% approves the opportunities of cooperation between science and society (9% 'disagree' or 'strongly disagree'). 61% of the responses express a positive opinion on Horizon 2020 ensuring a right balance between participation from universities, business-oriented and other research institutes (almost 15% 'disagree' or 'strongly disagree'). The respondents only moderately agree (51% with almost 17% that 'disagree' or 'strongly disagree') that Horizon 2020 stimulates the participation of young researchers.

The NCPs have expressed a largely positive opinion regarding Horizon 2020's support for cross-border and cross-sector mobility of researchers (69% 'agree' or 'strongly agree' while 5% 'disagree' or 'strongly disagree') and for joint research agendas (65% 'agree' or 'strongly agree' and 6% 'disagree' or 'strongly disagree'). They have moderately positive views in relation to the circulation, access to and transfer of scientific knowledge (51% have expressed 'high' or 'very high' ratings and 6% 'low' or 'very low' rating). Open access policy receive a wide support with 61.5% of 'high' or 'very high' ratings and 6% of 'low' or 'very low' rating.

Horizon 2020 stimulates gender balance for almost 70% of the respondents (9% 'disagree' or 'strongly disagree') as well as the integration of the gender dimension in research context (62% 'agree' or 'strongly agree', while less than 9% 'disagree' or 'strongly disagree'). 45% think that Horizon 2020 adequately supports Social Science and Humanities (SSH) partners (19% 'disagree' or 'strongly disagree') and 47% think that it stimulates Responsible Research and Innovation (9% 'disagree' or 'strongly disagree', while 42% 'neither agree nor disagree').

The gender balance is seen positively or very positively by almost 70% of the respondents (9% 'disagree' or 'strongly disagree') as well as the integration of gender dimension in research context (62% 'agree' or 'strongly agree' and 8.5% 'disagree' or 'strongly disagree'). There is strong support for the role of Horizon 2020 promoting ethical standards (80% 'agree' or 'strongly agree', and less than 3% 'disagree' or 'strongly disagree'), while science education

and scientific literature in Horizon 2020 is addressed adequately only for 46% (15% 'disagree') and 42% (13% 'disagree' or 'strongly disagree') of the respondents respectively.

Open Innovation

Horizon 2020 provides sufficient opportunities for participation of SME according to 75% of the respondents (7% 'disagree' or 'strongly disagree') and for the participation of private sector according to 73% of the respondents (almost 9% 'disagree' or 'strongly disagree'). 60.7% recognize that Horizon 2020 ensure adequate opportunities for public-private partnership and almost 9% 'disagree' or 'strongly disagree', though with an high degree of uncertainty (30% 'neither agree nor disagree'). The participation of newcomers is adequately stimulated only for 32% of the respondents, while 39% 'disagree' or 'strongly disagree'. A population as high as 78,5% of NCPs estimate that Horizon 2020 has provided sufficient funds for Innovation actions, while 8% find this contribution insufficient.

The ability of Horizon 2020 to support jobs, growth and investment is rated 'high' or 'very high' for 35% of respondents, 'low' or 'very low' for 15% and 'average' for 44% of the respondents. Similarly, the ability of Horizon 2020 to support the development of the Digital Single Market – another important priority of this Commission – is rated 'high' or 'very high' by 32%, 'low' or 'very low' by 8% and 'average' by 38% of the respondents (no opinion covers almost 21% of the replies).

Open to the World

Just above 50% of the respondents think that Horizon 2020 provides sufficient opportunities for third countries' participations, though with 16.5% 'disagree' or 'strongly disagree' and almost 33% that can 'neither agree nor disagree'. Almost 60% of the NCPs rate 'high' or 'very high' the role Horizon 2020 plays in making Europe stronger on a global scale, while 7% 'disagree' or 'strongly disagree'. Addressing one of the most important global challenges, which is the fight against Climate Change, through a dedicated budget in Horizon 2020, is seen positively by 51% of the respondents, with 6% that 'disagree' or 'strongly disagree' and 28% that rate it 'average' (no opinion in more than 13% of the replies).

Conclusions

The survey has helped identifying some interesting trends.
In relation to the cross-cutting issues, Horizon 2020's perceived contribution to the ERA is fairly positive ('agree' and 'strongly agree' above 60% of the replies on average for three questions). The gender balance is seen positively or very positively by almost 70% of the respondents as well as the integration of the gender dimension in research context (62%). Less than 50% think that Horizon 2020 adequately supports Social Science and Humanities (SSH) and Responsible Research and Innovation (RRI) (45% and 47% respectively).

The NCPs have also been asked to express their opinion on the contribution of H2020 to growth and jobs, which are part of Juncker's political priorities. NCPs are, however, one specific group of stakeholders in the Horizon 2020 context and cannot be considered to express a representative opinion on the contribution of Horizon 2020 to the political priorities. The NCPs have given a medium-to-low rate to the ability of Horizon 2020 to support jobs, growth and investment (35% of respondents 'agree' or 'strongly agree') and to develop the Digital Single Market (32%), while figures are stronger in relation to boosting the Energy Union and fighting Climate Change (51%), as well as in making Europe a stronger global actor (60%).

Regarding the complementarity with other EU activities, Horizon 2020 is seen as matching well the Europe 2020 priorities (66% of respondents rate it 'high' or 'very high' and less than 3% 'low' or 'very low') but the relations with ESIF and EFSI are perceived significantly less well (22% had a 'high' or 'very high' perception of this complementarity), with a strong

component perceiving it 'low' or 'very low' (24% for ESIF and 21% for EFSI) while the majority have 'average' (31% and 26% respectively) or 'no opinion' at all (22% and 30%). Again it should be reminded that these views, limited to NCPs, cannot be considered as representative of the whole stakeholder community.

The majority of the respondents (73%) 'agrees' or 'strongly agrees' that Horizon 2020 has widened participation of all Member States (10% 'disagree' or 'strongly disagree') while 58% have a positive perception of Horizon 2020's role in promoting participation of regional actors (with a more uncertain 30% that 'neither agree nor disagree') or international participation (50% 'agree' or 'strongly agree'). The NCPs attribute a significant role to Horizon 2020 in shaping national and regional R&I policy in 55.7% of the replies, with an additional 33.5% that rate this role as 'average'. The EU added value of Horizon 2020 is 'high' or 'very high' for 68% of the respondent and for only 4% it is 'low' or very 'low'.

ANNEX III: IMPLEMENTATION TOWARDS PRIORITIES AND SPECIFIC OBJECTIVES

III.1. Excellent Science

III.1.1 *The European Research Council*

Intervention Logic (Rationale)

The rationale of the ERC is to reinforce and extend the excellence of the Union's science base and to consolidate the European Research Area in order to make the Union's research and innovation system more competitive on a global scale. The ERC provides attractive and flexible funding to enable talented and creative individual researchers and their teams to pursue the most promising avenues at the frontier of science, with a specific objective to reinforce the excellence, dynamism and creativity of European research.

Under the ERC Work Programme 2014, 5 calls were launched:

Title of Call	Description
ERC Advanced Grants (ERC-2014-ADG) Budget: **EUR 450 million**	ERC Advanced Grants are designed to support excellent Principal Investigators at the career stage at which they are already established research leaders with a recognised track record of research achievements in the last 10 years. Applicant Principal Investigators must demonstrate the ground breaking nature, ambition and feasibility of their scientific proposal.
ERC Consolidator Grants (ERC-2014-CoG) Budget: **EUR 713 million**	ERC Consolidator Grants are designed to support excellent Principal Investigators at the career stage at which they may still be consolidating their own independent research team or programme, from 7 to 12 years after completed PhD**.** Applicant Principal Investigators must demonstrate the ground breaking nature, ambition and feasibility of their scientific proposal.
ERC Starting Grants (ERC-2014-STG) Budget: **EUR 485 million**	ERC Starting Grants are designed to support excellent Principal Investigators at the career stage at which they are starting their own independent research team or programme, from 2 to 7 years after completed PhD. Applicant Principal Investigators must demonstrate the ground breaking nature, ambition and feasibility of their scientific proposal.

ERC Proof of Concept Grants (ERC-2014-PoC) Budget: **EUR 15 million**	ERC Proof of Concept Grants aim to maximise the value of ERC excellent research to verify the innovation potential of ideas arising from ERC funded projects. Proof of Concept Grants are on offer only to Principal Investigators whose proposals draw substantially on their ERC funded research that is either on going or has ended less than 12 months before the publication date of this call.
ERC Support (ERC-2014-SUPPORT-1) Budget: **EUR 1,6 million**	This Coordination and Support Action (CSA) call identifies and implement novel ways to highlight the work funded by the ERC and reach out a wider public

Other actions launched in 2014 consisted of:

- Setting up of an experts group in support of monitoring and evaluation of ERC programme [EUR 120 000]
- Follow-up studies on ERC impact [EUR 420 000]
- Support to the Europe PubMed Central initiative on Open Access [EUR 290 000]
- Support to the ERC Scientific Council [EUR 900 000]

Participation

In 2014, the participation in ERC actions through the above calls resulted in 8 379 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 14 544,30 million, which represents 8.7 times the ERC budget estimated in the WP 2014. After evaluation, 5 667 proposals scored above threshold[89] while 994 proposals were finally retained.

The number of selected projects was 1 066, including 72 proposals retained from the reserve list, with an allocated financial contribution of EUR 1 734,26 million. By 1st December 2015, the number of grant signed was 1 038, amounting to a budget funding of EUR 1 679,97 million. On average, the amount of EC budget allocated per signed project under ERC is EUR 1,62 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful ERC projects represents 20.48% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of ERC successful projects is 22,17% of the Horizon 2020 total number of successful projects (4 809).

ERC participation trends show that EU-13/EU-28 participation rate is 2.34% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 9.43% and 2.95% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 1.18% and 0.42% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by the European Research Council Executive Agency (ERCEA), a dedicated implementation structure[90] that handles autonomously the operational

[89] "Proposal above the threshold" or "high quality proposals" in the ERC calls are defined as those proposals that receive an A or a B score at either step of the ERC evaluation.

[90] Commission Decision 2013/779/EU establishing the European Research Council and the European Research Council Executive Agency. The latter succeeds the Executive Agency established by Decision 2008/37/EU.

management of the specific objective "Strengthening Europe's science base in frontier research" of Horizon 2020. The ERCEA executes the scientific strategy established by the ERC Scientific Council and supports the latter in fulfilling its tasks through the management of ERC funding instruments and by enabling the financing of investigator-driven research of the highest quality.

Compared to the average for Horizon 2020 (89.40% excluding ERC projects), the ERC-specific time-to-grant indicator is very low (9.06%), indicating that a significant number of projects have been signed beyond the TTG benchmark. However, as mentioned before, the ERC is not bound by the respect of the TTG benchmark.[91]

The ERC-specific success rates are 11.86% in terms of eligible proposals and 11. 87% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are low in particular for the Advanced Grant and Starting Grant calls (including more than half of the proposals received under ERC calls).

The Key Performance Indicator that is particularly relevant for ERC actions is "Share of publications from ERC funded projects which are among the top 1% highly cited". This KPI is expected to produce results under Horizon 2020 only as of 2018, given the considerable time lag between the start of the project and its resulting output in terms of scientific publications and their respective citations. An indicative value for this indicator based on FP7 ERC publications is however very encouraging, as it shows that 7% of ERC publications are among the top 1% highly cited worldwide.

Conclusions

The ERC grants remain an attractive tool given that the best researchers continue to participate in the ERC's competitions, despite a noticeable decrease in a number of applications to the ERC 2014 calls compared to 2013, as possible result of application restrictions introduced by the ERC Scientific Council in response to continuously increasing application pressure to the ERC in the previous years.

ERC funded project are highly productive and ERC funded research is largely present in high-impact journals. ERC projects are not only producing and disseminating a very substantial number of research findings, but are producing a substantial number of the most significant and high impact research findings worldwide. By December 2014, the ERCEA collected from Thomson Reuters' Web of Science more than 33 000 articles and reviews acknowledging ERC funding.

Several ERC grantees have received prestigious international scientific prizes and awards. Two of the four outstanding mathematicians being awarded the 2014 Fields Medals were ERC grantees: Prof. Artur Vila an ERC StG holder since 2010 and Prof. Martin Hairer an CoG holder from 2013. The 2014 Nobel Prize in Physiology and Medicine has been awarded jointly to two outstanding researchers, both holding ERC Advanced Grants for their research in neuroscience: May-Britt Moser and Edvard I. Moser. The 2014 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel was awarded to another ERC Advanced Grant holder: Prof. Jean Tirole.

EUROPEAN RESEARCH COUNCIL	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	1 676,6

[91] Regulation (EU) No 1290/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006, Article 20.

EC contribution to signed grants in 2014 calls (EUR million)	1 679,9
Average EC contribution per signed grant (EUR million)	1,62
Participation	
Number of successful projects	1 066
EU-13 participation (EU-13/EU-28)	2.34%
Associated countries participation[92] (associated countries/overall)	9.43%
Third countries participation (third countries/overall)	2.95%
Private sector participation (private/overall)	1.18%
SMEs participation (SME/overall)	0.42%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	9.06%
Success Rate (projects/proposals)	11.86%
Success Rate (€ allocated/requested)	11.87%
KPIs	
ERC - Share of publications from ERC funded projects which are among the top 1% highly cited[93]	7%

III.1.2 Future and Emerging Technologies (FET)

Intervention Logic (Rationale)

The main objective of Future and Emerging Technologies (FET) is to turn Europe's excellent science base into a competitive advantage by uncovering radically new technological possibilities. It focusses on research beyond what is known, accepted or widely adopted and supports novel and visionary thinking to open promising paths towards powerful new technologies. FET research positions itself between blue-sky science and research driven by societal challenges or by industrial competitiveness.

FET is organised as a threefold scheme: FET Open, FET Proactive and FET Flagship. Part of FET Proactive is dedicated to financing activities for the Public-Private Partnership (cPPP) on High Performance Computing. Under the FET Work Programme 2014-2015, 5 calls were launched in 2014:

Title of Call	Description
FET FLAGSHIPS tackling grand interdisciplinary science and technology challenges (H2020-FETFLAG-2014) **Budget: EUR 1.6 million**	The FET Flagships (Graphene and the Human Brain Project) are implemented through two Topics. For Topic 1, FPA Framework Partnership Agreement (with zero budget), the specific objective is to establish, for each of the two FET Flagships, Graphene and the Human Brain Project, a stable and structured partnership between the EC and the project

[92] The participation rate of associated and third countries is affected by the fact that Switzerland, the most successful associated country in previous ERC calls, was excluded from the participation in ERC 2014 calls for Starting and Consolidator Grants. Switzerland becomes eligible for participation in the ERC again with the 2014 call Advanced Grant, when it received a significant number of ERC grants. During the exclusion of Switzerland from the 2014 ERC calls, this country remained eligible to participate in other H2020 programmes as a third country, which also affects statistics on ERC participation rate of third countries, notably when these are compared with other programmes of H2020.

[93] Preliminary estimate based on ERC publications from FP7 projects.

	consortia. Topic 2, Policy Environment for FET Flagships, calls for Coordination and Support Actions (CSAs) (budget EUR 1.6 million) contributing to dissemination efforts, impact assessments and other actions which support and strengthen the FET Flagship initiatives.
FET-Proactive HPC towards exascale High Performance Computing (H2020-FETHPC-2014) **Budget: EUR 97.4 million**	The High Performance Computing (HPC) strategy aims at ensuring European leadership in the development and use of HPC systems, software, applications and services by 2020. The focus of this FET Proactive call is on developing the next generation of HPC towards exascale and on achieving excellence in HPC applications. A Public Private Partnership with the European Technology Platform for HPC (ETP4HPC) has been set up to define research priorities for the development of a globally competitive HPC technology ecosystem in Europe. This FET Proactive call contributes to achieving the goals of the HPC PPP.
FET-Open Novel ideas RIA (H2020-FETOPEN-2014/2015-RIA) **Budget: EUR 77.0 million**[94]	FET-Open aims to support early-stage joint science and technology research for radically new future technological possibilities. This call for Research Projects (RIA) is entirely non-prescriptive with regards to the nature or purpose of the technologies that are envisaged and thus targets mainly the unexpected. Proposals are focussed on collaborative research with all of the following characteristics: Long-term vision, Breakthrough S&T target, Foundational, Novelty, High-risk and Interdisciplinary.
FET-Open Novel ideas CSA (H2020-FETOPEN-2014/2015-CSA) **Budget: EUR 3.0 million**	Compared to the above call, this call seeks for Coordination and Support Activities (CSA) to turn Europe into the best place in the world for responsible collaborative research on future and emerging technologies. The call is expected, for instance, to strengthen the engagement of European scientists, citizens, innovators and policy makers, to improve European long-term innovation potential or to address the silo-breaking research collaboration issue or the take up of new research and innovation practices.
FET-Proactive Emerging themes and communities (H2020-FETPROACT-2014) **Budget: EUR 35.0 million**	FET-Proactive initiatives are meant to mature novel areas and themes by working towards structuring emerging communities and supporting the design and development of transformative research themes. Three FET-Proactive initiatives are implemented in this call: "Global Systems Science"; "Knowing, Doing, Being: Cognition beyond problem solving" and "Quantum Simulation".

Participation

[94] The total budget for this call covering 2014 and 2015 amounts to EUR 154 million.

In 2014, the participation in FET actions through the above calls resulted in 933 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 2 871,26 million, which represents 13 times the FET budget estimated in the WP 2014. After evaluation, 410 proposals scored above threshold while 61 proposals were finally retained.

The number of selected projects was 63, including 2 proposals retained from the reserve list, with an allocated financial contribution of EUR 220,05 million. By 1st December 2015, the number of grants signed was 63 amounting to a budget allocation of EUR 220.05 million. On average, the amount of EC budget allocated per FET project is EUR 3.49 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful FET projects represents 2.60% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 1.31% of the Horizon 2020 total number of successful projects (4 809).

FET participation trends show that EU-13/EU-28 participation rate is 4.68% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 6.03% and 4.57% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 17.88% and 9.98% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by the Directorate-General for Communication Networks, Content and Technology (DG CONNECT) for the calls FETHPC, FETPROACT and FETFLAG, as well as by the Research Executive Agency (REA) for the calls FETOPEN-RIA and FETOPEN-CSA.

The FET-specific time-to-grant indicator is 96.83%, above the Horizon 2020 average (89.40% excluding ERC projects), indicating that almost all projects have been signed within the TTG benchmark. The exception to this is the FETFLAG projects, which, due to their large size and highly complex nature, can hardly fulfil the TTG requirements. It should also be noted that 2 FET Proactive project proposals from a reserve list have been included in the Grant Agreement signature process at a later stage, implying a delay.

The FET-specific success rates are 6.54% in terms of eligible proposals and 7.46% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are low in particular for the FETOPEN-RIA call, because of a high oversubscription, which can be explained by (1) the success of the FETOPEN programme with researchers, (2) the openness of the programme to all disciplines, (3) the low entry ticket to apply (1 stage call; 15 page proposals; resubmission allowed).

The Key Performance Indicators that are particularly relevant for FET are "FET Publications in peer-reviewed high impact journals" and "Patent applications and patents awarded in FET". Both are output indicators and results are only expected as from 2018 given that the projects only started in 2015.

Conclusions

a. Dissemination activities

FET-related units organised and participated in many dissemination activities using a variety of communication channels in 2014. These channels included: nine FET Newsletters covered announcements of related calls, consultations and their results, latest scientific project success stories and related events. Online publications were created, such as reports about consultations and workshops, a FET portfolio of projects, project fact sheets, infographics etc. Several infodays were organised. Presentations were given at relevant workshops and conferences. Press releases, supported by blogs announcing status and/or progress of FET Open, Proactive & Flagship projects were published. FET-related units are very active on

social media on a daily basis, covering directly conferences and workshops and using these channels to get the attention to inform stakeholders about previously mentioned news.

b. Most Promising Stories

Beyond the well-known and very promising FET Flagship projects briefly described above, these are two promising stories from the FET-Open and FET-Proactive schemes:

The **Graphene Flagship project**, (142 institutions from 23 countries) aims to take graphene and related layered materials from the realm of fundamental science to industrial and societal applications in the space of ten years. A lot of graphene properties can be predicted, investigated and also optimized into given directions and this is what makes it so promising for using it in many applications that are currently under investigation and development. Examples include energy applications (photovoltaics, batteries); super-strong functional membranes, composites and coatings (for chemical, aerospace and automotive applications); sensors of all types incl. for medical and bioengineering applications, photonics and electronics (waveguides, flexible computer displays, etc.).

The **Human Brain Project (HBP) Flagship** (112 institutions from 24 countries) aims to build a world class ICT research infrastructure for neurosciences, brain medicine and future computing. It will provide researchers with computational and data integration tools & services and also mathematical models that will help them better understand the functioning of the brain and its diseases and emulate its computational capabilities. The HBP research infrastructure will be a major public resource that will strengthen Europe's position as international leader in neuroscience. The HBP data mining methods and infrastructure will have a substantial impact on medical research, facilitating the identification of disease signatures and the development of personalised treatments. Understanding how the brain "computes" will also provide the key to a completely new category of data processing hardware and to a paradigm shift for computing as a whole and for robotics cognition. HBP will drive the development of HPC regarding high memory access and interactive analysis, and visualisation.

SubCULTron (FET-ProActive, Knowing, Doing, Being) – "*Submarine cultures perform long-term Robotic exploration of unconventional environmental niches*": This project aims at developing the largest underwater system that will collect, coordinate and communicate data autonomously. An artificial society of robots inspired by marine biology will bring a number of benefits for underwater technology, and help to protect the waterways of Venice in Italy from further damage.

GRACeFUL (FET-ProActive, GSS) – "*Global systems Rapid Assessment tools through Constraint FUnctional Languages*": The making of policies coping with Global Systems is a process that necessarily involves stakeholders from diverse disciplines, each with their own interests, constraints and objectives, where people play a central role and where the quest for solutions to a problem generally intertwines its very specification. This project lays the base for a Domain-specific Languages aimed at building scalable rapid assessment tools for collective policy making in global systems.

Abiomater (FET-Open) – "*Magnetically actuated bio-inspired metamaterials*": This project will explore how magnetically controlled metamaterials – engineered materials with properties not found in nature – could be used to improve medical devices and implants, upgrading treatment options for patients. From lenses to tissue engineering, the team plans prototypes within three years.

Nanosmell (FET-Open) – "*NanoSmells: Artificial remote-controlled odorants*": Controlled odour emission could transform video games and television viewing experiences and benefit industries such as pest control and medicine. The Nanosmell project aims to switch smells on and off by tagging artificial odorants with nanoparticles exposed to electromagnetic field.

Greenflash (HPC) – "Green Flash, energy efficient high performance computing for real-time science": The main goal of Green Flash is to design and build a prototype for a Real-Time Controller (RTC) targeting the European Extremely Large Telescope (E-ELT) Adaptive Optics (AO) instrumentation.

FUTURE AND EMERGING TECHNOLOGIES	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	214
EC contribution to signed grants in 2014 calls (EUR million)	220,05
Average EC contribution per signed grant (EUR million)	3,49
Participation	
Number of successful projects	63
EU-13 participation (EU-13/EU-28)	4.68%
Associated countries participation (associated countries/overall)	6.03%
Third countries participation (third countries/overall)	4.57%
Private sector participation (private/overall)	17.88%
SMEs participation (SME/overall)	9.98%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	96.83%
Success Rate (projects/proposals)	6.54%
Success Rate (€ allocated/requested)	7.46%
KPIs	
FET Publications in peer-reviewed high impact journals	N/A
Patent applications and patents awarded in FET	N/A

III.1.3 Marie Skłodowska-Curie Actions

Intervention Logic (Rationale)

The main objective of the Marie Skłodowska-Curie actions (MSCA) is to invest in people behind research and innovation in Europe, to enhance the skills and competences of the researchers and to deliver on innovation, growth and competitiveness.

The MSCA offer excellent career development and knowledge transfer opportunities in the academic and non-academic sectors to attract and retain high potential individuals in Europe. Mobility is a key requirement in the MSCA and it aims at stimulating international, interdisciplinary and inter-sector collaboration to effectively address current and future challenges faced by the society.

The MSCA are open to all domains of research, from basic research up to market take-up and innovation services. Research and innovation fields as well as sectors of activity are chosen freely by the applicants and are entirely non-prescriptive.

In 2014, more than EUR 800 million have been invested to offer 9 000 high quality fellowships in over 1 400 organisations worldwide.

In 2014, 6 calls were launched:

Title of Call	Description
MSCA COFUND Scheme (H2020-MSCA-COFUND-2014) **Budget: EUR 80 million**	The COFUND scheme aims at stimulating regional, national or international programmes to foster excellence in researchers' training, mobility and career development, thus spreading the best practices of Marie Skłodowska-Curie actions.
MSCA Individual Fellowships (H2020-MSCA-IF-2014) **Budget: EUR 240.5 million**	The goal of Individual Fellowships (IF) is to enhance the creative and innovative potential of experienced researchers by providing opportunities to acquire new knowledge, to work on research in a European context or outside Europe, to reintegrate researchers from outside Europe and to restart the careers of individual researchers.
MSCA Innovative Training Networks (ITN) (H2020-MSCA-ITN-2014) **Budget: EUR 405.18 million**	The Innovative Training Networks (ITN) aim at training a new generation of creative, entrepreneurial and innovative early-stage researchers, to raise excellence and to structure research and doctoral training in Europe. ITN extend the traditional academic research training setting, and equip researchers with the right combination of research-related and transferable competences through international, interdisciplinary and inter-sector mobility.
MSCA National Contact Points (H2020-MSCA-NCP-2014) **Budget: EUR 1.5 million**	With a view of raising the general standard of support to applicants, National Contact Points for MSCA receive funding to facilitate sharing of good practices and enhance transnational cooperation between them.
MSCA European Researchers' Night (H2020-MSCA-NIGHT-2014) **Budget: EUR 8 million**	The European Researchers' Night aims to bring researchers closer to the general public and to increase awareness of research and innovation activities, with a view to supporting the public recognition of researchers, creating an understanding of the impact of researchers' work on citizen's daily life, and encouraging young people to embark on scientific careers.
MSCA Research and Innovation Staff Exchange scheme (RISE) (H2020-MSCA-RISE-2014) **Budget: EUR 70 million**	The Research and Innovation Staff Exchange scheme (RISE) promotes international and inter-sector collaboration and fosters a shared culture that welcomes and rewards creativity and entrepreneurship and helps to turn creative ideas into innovative products, services or processes.

Other actions launched in 2014 included funding of MSCA alumni services to further increase the impact of MSCA and support to the Italian Presidency conference on the Empowerment of the Next Generation of Researchers "Promoting talents, spreading excellence" which took place in Trento on 18-19 November 2014 and featured among others the Award Ceremony of the Marie Skłodowska-Curie Prizes in three categories: Promising Research Talent, Communicating Science and Nurturing Research Talents.

Participation

In 2014, the participation in MSCA actions through the above calls resulted in 8 978 eligible proposals. The cumulative amount of EU contribution requested under these proposals was

EUR 5 510,83 million, which represents nearly 7 times the MSCA budget estimated in the WP 2014. After evaluation, 7 292 proposals scored above threshold while 1 582 proposals were finally retained.

The number of selected projects was 1 719, including 137 proposals retained from the reserve list, with an allocated financial contribution of EUR 864,23 million. By 1st December 2015, the number of signed projects was 1 658 amounting to a budget funding of EUR 851,41 million. The amount of EC budget allocated per project under MSCA depends on the type of activities proposed and varies from EUR 180.000 for Individual Fellowships to EUR 3,5 million for Innovative Training Networks or up to EUR 10 million for COFUND.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful MSCA projects represents 10,21% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 35.75% of the Horizon 2020 total number of successful projects (4 809).

MSCA participation trends show that EU-13/EU-28 participation rate is 6.36% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 4.80% and 9.75% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 12.72% and 7.12% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by the Research Executive Agency (REA) and, to a much lesser extent, DG Education and Culture (EAC). The initial REA mandate was extended until 2024, covering the whole grant management lifecycle of H2020 projects and the management of the MSCA predecessor actions in FP7. REA was also tasked to assist the Commission in collecting information about the results of the projects and in communicating the funding opportunities and success stories.

The MSCA-specific time-to-grant indicator is 89.45%, hence slightly above Horizon 2020 average (89.40% excluding ERC projects), while the MSCA-specific success rates are 17.62% in terms of eligible proposals and 14.14% in terms of EU funding (EU average: 13.39% and 14.51% respectively). The success rates are brought down in particular due to the very low success rate for the call H2020-MSCA-ITN-2014, which accounts for nearly half of the MSCA budget and had in 2014 a success rate of 10%.

This low success rate is due to the fact that ITN, the main EU instrument supporting structured doctoral training, thereby maximising the employability of PhD candidates through high-quality research, interdisciplinary approaches, exposure to industry and international mobility, is a recognised best practice in Europe and enjoys a continuous high demand.

The Key Performance Indicator for the MSCA actions refers to cross-sector and cross-country circulation of researchers. The indicator shows progress towards the targets for Horizon 2020: it is estimated that with the 2014 funding, nearly 9 000 fellowships have been offered under MSCA in support of cross-country and cross-sector mobility.

Conclusions

The MSCA offer a coherent strategy for research career development in Europe. They enhance research networking and collaboration, develop skills and competences, and boost employability and jobs of the next generation of European researchers. The MSCA are well known and highly appreciated by the research community.

The steadily rising number of applications received to MSCA calls is a clear indicator of their high attractiveness. In 2014, the highest number of proposals ever submitted to a single deadline (7 472) and on a single day (4 538) under Horizon 2020 were both for the MSCA Individual Fellowships call.

MSCA projects involve top researchers and provide excellent research training opportunities. It is worth noting that from the 2014 Nobel Prize winners, three were actively involved in MSCA projects.

Under Horizon 2020, an important simplification effort was made, by extending the use of simplified forms of grants (unit costs), streamlining the MSCA funding schemes (from 11 to 4) and unifying the rules and framework conditions for mobility.

a. Dissemination activities

With the launch of Horizon 2020, the MSCA participated in a series of national or regional events and info-days. Moreover, to raise their visibility and awareness among key-target audiences, the MSCA were present in 2014 at high-level international conferences and events: the 64th Lindau Nobel Laureate Meeting, ESOF 2014 (Euroscience Open Forum) in Copenhagen, the Italian Presidency events on the Empowerment of the Next Generation of Researchers in Trento and on the triple-i approach to doctoral training – international, interdisciplinary, intersectoral held in Padua, the EU-Russia Researchers' Mobility Forum in Brussels, the AAAS (American Association for the Advancement of Science) annual meeting in Chicago, the international Higher Education fair EAIE 2014 in Prague, an international conference on the preservation of cultural heritage Euromed2014, EuroPos (Education fair in Brazil), the JRC conference "Future of science" and at Destination Europe events in North-America (Boston, Montréal and Atlanta).

In addition, the Commission launched a campaign to raise awareness of businesses and other non-academic organisations about the possibilities offered by the MSCA funding. 11 events in 11 cities across Europe (Rome, Athens, Warsaw, Zagreb, Brussels, Prague, Helsinki, Madrid, Vilnius, Nicosia and Paris) were organised in 2014. More than 1 000 representatives from industries, SMEs, universities and research centres took part in these events.

b. Most Promising Stories

The 2015 Nobel Prize laureate in Physics, Prof. Takaaki Kajita of the University of Tokyo, participates in two MSCA RISE projects funded under H2020:

- The SKPLUS project is a part of on-going global efforts to understand the most fundamental elements of matter and their interactions. It aims to investigate neutrino interactions using the existing experimental facility in Japan, the Super-Kamiokande (SK) owned by the Institute for Cosmic Ray Research of the University of Tokyo.

  The collaborative work between researchers from Spain and Poland and the leaders of the field in Japan provides excellent opportunities to train a new generation of physicists as well as to build a solid expertise of all involved groups and to strengthen the European network of neutrino physicists and institutes.

  This project will receive an EU contribution of EUR 310 500.

- The InvisiblesPlus project will be implemented by a large international consortium involving research teams from Spain, UK, France, Germany, Switzerland, Italy, Japan, USA, Korea, China, Brazil, Costa Rica, India, Colombia, Egypt and Iran. It will conduct an ambitious international experimental search on neutrinos, axions, other dark matter and Higgs physics with major breakthroughs expected soon.

  The project will receive an EU contribution of EUR 2 million.

Summary	2014
Budget	
Estimated total budget in WP 2014 (EUR million)	816,47
EC contribution to signed grants in 2014 calls (EUR million)	851,41
Average EC contribution per signed grant (EUR million)	0,51
Participation	
Number of successful projects	1 719
EU-13 participation (EU-13/EU-28)	6.36%
Associated countries participation (associated countries/overall)	4.80%
Third countries participation (third countries/overall)	9.75%
Private sector participation (private/overall)	12.72%
SMEs participation (SME/overall)	7.12%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	89.45%
Success Rate (projects/proposals)	17.62%
Success Rate (€ allocated/requested)	14.14%
KPIs	
Number of researchers undertaking international mobility under MSCA. Number of researchers undertaking mobility between academic and non-academic sectors	9 000

III.1.4 European Research Infrastructures (RI)

Intervention Logic (Rationale)

Research infrastructures are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. Where relevant, they may be used beyond research, e.g. for education or public services. By offering high quality research services to users from different countries, by attracting young people to science and by facilitating networking, Research Infrastructures help structuring the scientific community and play a key role in the construction of an efficient research and innovation environment. Because of their ability to assemble a 'critical mass' of people, knowledge and investment, they contribute to national, regional and European economic development. They are also crucial in helping Europe move towards open, interconnected, data-driven and computer-intensive research.

Under the Work Programme 2014-2015, 4 calls with 6 sub-calls were launched in 2014 with EUR 277 million of estimated budget.

Title of Call	Description
Developing new world class research infrastructures H2020-INFRADEV-1-2014-1 **Budget: EUR 70 million**	This call aimed to facilitate and support the implementation, long-term sustainability and efficient operation of the research infrastructures identified by the European Strategy Forum on Research Infrastructures (ESFRI) as well as other world-class research infrastructures, which will help Europe respond to grand challenges in science, industry and society. In addition, the next generation of new research infrastructures have been

	identified through design studies.
Integrating and opening research infrastructures of European interest H2020-INFRAIA-2014-2015 **Budget: EUR 90 million**	This call focused on opening up key national and regional research infrastructures to all European researchers from both academia and industry and ensuring their optimal use and joint development. Through a targeted approach, specific types of research infrastructures or research communities were invited to submit proposals, ranging across all fields of science and technology.
e-Infrastructure for Open Access H2020-EINFRA-2014-1 **Budget: EUR 13 million**	This sub-call targeted an infrastructure supporting reliable and permanent access to digital scientific records. A key element is capacity building to link literature and data in order to enable a more transparent evaluation of research and reproducibility of results. This action includes an analysis of alternative means of public support to Gold Open. A key objective is the provision of service driven infrastructures to enable wide participation in the Open Data Pilot.
e-Infrastructures H2020-EINFRA-2014-2 **Budget: EUR 82 million**	This sub- call, by enabling more cooperation as well as computation-intensive and data-intensive research across disciplines, contributed in making European research – academic or industrial - more innovative and efficient. E-Infrastructures contributed to make every European researcher digital, increasing creativity and efficiency of research and bridging the divide between developed and less developed regions.
Support to policy H2020-INFRASUPP-2014-1 **Budget: EUR 2 million**	This call focused on facilitating trans-national co-operation between NCPs for research infrastructures with a view to identifying and sharing good practices and raising the general standard of support to programme applicants.
Support to innovation, human resources, policy and international cooperation H2020-INFRASUPP-2014-2 **Budget: EUR 20 million**	This call focused on fostering the innovation potential and developing the human resources of research infrastructures especially in areas that suffer from shortages in supply or where new skills and professions need to emerge, e.g. in 'data science'. It also aimed at reinforcing European research infrastructures policy and international cooperation. The topics for e-infrastructures aimed to optimise related investments in Europe by coordinating European, national and/or regional policies and programmes for e-infrastructures, it also facilitated the cooperation of European e-infrastructures with their non-European counterparts, by promoting, among others, connectivity and global e-infrastructure services.

In complementarity with the HPC activities led under the FET part, a study on High Performance Computing (budget: EUR 0.2 million) with the aim of following the progress on the implementation on the HPC strategy and presenting the evolution of the European HPC ecosystem was launched in 2014.

Participation

In 2014, the participation in Research Infrastructures actions through the above calls resulted in 180 eligible proposals. The cumulative amount of EU contribution requested under these

proposals was EUR 891,53 million, which represents 3,2 times the Research Infrastructure budget estimated in the Work Programme 2014. After evaluation, 134 proposals scored above threshold while 42 proposals were finally retained.

The number of selected projects was 61, including 19 proposals retained from the reserve list, with an allocated financial contribution of EUR 391,05 million. By 1st December 2015, the number of grants signed was 58 amounting to a budget allocation of EUR 376,42 million. On average, the amount of EC budget allocated per Research Infrastructures project is EUR 6,41 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful Research Infrastructures projects represents 4.62% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 1.27% of the total number of successful projects (4 809).

Research Infrastructures participation trends show that EU-13/EU-28 participation rate is 11.81% (Horizon 2020 average: 9.87%). Participation from associated and third country is 7.51% and 7.43% (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 7.19% and 3.28% respectively (Horizon 2020 averages: 0.59% and 16.07%).

Implementation

This Programme Part was implemented by Directorate-General for Research and Innovation (DG RTD) for the calls INFRADEV, INFRAIA and part of INFRASUPP, and by DG CONNECT for the calls EINFRA and the remaining part of INFRASUPP.

The time-to-grant indicator for Research Infrastructures is 62.07%, hence below the average of Horizon 2020 calls (89.40% excluding ERC projects), indicating that a number of projects have not been signed within the TTG benchmark. While EINFRA and INFRASUPP calls have respectively a TTG of nearly 100%, the average TTG for Research Infrastructures is affected by some projects including access provision activities or involving international beneficiaries under INFRAIA and INFRADEV calls that had formally required more time to finalise the Grant Agreement Preparation (GAP), in order to correct financial inconsistencies frequently appearing in the proposals for the access component or to have the international partners validated. If these formal extensions are taken into account, the TTG rises to 81.67%.

The success rates for Research Infrastructures are 23.33% in terms of eligible proposals and 28.77% in terms of EU funding requested (EU averages: 13.39% and 14.51% respectively).

The Key Performance Indicator which is particularly relevant for Research Infrastructures actions is the number of researchers who have access to research infrastructures through Union support. Data for this indicator will be collected with the periodic reports, i.e. every 12 or 18 months after the beginning of the project. This indicator is expected to produce results in 2016.

Conclusions

a. Dissemination activities

Several dissemination activities took place during 2014. An Infoday was organised right after the publication of the calls, and several presentations were organised in the course of events on Research Infrastructures.

b. Most Promising Stories

ENVRIPLUS is a cluster of research infrastructures (RIs) for Environmental and Earth System sciences. It aims to improve Earth observation monitoring systems and strategies, including actions towards harmonization and innovation, to generate common solutions to many shared information technology and data related challenges, to harmonize policies for access and provide strategies for knowledge transfer amongst RIs. It promotes multi-

disciplinary research opening new opportunities to users. The produced solutions, services and other project results will be made available to all environmental RI initiatives, thus contributing to the development of a consistent European RI ecosystem and an open science landscape.

GEANT2020: this partnership framework agreement will deliver over the entire Horizon 2020 the most advanced and reliable backbone network in the world for supporting 50 million researchers and students in 40 countries in Europe and with an additional global reach of 65 countries.

EUROPEAN RESEARCH INFRASTRUCTURES	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	277,00
EC contribution to signed grants in 2014 (EUR million)	376,42
Average EC contribution per signed grant (EUR million)	6,41
Participation	
Number of successful projects	61
EU-13 participation (EU-13/EU-28)	11.81%
Associated countries participation (associated countries/overall)	7.51%
Third countries participation (third countries/overall)	7.43%
Private sector participation (private/overall)	7.19%
SMEs participation (SME/overall)	3.28%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	62.07%
Success Rate (projects/proposals)	23.33%
Success Rate (€ allocated/requested)	28.77%
Performance (KPI)	
Number of researchers who have access to research infrastructures through Union support	28 559

III.2. Industrial Leadership

III.2.1 Leadership in Enabling and Industrial Technologies (LEIT)

Intervention Logic (Rationale)

The objective of the LEIT actions is to support European industry in mastering and deploying enabling technologies. This will in turn boost and renew Europe's industrial capacities and the real economy, while ensuring environmental and social sustainability.

This section includes the parts of Horizon 2020 covering:

- Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing
- Information and Communication Technologies
- Space

Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing (LEIT- NMBP)

The LEIT-NMBP part, in particular, focuses on four of the six Key Enabling Technologies (KETs), namely nanotechnology (N), advanced materials (M), biotechnology (B), and advanced manufacturing and processing (P).

Under the LEIT-NMBP Work Programme 2014-2015, and with EUR 243 million of estimated budget for 2014 (excluding the contributions to the SME Instrument), the following priorities have been identified: nanotechnology pilot lines; nanotechnology and advanced materials for health and energy applications; nanotechnology and advanced materials for competitiveness and sustainability; biotechnology; and governance including safety.

In addition, a budget of EUR 212 million has been dedicated to the three contractual Public-Private Partnerships (cPPPs), created on the basis of Article 25 of the regulation establishing Horizon 2020: Factories of the Future (FoF), Energy-efficient Buildings (EeB) and Sustainable Process Industry through Resource and Energy Efficiency (SPIRE). Further information on cPPPs can be found in the cross-cutting issues section 4.11 below.

The following calls have been launched under LEIT-NMBP:

Title of Call	Description
Energy-efficient Buildings (EeB) H2020-EeB-2014 **Budget: EUR 49.5 million**	This call for the cPPP Energy-efficient Buildings includes topics on 'Materials for building envelope' (IA), 'Adaptable envelopes integrated in building refurbishment projects' (RIA) the 'Development of new self-inspection techniques and quality check methodologies for efficient construction processes' (RIA) and 'Support for the enhancement of the impact of EeB PPP projects' (CSA), all evaluated in a single stage procedure.
Factories of the Future (FoF) H2020-FoF-2014 **Budget: EUR 86.58 million**	This call for the cPPP Factories of the Future includes topics on 'Process optimisation of manufacturing assets' (CSA, RIA), 'Manufacturing processes for complex structures and geometries with efficient use of material' (RIA) 'Global energy and other resources efficiency in manufacturing enterprises' (RIA) 'Developing smart factories that are attractive to workers (IA), 'Innovative Product-Service design using manufacturing intelligence' (RIA), 'Symbiotic human-robot collaboration for safe and dynamic multimodal

	manufacturing systems' (IA) and 'Support for the enhancement of the impact of FoF PPP projects' (CSA), all evaluated in a single stage procedure.
LEIT-Biotechnology H2020-LEIT-BIO-2014-1 **Budget: EUR 29.9 million**	This call for LEIT-Biotechnology includes topics on 'Synthetic biology – construction of organisms for new products and processes' (RIA), 'Widening industrial application of enzymatic processes' (IA), and 'Downstream processes unlocking biotechnological transformations' (IA) , all evaluated in a two stage procedure.
Nanotechnologies, Advanced Materials, and Advanced Manufacturing and Processing (NMP) H2020-NMP-2014-two-stage **Budget: EUR 114.2 million**	This call for LEIT-NMP includes topics on 'Biomaterials for the treatment of diabetes mellitus' (RIA), 'Storage of energy produced by decentralised sources' (RIA), 'Materials solutions for use in the creative industry sector' (IA), 'Widening materials models' (RIA), 'Materials-based solutions for protection or preservation of European cultural heritage' (IA), 'Joint EU & MS activity on the next phase of research in support of regulation 'NANOREG II' (RIA), 'Assessment of environmental fate of nanomaterials' (RIA), and 'Business models with new supply chains for sustainable customer-driven small series production' (IA), all evaluated in a two stage procedure.
NMP CSAs H2020-NMP-CSA-2014 **Budget: EUR 12.5 million**	This call for NMP CSAs includes topics on 'Networking of SMEs in the nano-biomedical sector', 'Coordination of EU and international efforts in safety of nanotechnology', 'Novel visualization tools for enhanced nanotechnology awareness', 'The materials 'common house' ', 'Networking and sharing of best practises in management of new advanced materials through the eco-design of products, eco-innovation, and product life cycle management', 'Facilitating knowledge management, networking and coordination in NMP', 'Practical experience and facilitating combined funding for large-scale RDI initiatives', 'Presidency events' and 'Support for NCPs', all evaluated in a single stage procedure.
Green Vehicles (GV) H2020-NMP-GV-2014 **Budget: EUR 16 million**	This call for the cPPP Green Vehicles includes a LEIT-NMP related topic on 'Post-lithium ion batteries for electric automotive applications (RIA), evaluated in a single stage procedure.
NMP Pilot lines H2020-NMP-PILOTS-2014 **Budget: EUR 66.2 million**	This call includes NMP topics on 'Open access pilot lines for cost-effective nanocomposites' (RIA), 'High-definition printing of multifunctional materials' (IA), 'Industrial-scale production of nanomaterials for printing applications' (IA), 'Scale-up of nanopharmaceuticals production' (RIA)), all evaluated in a single stage procedure.
Sustainable Industry Low Carbon II (SILC-II) H2020-SILC II-2014 **Budget: EUR 20 million**	This call on Sustainable Industry Low Carbon II is a separate call for the energy-intensive industry and is evaluated in a single stage procedure.

'SPIRE - Sustainable Process Industry through Resource and Energy Efficiency H2020-SPIRE-2014 **Budget: EUR 60.3 million**	The call for the cPPP 'SPIRE - Sustainable Process Industry through Resource and Energy Efficiency' includes topics on 'Integrated Process Control' (RIA), 'Adaptable industrial processes allowing the use of renewables as flexible feedstock for chemical and energy applications' (IA), 'Improved downstream processing of mixtures in process industries' (IA), 'Methodologies, tools and indicators for cross-sectorial sustainability assessment of energy and resource efficient solutions in the process industry' (CSA)

Information and Communication Technologies (LEIT-ICT)

The ambition of the LEIT-ICT part is to provide a balanced response to the main challenges faced by Europe in the information and communications technologies field: firstly, the need to maintain a strong expertise in key technology value chains; secondly, the necessity to move quicker from research excellence to the market.

To this aim, six main research and innovation areas are identified: a new generation of components and systems, advanced computing, future internet, content technologies and information management, robotics, micro- and nano-electronic technologies and photonics.

All these areas, with the exception of advanced computing which is covered by calls launched in 2015, have been addressed through three calls launched in 2014 of an estimated budget of EUR 783.5 million (excluding the contributions to the Open Disruptive Innovation Scheme implemented through the SME Instrument[95], amounting to 45 million). They include a budget of EUR 246 million for activities of the Public-Private Partnerships (cPPPs) on Robotics, Advanced 5G Network Infrastructure, and Photonics.

In 2014 the EU has also contributed to finance the activities of the Electronic Components and Systems for European Leadership Joint Undertaking (ECSEL JU). The ECSEL JU is established within the meaning of Article 187 of the Treaty on the Functioning of the European Union with the objective to support the development of a strong and globally competitive electronics components and systems industry in the European Union and align strategies with Member States to attract private investment. The EU budget for ECSEL Calls 2014-1 and 2014-2 was EUR 155 million, while the total funding of ECSEL Participating States was EUR 144,25 million, indicating that the leverage effect was almost 1 to 1. Priority actions identified in the two calls included key applications (smart mobility, smart society, smart energy, smart health and smart production) and essential technologies (process technologies, design technologies, cyber-physical systems and smart system integration).

The following calls have been launched under LEIT-ICT[96] [97]:

Title of Call	Description
ECSEL Key Applications and Essential Technologies ECSEL-2014-1 (RIA)	The ECSEL Research and innovation action primarily consists of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and

[95] Calls H2020- SMEINST-1-2014 and H2020-SMEINST-2-2014.

[96] ECSEL JU is financed by LEIT-ICT but it is not part of the Work-Programme of LEIT.

[97] The details on calls H2020- SMEINST-1-2014 and H2020-SMEINST-2-2014 are provided in section 5.2.3.

Budget: EUR 40 million	validation on a small-scale prototype in a laboratory or simulated environment. The activities have their main thrust between the Technology Readiness Level (TRL) 2[98] and 5[99]
ECSEL Key Applications and Essential Technologies ECSEL-2014-2 (IA) **Budget: EUR 95 million**	The ECSEL Innovation Action primarily consists of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. The activities have their main thrust between the Technology Readiness Level (TRL) 4[100] and 8[101] .
EU-Japan research and development cooperation in net futures H2020-EUJ-2014 **Budget: EUR 6 million**	This call is a major element for the implementation of EU-Japan cooperation in the area of future networks. It sets the basis for further progress in four distinctive themes, with the objective of developing common positions, standards and interoperable systems for critical networks and computing platforms. It aims as well at reinforcing the mechanisms for an efficient definition and implementation of joint R&Iactions.
Information and Communication Technologies H2020-ICT-2014[102] **Budget: EUR 783.5 million[103]**	This call comprised more than 20 topics covering the ICT technology value chain in a comprehensive way, from key enabling technologies up to content and information management technologies, robotics and networking technologies. Horizontal actions in the field of ICT were also covered, through a topic on innovation and entrepreneurship support. Some of the topics of the calls contributed to the financing of the Public-Private Partnerships (cPPPs) on Robotics, Advanced 5G Network Infrastructure, and Photonics. One topic, the Open Disruptive Innovation Scheme, implemented through the SME instrument, has supported the development of fast-growing, innovative SMEs in the ICT field.

[98] TRL 2: technology concept formulated

[99] TRL5: technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

[100] TRL4: technology validated in lab

[101] TRL 8 – system complete and qualified

[102] This section includes the call "H2020-ICT-2014-2" which covered Topic 14: Advanced 5G Network Infrastructure for the Future Internet

[103] Overall indicative budget: EUR 703.5 million, of which EUR 694.5 from the LEIT-ICT part 2014 budget and EUR 9 million from the LEIT-NMP part 2014 budget and EUR 165 million from the LEIT-ICT part 2015 budget. This amount includes one topic under the SME instrument (ICT- 37 Open Disruptive innovation scheme) (EUR 45 million) and the contribution of LEIT-NMP to the LEIT-ICT Topic 29 (ICT-29 Development of novel ,materials and systems for OLED lightning) (EUR 9 million).

Space (LEIT-Space)

The overall objective of LEIT-Space is to foster a cost-effective, competitive and innovative space industry and research community and to develop and exploit space infrastructure to meet future Union policy and societal needs. This will in turn boost the downstream sector for space based applications of the major EU space programmes for Earth observation – Copernicus – and satellite navigation – Galileo/EGNOS that address societal challenges of today and tomorrow, and it will maintain and develop EU space industry's competitiveness on world markets.

The focus of the four Space calls in 2014-2015 were EGNSS (Galileo) applications; Earth observation applications, including climate change monitoring; space technology development, including a focus on EU non-dependence in specific critical space technologies; space situational awareness for the protection of space assets; scientific exploitation of space data and support to space exploration in an international context. Areas not covered by calls for proposals included EGNSS (Galileo) infrastructure R&D and initial planning activities aiming at building a future European system for surveillance and tracking of orbiting objects in space to tackle the proliferation of space debris and the associated growing threat of collisions in space.

The estimated total budget for LEIT-Space in 2014 was EUR 158.5 million (excluding the contributions to the SME Instrument). This includes a budget of EUR 20 million for procurements related to Galileo and 11 million for transition to Copernicus services.

The following calls have been launched under LEIT-Space:

Title of Call	Description
Applications in satellite navigation - Galileo H2020-GALILEO-2014-1 **Budget: EUR 38 million**	Development of applications and implementation of pilot projects with a potential to contribute to growing and strengthening the European GNSS market. The call included EGNSS applications, support to SMEs and international cooperation in EGNSS as well as awareness raising actions.
Earth observation H2020-EO-2014 **Budget: EUR 21,5 million**	Stimulation of new uses of Earth observation data focussing on exploiting the drastically increasing amount of Copernicus data available under a "full, free and open" access data policy. The call also addressed specific needs in the area of climate change relevant space data calibration and climate change.
Protection of European assets in and from space H2020-PROTEC-2-2014 **Budget: EUR 9 million**	Protection of European satellites and ground infrastructure from threats from space weather events triggered by intensive solar activity. The call also addressed the threat of Near Earth Objects (NEO), primarily by characterising and accessing such objects (e.g. asteroids).
Competitiveness of the European space sector: technology and science H2020-COMPET-2014 **Budget: EUR 53 million**	Development of space technologies, including critical components and technologies related to access-to-space as well as planning and coordination activities for two strategic research clusters (SRCs) in space robotics and electric propulsion. Also scientific exploitation of space data, ISS-related experiments and support for international cooperation in space exploration and outreach activities were included.

Participation (LEIT)

In 2014, the participation in all LEIT actions through the above calls resulted in 6 621 eligible proposals, of which 3 915 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 11 422,22 million (of which 925,58 million in SME instrument proposals), which represents 9.6 times the LEIT budget (SME instrument excluded) estimated in the WP 2014. After evaluation, 1 800 proposals scored above threshold while 669 proposals were finally retained.

The number of selected projects was 685, including 16 proposals retained from the reserve list. By 1st December 2015, the number of grants signed was 684 amounting to a budget allocation of EUR 1 679,41 million. On average, the amount of EC budget allocated per signed grant under LEIT including the SME instrument is EUR 2.46 million and 3.71 million excluding the SME instrument.

	Number Of Eligible Proposals	EC Financial Contribution Requested for Eligible Proposals	Number of High-Quality Proposals	Number of Retained Proposals	Number of Projects	Number of grant signed
NMBP	1 814	3.473.235.380	337	191	196	196
ICT[104]	4 330	7.283.344.816	1 231	394	398	397
SPACE	477	665.644.257	232	84	91	91
TOTAL	6 621	11.422.224.453	1 800	669	685	684

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful LEIT projects represents 19.83% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of LEIT successful projects is 14.24% of the Horizon 2020 total number of successful projects (4 809).

LEIT participation trends show that EU-13/EU-28 participation rate is 6.72% (Horizon 2020 average: 9.87%). Participations from associated and third countries is 5.46% and 3.36% respectively (Horizon 2020: 5.88% and 4.82%), while participation from private sector and SMEs is 52.73% and 28.31% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation (LEIT)

This Programme Part was implemented jointly by DG RTD for the NMBP parts, by DG CONNECT for the LEIT-ICT part and by DG GROW for the LEIT-Space part. The implementation of the LEIT-Space calls has been delegated to two agencies (the Research Executive Agency (REA) for the calls EO, COMPET, PROTEC; and the European GNSS Agency (GSA) for the call Galileo), while the NMBP and the ICT parts of LEIT are managed by the DGs RTD and DG CONNECT respectively.

The LEIT-specific time-to-grant indicator is 94.74% (EU average: 89.40% excluding ERC projects), indicating that only a few projects have been signed beyond the TTG benchmark (in particular all projects belonging to the ECSEL Joint Undertaking). The LEIT-specific success rates are 10.10% in terms of eligible proposals and 15.11% in terms of EU funding (EU averages: 13,39% and 14,51% respectively). The success rates are particularly low for the calls H2020-EO-2014 and H2020-NMP-GV-2014.

The Key Performance Indicators (KPIs) that are relevant for LEIT actions aim to measure the innovative performance and the output in terms of:

- Number of patent applications and the number of patents awarded in enabling and industrial technologies per EUR 10 million funding by theme;

[104] Including contributions to the ECSEL Joint Undertaking.

- Share of private companies introducing innovations in the total number of project participants validated as private companies;
- Number and share of joint public-private publications out of all LEIT publications.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after a critical mass of projects has been reached. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities

LEIT-NMBP

The following dissemination tools related to Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology (NMBP) have been used in 2014:

- CORDIS is the EC's public repository with project factsheets and publishable summaries. In cooperation with the Project Officers, CORDIS prepares a "Result in Brief", for each project, suitable for the wider public, in EN/DE/FR/IT/ES/PL;
- In addition, there is a Key Enabling Technologies website on Europa (http://ec.europa.eu/research/industrial_technologies) which informs about events, reports from workshops, publications, successful research results, videos, and other activities related to NMBP;
- Eight KETs newsletters were sent to more than 1,000 subscriptions;
- All official publications related to the NMPB KETs are available on the EU bookshop;
- Several stakeholder info days and workshops have been organised by the Commission services:
    - Industrial Technologies, Athens, 9-11 April 2014, Greek EU Presidency Event;
    - Impact Workshops for the Energy-efficient Buildings (EeB) and Factories of the Future (FoF) Public-Private Partnerships;
    - Workshop on Industrial Safety in FP7 and Horizon 2020, Brussels, 24 September 2014;
    - LET'S 2014 "Leading and Enabling Technologies for Societal Challenges" – Bologna, September and October 2014 – Italian EU Presidency Event;
    - Public-Private Partnerships info day - Brussels, 21 October 2014 (on EeB, FoF, SPIRE and Green Vehicles) - approx. 1,000 participants and webstreaming;
- The was an information stand on NMBP KETs at the PPP infoday and at the two Presidency Events;
- The Network of National Contact Points (NCP) for NMP was extensively used for dissemination to potential applicants and other stakeholders. Two NCP meetings were organised in Brussels (February and October), and Project Officers participated in 17 info days organised by the NCPs.

LEIT-ICT

LEIT-related units organised and participated in many dissemination activities using a variety of communication channels in 2014. These channels included: 11 Newsletters that covered announcements of related calls, consultations and their results, latest scientific project success stories and events related to Cross-cutting KETs. Several infodays were organised. In particular ICT activities (including LEIT-ICT) were promoted via the ICT 2013 event held in Vilnius, Lithuania on 6-8/11/2013, and the ICT Proposers' Day 2014, held in Florence, Italy on 9-10 October 2014.The events provided significant benefits in relations to all the Horizon 2020 main objectives, in particular raising awareness of ICT in the Work Programme 2014-2015. Online publications were created, such as reports about consultations and workshops, infographics and success stories. Presentations were given at relevant workshops and conferences. LEIT-related units are active on social media on a daily basis, covering directly conferences & workshops. They are using these channels to get the attention to inform stakeholders about news such as events, press releases, blogs etc.

Below are some facts regarding the social media/newsletter accounts of LEIT related units:

- *@RoboticsEU :* 3,932 followers on twitter
- *@PhotonicsEU:* 330 followers on twitter
- *@Electronics_EU:* 1,334 followers on twitter and 4000 subscribers to the newsletter
- *@Complexsystems_EU:* 775 followers on twitter

LEIT-Space

Leading up to the first LEIT-Space calls in 2014, around 20 information days were organised across Europe with some 2 000 participants from 43 countries. The events included a main Brussels event and national or regional events supported by national organisations and the Space NCP network *Cosmos 2020* that also facilitated numerous popular "matchmaking" sessions on these occasions. Some of the major events were:

- "The Countdown to Horizon 2020 Space" info days Brussels, December 2013
- "Space and Security Conference"" Greek Presidency event, Athens June 2014
- 3rd International Space Research Conference and Horizon 2020 Space Info Day", Italian Presidency event, Rome September 2014

"The European Space Expo" has visited 29 capitals and other major cities in Europe. The Expo presents interactive information on the European space programs - from satellite navigation (Galileo and EGNOS) to Earth observation (Copernicus) and Horizon 2020 Space research in an engaging and entertaining way.

Information about selected projects, work programme and calls are available on Cordis, the Horizon 2020 participant portal and the REA, GSA and European Commission web sites.

The outreach activities *EU SPACE AWARENESS* and *Youth for Space Challenge - ODYSSEUS II* aim to inspire young people, including primary school pupils, from all over Europe, to familiarize them with cutting edge research and to engage them in space exploration through a series of educational activities, which combine scientific learning with hands-on experiences.

b. Most Promising Stories

The following promising stories under **LEIT-NMBP** have been selected:

- **CO-PILOT - Flexible Pilot Scale Manufacturing of Cost-Effective Nanocomposites through Tailored Precision Nanoparticles in Dispersion**

The CO-PILOT project aims to develop an open access infrastructure for SMEs interested in the production of high quality (multi-)functional nanocomposites on a pilot scale. The field of nanocomposites which has witnessed remarkable progress (compound annual growth rate of 18%) in recent years with many different types of nanocomposites exhibiting radically enhanced properties for a wide range of industrial applications.

In CO-PILOT this infrastructure will be prepared for access ('open acess') by SME's beyond the project. CO-PILOT aims to set new standards for high-quality nanoparticle production with the assistance of in-line nanoparticle dispersion quality monitoring.

More information on: http://www.h2020copilot.eu

- **DRIVE – Diabetes Reversing Implants with enhanced Viability and long-term Efficacy**

Diabetes mellitus is a chronic disease characterised by high blood glucose due to inadequate insulin production and/or insulin resistance which affects 382 million people worldwide. Pancreatic islet transplantation is a promising cure for insulin-sensitive diabetes mellitus (ISDM), but side effects of lifelong systemic immunosuppressive therapy, short supply of donor islets and their poor survival and efficacy in the portal vein limit the application of the current clinical procedure.

The DRIVE consortium will address these challenges by optimising adult stem cell therapy using smart biomaterials and advanced drug delivery, and couple these therapeutics with minimally-invasive surgical devices. Islet transplants can greatly improve the quality of life of diabetics who rely on insulin shots. Healthy islets don't just produce the precious hormone; they adjust their output in line with the blood sugar levels they detect. A successful islet transplant thus reduces these patients' burden considerably by freeing them of the obligation to work out how much insulin they need and to administer accordingly.

More information: https://ec.europa.eu/programmes/horizon2020/en/news/big-push-backup-pancreases

- **P4SB - From Plastic waste to Plastic value using Pseudomonas putida Synthetic Biology**

The P4SB project aims at a sustainable and environmentally friendly bioconversion of oil-based plastic waste into fully biodegradable counterparts by means of deeply engineered, whole-cell bacterial catalysts. This addresses the market need for novel routes to valorise the gigantic plastic waste streams in the European Union and beyond, with direct opportunities for SME partners of P4SB spanning the entire value chain from plastic waste via Synthetic Biology to biodegradable plastic. As a result a completely biobased process is anticipated, by reducing the environmental impact of plastic waste and by establishing it as a novel bulk second generation carbon source for industrial biotechnology, while at the same time opening new opportunities for the European plastic recycling industry and helping to achieve the ambitious recycling targets set by the European Union for 2020.

More information on: http://www.p4sb.eu

- **SATISFACTORY - A collaborative and augmented-enabled ecosystem for increasing SATISfaction and working experience in smart FACTORY environments**

The SatisFactory project aims to contribute to the transformation of traditional industrial environments using cutting-edge technologies in ways that are both productive and appealing to youth. Key is the aggregation of various smart devices and sensors to collect data such as production output, workplace occupancy, temperature and vibration. This

information will be used to create an intra-factory overview of facilities and procedures, to monitor production processes and diagnose problems and flaws.

The project will create a collaboration platform for workers to share knowledge and practices, while wearable computing, motivational (gamification) techniques and augmented reality will all be used to attract more young people to a career in manufacturing. By combining detection algorithms with location data, gesture recognition and event identification, the SatisFactory project also aims to improve workers' wellbeing and safety. The project is expected to create twelve products, all of which will be deployed and tested in two industrial sites manufacturing batteries and industrial automation systems (mainly for the automotive sector).

More information on: www.satisfactory-project.eu

- **Manutelligence – Product Service Design and Manufacturing Intelligence Engineering Platform**

The Manutelligence project aims to implement a modular and distributed IT architecture in order to enable designers to have a holistic view on product and product-items lifecycle, searching and managing data from heterogeneous data sources. The core IT advancements of Manutelligence are to merge the current design, manufacturing and Product Lifecycle Management systems with Internet of Things derived systems . This information will be accessed through an intuitive 3D interface representing the digital representation of the product.

More information on: www.manutelligence.eu/

The following promising stories under **LEIT-ICT** have been selected:

- **FANTASTIC-5G**

The project will design the main Radio Interface for the 5G mobile networks. With 4G being currently massively rolled-out, it becomes apparent that while it is very well suited to serve the wireless communication needs of today, 4G will quickly reach its limits: increase in capacity since the demand for wireless data is predicted to be 1000 times higher for mobile data volumes and 10-100 times for user data rates; increase in the number of connected devices by a factor of 10-100; increase in reliability for mission-critical communications, such as vehicle-to-vehicle coordination or critical control of the power grid and also decrease in latency for remote presence and tactile, including Virtual Reality.

- **SMErobotics**

While robots are able to carry out repetitive tasks to a high standard, they do not meet the demands of SMEs for high flexibility. Today's robots know only their nominal task, which limits their ability to deal with frequent changes in the manufacturing process. The goal of the project is to adapt industry-strength robots to the particular requirements of SMEs. SMErobotics work system covers all phases of the robot life-cycle and allows humans and robots to deal together with SME manufacturing uncertainties and to symbiotically learn from each other and from the past handling of uncertainties. More information on: http://www.smerobotics.org/project.html.

- **CoCoRo**

The CoCoRo project aims to create an autonomous swarm of interacting, cognitive robots. CoCoRo will develop a swarm of autonomous underwater vehicles (AUVs) that are able to interact with each other and which can balance tasks. Focal tasks of the CoCoRo-swarms are diverse and include: ecological monitoring, searching, maintaining, exploring

and harvesting resources in underwater habitats. More info is available at http://cocoro.uni-graz.at/drupal/:

- **SARAFun**

The SARAFun project has been formed to enable a non-expert user to integrate a new bi-manual assembly task on a robot in less than a day. This could have a major impact on SME from other sectors to adopt robotics to solve their problems.

The SARAFun project will be implemented by an international consortium involving teams from Sweden, Germany, Greece and Spain. This project will receive an EU contribution of EUR 4 million. More information on http://h2020sarafun.eu/

- **METIS-II**

METIS-II will provide an overall 5G RAN design, describing an overall protocol stack architecture with all the functionalities and interfaces needed to fulfil the 5G vision.

The METIS-II project will be implemented by a large international consortium containing the leading mobile network operators and leading network vendors including non-European partners and plans to utilize its strong composition and global scope to strongly support regulatory and standardisation bodies. In particular, it is envisioned that METIS-II provides input to the 5G requirements work of ITU-R WP5D, contributes to the preparation of WRC-19, and helps to shape models and assessment methodologies as well as timing and content of 5G study and work items in 3GPP.

This project will receive an EU contribution of about EUR 8 million. More information on www.5g-ppp.eu/metis-ii

- **SniffPhone**

Today's available screening practices for gastric cancer are not optimal, underlining the unmet need for appropriate tools for gastric cancer screening. This project aims to develop an add-on device that can be connected or integrated with/in smartphones, so it can detect the earliest stages of evolving disease(s) from exhaled breath. In other words, the project is about developing a smartphone application for disease detection from exhaled breath.

The following promising stories under **LEIT-Space** have been selected:

Strategic Research Clusters on Electric Propulsion for space crafts and Space Robotics

- **EPIC: Electric Propulsion Innovation & Competitiveness**
- **PERASPERA: Space Robotics**

Electric propulsion has been identified as a strategic technology for improving the European competitiveness in in-space operations and transportation.

Space robotics comprises key technologies for future on-orbit satellite servicing and removal of space debris and for planetary robotic exploration.

Both projects are managed by the European Space Agency (ESA) and gather the major European space agencies in the consortia. They coordinate the European efforts in their respective areas, based on agreed European roadmaps and in collaboration with EU, ESA and member state activities. Horizon 2020 calls in 2016 and later will populate the clusters with research and innovation projects that will work in tight coordination.

More information on:
http://epic-src.eu/
http://robotics.estec.esa.int/h2020-peraspera/

Transition towards Copernicus services

- **MyOcean FO: Pre-Operational Marine Service Continuity in Transition towards Copernicus**
- **MACC III: Monitoring Atmospheric Composition and Climate -III**

The two projects prepared the final transition from the Earth Observation research activities funded through FP7 to the successful first operational services in the marine and atmospheric observation domains.

More information:
http://www.copernicus.eu/
https://www.gmes-atmosphere.eu/
http://marine.copernicus.eu/

Access to Space

- **GRAIL: Green Advanced High Energy Propellant for launchers**
- **HYPROGEO: Hybrid Propulsion Module for transfer to GEO orbit**

These projects develop rocket propulsion technology that addresses European access to space by improving the efficiency, safety, cost effectiveness and reliability of launchers.

More information on:
http://cordis.europa.eu/project/rcn/193595_en.html
https://www.hyprogeo.eu/

Research for the International Space Station ISS

- **EDEN-ISS: Ground Demonstration of Plant Cultivation Technologies and Operation in Space**

The project addresses safe food production on-board ISS and future human space exploration vehicles and planetary outposts. A full-scale demonstration of a greenhouse will be performed in Antarctica as part of the project.

More information on: http://eden-iss.net/

Addressing climate change from Space

- **FIDUCEO – Fidelity and Uncertainty in Climate data records from Earth Observations**
- **GAIA-CLIM - Gap Analysis for Integrated Atmospheric ECV CLImate Monitoring**

The projects address the urgent issue of enhanced credibility for climate data, using Earth observation techniques, to support rigorous science, decision-making and climate services.

More information on:
http://www.fiduceo.eu/
http://www.gaia-clim.eu/

LEADERSHIP IN ENABLING AND INDUSTRIAL TECHNOLOGIES	
Summary[105]	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	€ 1 185
EC contribution to signed grants in 2014 calls (EUR million)	€ 1 679
Average EC contribution per signed grant (EUR million)	€ 2.46
Participation	
Number of successful projects	685
EU-13 participation (EU-13/EU-28)	6.72%
Associated countries participation (associated countries/overall)	5.46%
Third countries participation (third countries/overall)	3.36%
Private sector participation (private/overall)	52.73%
SMEs participation (SME/overall)	28.31%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	94.74
Success Rate (projects/proposals)	10.10%
Success Rate (€ allocated/requested)	15.11%
Performance (KPI)	
Patent applications and patent awarded in the different enabling and industrial technologies	N/A
Share of participating firms introducing innovations new to the company or the market	N/A
Number of joint public-private publications	N/A

[105] Data include cPPPs and SME instrument.

III.2.2 Access to Risk Finance (ARF)

Intervention Logic (Rationale)

The main objective of the ARF actions is to help companies and other types of organisation engaged in research and innovation (R&I) to gain easier access, via financial instruments, to loans, guarantees, counter-guarantees and hybrid, mezzanine and equity finance. The Horizon 2020 financial instruments (InnovFin – EU Finance for Innovators) consist of a range of tailored products helping support the smallest to the largest R&I projects in the EU and countries associated to Horizon 2020. InnovFin builds on the success of the Risk-Sharing Finance Facility under FP7 (RSFF). The novelties are an increased focus on innovative SMEs and midcaps and new pilots to help innovative firms access specific finance more easily. In total, ARF actions are expected to support up to EUR 48 billion of final R&I investments.

Under the ARF Work Programme 2014-2015, 16 actions have been identified with EUR 672.28 million of estimated budget in 2014 (of which EUR 375 million of revenues and repayments generated by FP7 RSFF and assigned to succeeding InnovFin products).

In 2014, the priority action was to sign the Delegation Agreements between the EU and the EIB Group[106] on new InnovFin products and on the EIB advisory service (InnovFin Advisory). Another priority was to design the SME Initiative that pools resources from Horizon 2020, COSME[107], the EIB Group and the European Strategic and Investment Funds (ESIF).

The first debt instruments in Horizon 2020 were launched in 2014. Intense preparations have paved the way for a suite of equity instruments and pilots to be implemented in 2015:

Figure 2: Horizon 2020 Financial Instruments

[106] The EIB Group is composed of the European Investment Bank (EIB) and the European Investment Fund (EIF).

[107] Programme for the Competitiveness of Enterprises and small and medium-sized enterprises (COSME)

Title of Action	Description
EIB InnovFin Products: • INNOVFIN LARGE PROJECTS • INNOVFIN MIDCAP GROWTH FINANCE (MGF) • INNOVFIN MIDCAP GUARANTEE (MCG) **Budget: EUR 483 million**	**InnovFin Large Projects** aims to improve access to risk finance for R&I projects emanating from large firms and midcaps; universities and research institutes; R&I infrastructures; public-private partnerships; and special-purpose vehicles or projects. Loans from EUR 7.5 million to EUR 300 million are delivered directly by the EIB. Specific EIB products have been designed to improve access to finance mainly for innovative midcaps (up to 3,000 employees), but also SMEs: • **InnovFin MidCap Growth Finance** offers loans or guarantees (including mezzanine and quasi equity financing), directly delivered by the EIB from EUR 7.5 million to EUR 25 million. • **InnovFin MidCap Guarantee** offers guarantees of between EUR 7.5 million and EUR 25 million, through financial intermediaries. Financial intermediaries are guaranteed against a portion of their potential losses by the EIB, which will also offer counter-guarantees to guarantee institutions.
InnovFin SME Guarantee **Budget: EUR 106.12 million**	It provides guarantees and counter-guarantees on debt financing of between EUR 25,000 and EUR 7.5 million, in order to improve access to loan finance for innovative SMEs and small midcaps (up to 499 employees). Implemented by the EIF, it is rolled out through financial intermediaries in EU Member States and Associated Countries. Financial intermediaries are guaranteed by the EIF against a proportion of their losses.
InnovFin Advisory **Budget: EUR 16 million**	Provided by EIB, it aims to improve the 'bankability' and investment-readiness of large projects that need substantial, long-term investments. It also provides advice to improve the conditions for access to risk finance for R&I. The main clients foreseen are promoters of large R&I projects that meet Horizon 2020's Societal Challenges. The advisory services are expected to accelerate the development of projects with an investment value of some EUR 20 billion.
SME Initiative **Budget: EUR: 21 million**	This joint financial instrument of the EC and the EIB Group aims to stimulate SME financing by providing partial risk cover for SME loan portfolios of originating financial institutions (uncapped guarantees and/or securitisation of loans). Alongside ESIF resources contributed by the Member States, the SME Initiative is co-funded by the EU through COSME and/or Horizon 2020 resources as well as EIB Group resources.
Greek Presidency Conference on 'Growth Enhancing EU financial instruments for RDI' (12-	This conference aims to raise awareness on the potential of financial instruments, facilities and accompanying measures launched under the Horizon 2020 to enhance growth through access to finance for research, technology and innovation.

13 June 2014) **Budget: EUR: 0.1 million**	The event brought together policy-makers, financial intermediaries and representatives of the research, innovation and business communities.

Moreover, two calls were launched in 2014.

Title of Call	Description
Capacity-Building in Technology Transfer H2020-CBTT-2014 **Budget: EUR 2.5 million**	This call for proposals aimed at developing and implementing a sustainable, comprehensive strategy for building capacity in technology transfer across Europe.
Boosting the Investment-Readiness of SMEs & Small Midcaps H2020-BIR-1-2014 **Budget: EUR 2.5 million**	The aim of this call for proposals is to identify strategies with best impact on investment-readiness and sensitising investors.

In addition to new actions, the EIB Group has kept rolling out predecessor financial instruments developed under FP7 but still active after 2014:

- The **Risk-Sharing Finance Facility** (RSFF, the predecessor of the InnovFin Large Projects), with 129 loan agreements signed for a total loan volume of EUR 12.87 billion (out of which EUR 11,31 billion of active loans) in 25 countries; and
- The **Risk-Sharing Instruments** (RSI, the predecessor of the InnovFin SME Guarantee), enabling the support of 2.353 SMEs and small mid-caps as of 31 December 2014. Agreements have been signed with 36 intermediaries covering 18 countries, for a total guarantee amount of EUR 1,4 billion of loans to innovative SMEs and midcaps. Under RSI, additional agreements could be signed with financial intermediaries until 30 June 2014 and new loans to innovative SMEs can be included in the intermediaries' portfolio until 30 June 2016.

Participation

The signature of delegation agreements on 15 June 2015 has enabled the rapid development, with EIB and EIF, of a comprehensive portfolio of new InnovFin products that have shown their first outcomes in 2014.

As of 31 December 2014, the EIB InnovFin Products (InnovFin Large Projects, InnovFin MidCap Growth Finance, InnovFin MidCap Guarantee) account for 30 signed operations for total loan amount of EUR 2,446 million (under both EIB and EU windows) in 15 Member States and one associated country, including 15 signatures with midcaps (under 3,000 employees) under InnovFin MidCap Growth Finance, 2 mid-cap guarantees (with KBC and Commerzbank) under InnovFin MidCap Guarantee and 2 transactions with research infrastructures (or their suppliers).

As of 31 December 2014, the EIF InnovFin SME Guarantee launched a Call for expression of interest for intermediaries published on 4 August 2014 on EIF website, which has already resulted in 3 first transactions signed in 3 countries for a total guarantee amount of EUR 476 million of loans to innovative SMEs and midcaps.

Regarding the two calls with closure date in 2014, the call on Capacity-Building in Technology Transfer (H2020-CBTT-2014) attracted 23 eligible proposals, and one was

selected for funding: PROGRESS-TT; the call Boosting the Investment-Readiness of SMEs & Small Midcaps attracted 11 eligible proposals, and one selected for funding: InvestHorizon.

Implementation

The EU delegates to EIB and EIF, as entrusted entities, the implementation and management of its financial contribution to financial instruments. This notably includes activities of product development, selection of financial intermediaries (for indirect products, based on call for expression of interest) or final recipients (for direct products), marketing, monitoring and reporting activities.

The contribution of Horizon 2020 to ensure Access to Risk Finance is measured through the following Key Performance Indicators:

- Total investments mobilised via Venture Capitals Investments: this instrument has been implemented as from 2015 after amendment to the Delegation Agreement between the Commission, the EIB and the EIF. The value for this indicator is therefore not available in this Annual Monitoring Report.
- Risk Finance: Total investments mobilised via debt financing: EUR 13 015 million
- Risk Finance: Number of organisations funded and amount of private funds leveraged: 358 organisations funded and EUR 5 303 million of private funds leveraged.[108]

The notion of "Total Investments Mobilised" is taken up in the concept of 'multiplier', defined as the total amount invested by beneficiaries (i.e. investments made) divided by the EU contribution committed to the instrument (excluding fees). This can be calculated ex-post on the basis of reporting and sampling. Based on the experience of the previous generations (2007-2013) of financial instruments, the Delegation Agreement signed between the EC, the EIB and the EIF in June 2014 indicates an expected multiplier of at least 25 for the debt products InnovFin Large Projects, MidCap Guarantee and MidCap Growth Finance (leverage effect at least 12.5). A leverage effect of at least 9 is indicated for InnovFin SME Guarantee: although there is no target laid down for the multiplier, experience shows that the loans provided to SMEs by banks rarely represent more than 50% of an SMEs total investments, yielding an expected multiplier of at least 18. The leverage effect for InnovFin SME Venture Capital is expected to be between 4 and 6, depending on the difficulty of fundraising conditions at the early stage and the size of investments needed to close a funding round by a financial intermediary.

Conclusions

The Commission and the EIB Group have intensively negotiatied new InnovFin instruments expected for 2014-2015. Some actions will be finalised in 2015, such as the SME Initiative and the InnovFin SME Venture Capital.

In 2014, the SME Initiative was designed and enabled by amending the Horizon 2020 and COSME delegation agreements. However, the first agreement with Managing Authorities was signed in 2015. The related budget for 2014 has therefore been reallocated to the InnovFin SME Guarantee, according to the Work Programme.

As the InnovFin SME Venture Capital (VC) did not start in 2014 but in 2015, due to thorough negotiations, its 2014 budget (EUR 40 million) was allocated to the InnovFin SME Guarantee, in accordance with the Work Programme[109].

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[108] EIB/EIF operational reports of 30/06/2015.

[109] The 2015 budget allocation to InnovFin SME VC will therefore be increased and the 2015 budget allocation to the InnovFin SME Guarantee decreased by EUR 40 million.

Discussions have also paved the way for the enhancement of InnovFin instruments by the European Fund for Strategic Investment (EFSI) in 2015, in the context of President Juncker's Investment Plan.

Futurs pilots expected for 2015 have been prepared in 2014, such as the Piloting Co-Investments by Business Angels in Innovative ICT Firms or the Technology Transfer Financing Facility Pilot.

a. Dissemination activities

In 2014, DG RTD has contributed to series of awareness-raising events in order to inform potential beneficiaries and financial intermediaries on the new InnovFin products, notably:

- Access to EU Finance days organised by DG GROW in Member States;
- Awareness-raising events organised by the EIB Group (covering 13 countries, including 3 associated countries in 2014); and
- thematic events (e.g., ICT developers' days)

Such events have attracted much interest from the financial community, innovative companies and SMEs in need of specific financing tools to support their research and innovation efforts.

The very close cooperation and partnership between EC and EIB services must be underlined as a key factor for the successful launch and implementation of InnovFin Products, building on the success of predecessor instruments.

New developments are expected, in order to contribute actively to the top priority of President Juncker (i.e., Job, Growth and Investment), echoed by the priority of Commissioner Moedas to boost private investment in research and innovation.

b. Most Promising Stories

EIB signed a loan operation in June 2014 with UCB SA in Belgium. This is the first equity-type risk sharing operation under InnovFin Large Projects. UCB is highly research-intensive with a focus on developing drugs to tackle severe diseases. The total financing amounts to EUR 150 million, split into two tranches of EUR 75 million each (one loan and one risk-sharing tranche). Under the risk-sharing tranche, EIB takes a direct risk on UCB's success or failure to bring a selection of new drugs at different development stages to market.

III.2.3 *Innovation in SMEs (SME)*

Intervention Logic (Rationale)

The main objective of Innovation in SMEs is the creation of a favourable ecosystem for SME innovation and growth. Key building blocks of this section are two specific calls:

- the call 'Enhancing SME innovation capacity by providing better innovation support', which creates better conditions for SMEs to innovate through capacity-building and support set-up by intermediaries; and
- the SME instrument call, which funds and supports innovative SMEs in their efforts to develop and deliver innovation directly.

Under the Work Programme 2014-2015, the specific objective 'Innovation in SMEs' was funded by an estimated budget of EUR 69.5 million in 2014. This budget was equally shared by DG RTD and DG GROW.

'Innovation in SMEs'– for about 45% of its budget – covers the support to the EUREKA/Eurostars initiative that provides funding for transnational collaborative projects of R&D performing SMEs and various actions that aim at developing and providing better innovation support services to SMEs. In addition, the analysis of current SME innovation

activities under Horizon 2020 at large and possible future developments in that respect is also a theme covered by 'Innovation in SMEs'.

'Innovation in SMEs' furthermore importantly set the framework of implementation of the SME instrument call, ensured by the Executive Agency for Small and Medium-sized Enterprises (EASME). In 2014, a budget of over EUR 250 million was allocated to this call through the respective Societal Challenges and the specific objective Leadership in Enabling and Industrial Technologies (LEIT). Within the latter, DG CONNECT's budget of EUR 45 million was devoted to supporting high risk innovative Start-ups and SMEs in the ICT sector, through the Open Disruptive Innovation scheme.

The SME instrument call addresses the financing needs of internationally oriented SMEs, in implementing high-risk and high-potential innovation ideas. The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries.

In phase 1, a feasibility study must be developed verifying the technological /practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies).

In phase 2, innovation projects that address the specific challenges identified and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan are supported.

In phase 3, the companies do not receive direct funding but services supporting commercialisation of their products and services and access to finance.

As of 3 March 2014, SMEs were invited to submit proposals in response to the SME instrument call through one of the following topics:

Common call – Horizon 2020 dedicated SME Instrument (11 topics)	SME Innovation Support under 'Societal Challenges' and the Specific Objective 'Leadership in Enabling and Industrial Technologies'
Open Disruptive Innovation Scheme ICT-37-2014/2015 **Budget: EUR 45 million**[110]	*Leadership in enabling and industrial technologies: Information and Communication Technologies* The focus is on SME proposing innovative ICT concepts, products and services applying new sets of rules, values and models which ultimately disrupt existing markets. The Open Disruptive Innovation Scheme supports validation, fast prototyping and demonstration of disruptive innovation bearing a strong EU dimension.
Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs NMP-25-2014/2015 **Budget: EUR 21,80 million**	*Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing* The potential of nanotechnologies, advanced materials and advanced manufacturing and processing technologies is supported through this call with the aim of bringing the technology and production to industrial readiness and maturity for commercialization after the project.
SME boosting	*Nanotechnologies, Advanced Materials, Biotechnology and*

[110] Of which: 4.5 for phase 1, 39.6 for phase 2, 0.9 for mentoring & coaching support and phase 3.

biotechnology-based industrial processes driving competitiveness and sustainability BIOTEC -5-2014/2015 **Budget: EUR 3,80 million**	*Advanced Manufacturing and Processing* Support is provided to SMEs which research intensity is characterised by long lead times between early technological development and market introduction – the so-called "valley of death".
SME instrument SME-SPACE-1-2014/2015 **Budget: EUR 8,50 million**	*Space* The specific challenge of the action covers any aspect of the Specific Program for Space. However, it is considered that actions in the areas of applications, especially in connection to the flagship programs Galileo and Copernicus, spinning-in (i.e. application of terrestrial solutions to challenges in space) and the development of certain critical technologies are also adequately suited for this call.
Clinical research for the validation of biomarkers and/or diagnostic medical devices PHC-12-2014/2015 **Budget: EUR 66,10 million**	*Societal challenge 1: Health, demographic change and wellbeing* This specific challenge targets clinical practises and process for biomarkers. Due to the long-term innovation cycle, the three phases of SME Instrument are adapted to this extensive research process, by providing a financial support in Phase 2 of between EUR 1 and 5 million
Resource-efficient eco-innovative food production and processing SFS-8-2014/2015 **Budget: EUR 10 million**	*Societal challenge 5: Climate Action, Environment, Resource Efficiency and Raw Materials* New competitive eco-innovative processes should be developed, within the framework of a transition towards a more resource-efficient, sustainable circular economy, including water and energy reduction, greenhouse gas emissions and waste generation, improvement of the efficiency in the use of raw materials, of climate resilience and of shelf life, food safety and quality.
Supporting SMEs efforts for the development - deployment and market replication of innovative solutions for blue growth BG-12-2014/2015 **Budget: EUR 4 million**	*Societal challenge 2: Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy* SMEs contribution to the development of the 'Blue Growth Strategy' (COM (2012) 494) is targeted in this action in particular in the fields of marine biotechnology (related applications, key tools and technologies) and aquaculture related marine technologies and services.
Stimulating the innovation potential of SMEs for a low carbon and efficient energy system SIE-1-2014/2015 **Budget: EUR 33,95 million**	*Societal challenge 3: Secure, Clean and Efficient Energy* This action strongly contributes to one or a combination of more than one of the challenges outlined in the legal base of the Horizon 2020 Societal Challenge 'Secure, Clean and Efficient Energy'99, in supporting projects particular with regard to energy consumption and carbon footprint, low cost and carbon electricity supply, alternative fuels and mobile energy sources, new knowledge and technologies.

Small business innovation research for Transport IT-1-2014/2015 **Budget: EUR 35,87 million**	*Societal challenge 4: Smart, Green and Integrated Transport* This action provides support to projects in the transports sectors, to facilitate the start-up and emergence of new high-tech activities.
Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials SC5-20-2014/2015 **Budget: EUR 17 million**	*Societal challenge 5: Climate Action, Environment, Resource Efficiency and Raw Materials* Innovative SMEs should be supported and guided to reach and accelerate their full green growth potential. This topic is targeted at all types of eco-innovative SMEs in all areas addressing the climate action, environment, resource efficiency and raw materials challenge, focusing on SMEs showing a strong ambition to develop, grow and internationalize. All kinds of promising ideas, products, processes, services and business models, notably across sectors and disciplines, for commercialisation both in a business-to-business (B2B) and a business-to-customer (B2C) context, are eligible.
Protection of urban soft targets and urban critical infrastructures DRS-17-2014/2015 **Budget: EUR 7 million**	*Societal Challenge 7: Secure societies – Protecting freedom and security of Europe and its citizens* The specific challenge of the actions and activities envisaged under this topic are related to protection of urban soft targets and urban critical infrastructures, in particular the urban soft targets'. These include parks, squares and markets, shopping malls, train and bus stations, passenger terminals, hotels and tourist resorts, cultural, historical, religious and educational centres and banks. The critical infrastructures sectors listed in the European Programme for Critical Infrastructures Protection (EPCIP)20, including, among others, energy installations and networks, communications and information technology, finance (banking, securities and investment), water (dams, storage, treatment and networks), supply chain and government (e.g. critical services, facilities, information networks, assets and key national sites and monuments) are not only relevant at a national scale but they can be considered critical infrastructures in an urban context as well.

The call *'Enhancing SME innovation capacity by providing better innovation support'* managed by the Executive Agency for Small and Medium-sized Enterprises (EASME) mainly on behalf of DG GROW primarily aims at achieving synergies with SME and innovation support agencies across Europe by:

- further developing the quality of innovation support to SMEs by testing new approaches at European level for a later uptake in national and regional programmes; or providing specific innovation support services to SMEs at European level thereby complementing the services of the regions and the participating countries.

To that end the following topics were open for proposals:

Call - Enhancing SME innovation capacity by providing better innovation support (5 topics)	'Innovation in SMEs' – capacity-building and networking support
INNOSUP-2-2014: European Intellectual Property Rights (IPR) Helpdesk **Budget: EUR 4 million**	The European IPR Helpdesk provides support in the management, diffusion and/or valorisation of technologies and other intellectual assets and in bringing technologies to the market, including and specifically to participants of Horizon 2020 and COSME projects.
INNOSUP 3 – 2014: IPorta 2 - Increasing the quality of IP advisory services to SMEs **Budget: EUR 3 million**	The successful participant is requested to deliver a mechanism to link and assist National Intellectual Property Offices to design and provide better services to SMEs, including providing information on the business use of European level rights (Unitary Patent, European Trade mark, Community design).
INNOSUP-4-2014: A European Label for innovation voucher programmes to support spin-in of technology **Budget: EUR 1 million**	The proposed activities will assist the development of a European label for innovation voucher programmes that treat foreign European service providers equally to national ones. The systems to manage and award the label might provide services to participating managing entities of innovation voucher programmes which enhance the quality of delivery or manage the higher risks resulting from international opening of the schemes. Financial incentives, for example co-funding a limited number of initial transnational cooperation projects with knowledge institutions, might be provided.
INNOSUP-5–2014: Peer learning of innovation agencies **Budget: EUR 0.42 million**	The proposed activities will provide incentives in the form of small lump sum grants to national and regional innovation agencies for engaging in peer learning on all topics relevant for design and delivery of innovation support programmes for SMEs. The support to joint learning activities shall be available at any time when need and opportunity for policy learning in agencies arises.
INNOSUP-9-2014: Community-building and competence development for SME instrument coaching **Budget: EUR 0.76 million**	The objective of the action is to create the conditions for a comprehensive and consistent delivery of the coaching and mentoring service. In order to support peer-to-peer learning and overcome their regional anchoring, the coaches should have the opportunity to exchange ideas and experience with each other to grow the competencies within the coaching network. This will also ensure consistent service delivery. A central facility should be set-up to gather the experiences and data accumulated through the coaching engagement. It should also act as a single reference pool and knowledge resource to assist the coaches in the service delivery.

In 2014, other ‘Innovation in SMEs’ actions launched under the responsibility of DG RTD included:

- Assessing the Investment Potential of SMEs Emerging from Phase I of the SME Instrument: this action establishes a group of investment specialists, operating in a personal capacity, to assess the investment potential of SMEs emerging from Phase I of the SME Instrument. Budget: EUR 0,217 million.
- Eureka Annual Membership Fee: This action supports coordination activities aimed at increasing complementarities and synergy between EUREKA and the Horizon 2020 Programme in areas of common interest. Budget: EUR 0,27 million.

In 2014, other ‘Innovation in SMEs’ actions launched under the responsibility of DG GROW included:

- Establishing services '*Enhancing the innovation management capacity of SMEs*' in the Enterprise Europe Network, supporting the service provision in 2014 and for the period 2015/16 in all European regions including the countries associated to Horizon 2020. The total amount committed by direct grants to network consortia was EUR 3.9 million for service delivery in 2014 and EUR 17.7 million from the 2014 budget for service delivery in 2015/16.
- As in most regions services '*Enhancing the innovation management*' were not yet established, the EU provides an assessment tool and training environment which had been developed for the EU under the Competiveness and Innovation Framework Programme (2007-2013). For the period 2014-16 the IMProve European Innovation Management Academy is supported with a direct grant for the project 'Adapting and maintaining the innovation management assessment tools to support ‘Enhancing the innovation management capacity of SMEs’'. Budget: EUR 2.33 million.

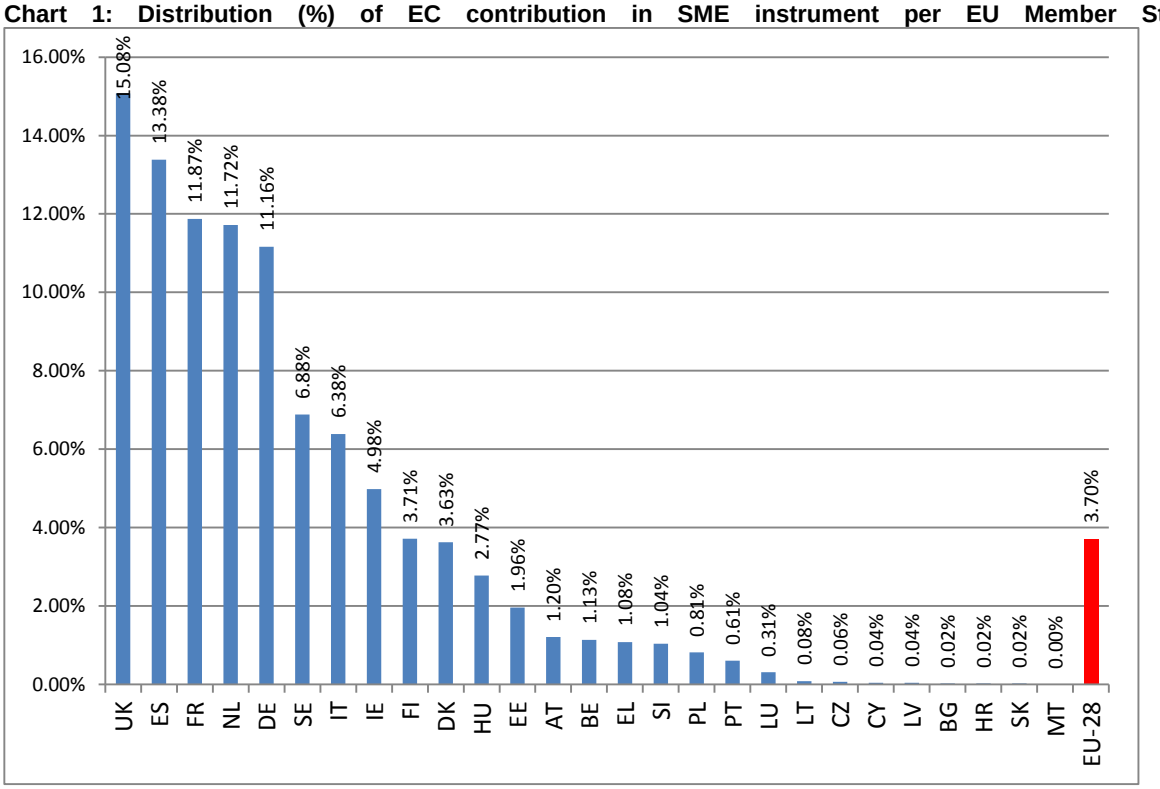
Participation

In 2014, the participation in the SME instrument resulted in 8.030 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 2 332,33 million, which represents more than 9 times the 2014 budget allocated in the Work Programme to the SME instrument from the specific objective LEIT and the priority Societal Challenges.

After evaluation, 1.186 proposals scored above threshold, while 726 proposals were finally retained and all of them were finally selected, with an allocated financial contribution of 256,69 million. By 1st December 2015, the number of grants signed was 721 amounting to a budget allocation of EUR 254,90 million. On average, the amount of EU budget allocated per project under the SME Instrument is EUR 1.7 million for Phase 2 (whereas Phase 1 is with a fixed contribution of EUR 50.000 per project).

Compared to the overall figures of Horizon 2020, the EU budget allocated to successful projects from the SME Instrument represents 3% of the Horizon 2020 budget allocated to successful projects belonging to calls closed in 2014 (EUR 8 467,83 million). It also represents 5,59% of LEITs and Societal Challenges overall allocated budget to successful projects belonging to calls closed in 2014 (4 588,88 million).

Chart 1: Distribution (%) of EC contribution in SME instrument per EU Member States



Implementation

The SME Instrument was implemented by the Executive Agency for Small and Medium-sized Enterprises (EASME), which is running the process of proposals' evaluation, preparation and monitoring of grant agreements. EASME is also implementing coaching activities for the SME Instrument beneficiaries. In line with the EU regulation establishing Horizon 2020, over 5 % of the total combined budgets for the specific objective LEIT and the priority 'Societal challenges' was allocated to the dedicated SME instrument in 2014-2015.

According to the Work Programme 2014-15,[111] the SME-instrument-specific time-to-grant (TTG) benchmark is 3 months for Phase 1 and 6 months for Phase 2 projects. For the successful projects for cut-offs with 2014 deadlines, 2.03% of grants in Phase 1 and 37.31% of grants for Phase 2 were signed on time, i.e. within the above TTG benchmarks. In 2015, EASME put in place some improvements in order to comply better with the specific SME-instrument targets for TTG. It should be noted that in that year, 63.38% of grants within Phase 1 and Phase 2 have been signed within 8 months.

The success rates for the SME-instrument are 9.04% in terms of eligible proposals and 10.95% in terms of EU funding requested (Horizon 2020 average: 13.39% and 14.51% respectively), varying from the lowest in LEIT-ICT (5.67%) to the highest in LEIT-Space (above 50%). The SME instrument-specific success rates in the SME Instrument are respectively 8% for Phase 1 and 11% for Phase 2 in 2014 calls[112].

In addition, the budget of the specific objective 'Innovation in SMEs' supported Eurostars-2, a Joint Programme Initiative (under Article 185), via an EU contribution of EUR 23.7 million, the equivalent of 33% of participating states' contribution, as foreseen in the Eurostars-2 Annual Work Plan 2014. The remaining EU commitments to Eurostars-2 were carried over to 2015. The Signature of the Delegation Agreement between the Eureka Secretariat (ESE) and

[111] Commission Implementing Decision C(2013) 8631 final of 10 December 2013 adopting the 2014-2015 work programme in the framework of the Specific Programme Implementing Horizon 2020 – The Framework Programme for Research and Innovation (2014-2020), C(2014) 1509 final.

[112] Information based upon available data in 2015.

the European Commission for the implementation of the Eurostars-2 joint-Programme took place on 18 December 2014.

Particularly relevant for SME actions are the fact that in 2014, 5.55% of the combined budget of the 'Societal Challenges' and the specific objective 'Leadership in Enabling and Industrial Technologies (LEIT)' was committed through the SME instrument call, which is higher than the initial target outlined in the EU Regulation establishing Horizon 2020. In addition, 23% of the total budgets of the 'Societal Challenges' and the specific objective 'Leadership in Enabling and Industrial Technologies' was allocated to SMEs, which is above the 20% target set in the Regulation.

Regarding the contribution of Horizon 2020 to Innovation in SMEs, this is measured through the following Key Performance Indicators (KPIs):

- Share of participating SMEs introducing innovations new to the company or the market;
- Growth and job creation in participating SMEs.

Both KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

In 2014, the SME instrument was able to support more than 61% of the most innovative proposed projects, meaning those that had passed all call evaluation thresholds (adjusted success rate). The interest in the SME instrument has been tremendous, which confirms the adequacy of such tool vis-à-vis the needs of the innovative SME community.

At this stage, SMEs are by nature selected for their high potential (assessed either in the feasibility or demonstration phases) that has not materialised yet. It would therefore be premature to already identify the most promising companies. The SME Instrument will help them materialise their potential.

However, the SME Instrument deserves to be highlighted as a very promising scheme, aimed at identifying the most promising innovative SMEs in Europe. It has attracted more than 8,000 eligible applicants in 2014 (more than 20% of those in Horizon 2020). This also shows the vitality of the innovative SMEs community in Europe and the need for financing their most challenging development phases to help them grow and internationalise.

INNOVATION IN SMEs	
Summary	**2014**
Budget	
Estimated total budget for SME instrument in WP 2014 (EUR million)	253,02
EC contribution in SME instrument to signed grants in 2014 calls (EUR million)	254,90
Average EC contribution per signed grant (EUR million)	0.35
Participation	
Number of successful projects	726
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	63.38%
Success Rate (projects/proposals)	9,04%
Success Rate (€ allocated/requested)	10.95%
Performance (KPI)	

	Share of participating SMEs introducing innovations new to the company or the market	N/A
	Growth and job creation in participating SMEs	N/A

III.3. Societal Challenges

III.3.1 *Health, Demographic Change and Well-Being*

Societal Challenge 1 (SC1)

Intervention Logic (Rationale)

The main objective of the SC1 actions is to support health R&I from bench to bedside for translating science to benefit citizens and European healthcare sector; to ensure the rapid transfer of knowledge and innovative solutions into prevention, diagnosis, treatment modalities and healthcare in Europe and around the globe; and to promote healthy and active ageing. In doing so it contributes to the broader objectives of ensuring better health for all and a more competitive health and care sector.

In line with the objectives laid down in the Specific Programme, priorities in the Work Programme 2014-2015 were structured in three broad lines of activities with EUR 589,3 million of estimated budget aiming at:

- Personalising health and care;
- Coordinating Health Activities at EU level;
- Providing targeted support to SMEs activities.

In 2014, 5 calls and one special action were launched:

Title of Call	Description
Health Coordination Activities H2020-HCO-2014 **Budget: EUR 40 million**	The aim of this call is to leverage Member State activities in areas including neuroscience, cancer, systems medicine, and to contribute to European and international initiatives such as the European Innovation Partnership on Active and Healthy Ageing, the Global Alliance for Chronic Diseases, the Joint Programming Initiative "More Years, Better Lives - the Challenges and Opportunities of Demographic Change" and the Joint Programming on Neurodegenerative Diseases Research.
Personalising Health and Care H2020-PHC-2014-single-stage **Budget: EUR 180,2 million** H2020-PHC-2014-two-stage **Budget: EUR 303 million**	Research & Innovation objectives supported by these two call: • Improve the understanding of the causes and mechanisms underlying health, healthy ageing and disease; • Improve the ability to monitor health and to prevent, detect, treat and manage disease; • Support older persons to remain active and healthy; • test and demonstrate new models and tools for health and care delivery; • Support to ICT and new technologies for health and active and healthy ageing.

Support for SMEs activities H2020-SMEINST-1-2014 **Budget: EUR 6,61 million**	The SME instrument offers targeted support to innovative SMEs in the area of biomarkers and diagnostic medical devices validation, focussing in particular on Feasibility assessment (phase 1). This call is aimed at exploring and assessing the technical feasibility and commercial potential of breakthrough innovations that companies wants to exploit and commercialize.
Support for SMEs activities H2020-SMEINST-2-2014 **Budget: EUR 59,49 million**	The SME instrument offers targeted support to innovative SMEs in the area of biomarkers and diagnostic medical devices validation, focussing in particular on Innovation projects (phase 2). This call is aimed at funding innovation projects underpinned by a sound and strategic business plan (potentially elaborated and partially funded through phase 1 of the SME Instrument).
Special Action on Ebola **Budget: EUR 30 million**	This action, brought about via an update in WP 2014-2015 in November 2014, was an unplanned emergency action for research on the Ebola virus to address the urgent need for research into new treatments, i.e, effective vaccines and medication.

In addition, a number of other initiatives have been carried out under the umbrella of the 'Health, demographic change and wellbeing' societal challenge, notably the Innovative Medicines Initiative (IMI) established under art. 187 TFEU, the European and Developing Countries Clinical Trials Partnership (EDCTP)[113], and the Active and Assisted Living (AAL) Programme (both established under art. 185 TFEU). Following the adoption of IMI's renewal in July 2014, IMI2 published its first two calls for proposals in 2014, including a major emergency call to support research on Ebola in December 2014, in addition to the special action referred above.

Participation

In 2014, the participation in the Health Societal Challenge actions through the above calls resulted in 1 828 eligible proposals, of which 721 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 5,97 billion, which represents more than 10 times the Health Societal Challenge budget estimated in the WP 2014. After evaluation, 483 proposals (of which 144 from the SME instrument) scored above threshold while 215 proposals were finally retained (96 from the SME instrument).

The number of selected projects was 218 (of which 96 from the SME instrument), including 3 proposals retained from the reserve list. By 1st December 2015, the number of grants signed was 218 amounting to a budget allocation of EUR 660,73 million. On average, the amount of EC budget allocated per signed grant under Health Societal Challenge is EUR 3,03 million. This data is affected by the high number of small-scale SME instrument projects (average of EUR 0,69 million for projects within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 4,8 million.

[113] The EDCTP launched three calls for proposals which respectively sought applications for research & innovation actions ("Diagnostics tools for poverty-related diseases"), coordination & support actions ("Maximising the impact of EDCTP research: translation of research results into policy and practice") and training & mobility actions.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Health Societal Challenge actions represents 7.80% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 4.53% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Health Societal Challenge show that the EU-13/EU-28 participation rate is 8.06% (EU average: 9.87%). Participation from associated and third countries is 5.71% and 5.52% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 25.71% and 19.18% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by DG RTD and DG CONNECT. The SME actions were implemented by the Executive Agency for SMEs (EASME).

The Health Societal Challenge Time-to-Grant indicator is 94.95% (Horizon 2020 average: 93.53%, excluding ERC projects), with similar figures for projects financed through the SME instrument (95.83%).

The success rates for the Health Societal Challenge are 11.76% in terms of eligible proposals and 11.13% in terms of EU funding requested (Horizon 2020 average: 13.39% and 14.51% respectively). The success rates of the SME instrument are higher than the average of the Health Societal Challenge (13.31% and 12.16%). The success rates are particularly low for the calls H2020-PHC-2014 (Personalising Health Care).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities

Showcasing projects which are developed towards improving people's health is one of the priorities of the Health Directorate within DG RTD. One of the main dissemination activities which had a considerable impact in 2014 was the Health Information Day, held on 22 November 2013. This event brought together mostly applicants and academics interested in applying for funding in the framework of Horizon 2020, under the Work Programme 2014-2015. Several Societal Challenge 1 Information Days were organised throughout the year. In addition, the Inaugural European Commission Vaccine Prize (EUR 2 million) was awarded on 10 March 2014 within the Innovation Convention. At the end of December 2014, with the launch of EDCTP, phase 2, Europe and Africa doubled research efforts to develop new and better medicines for poverty-related diseases affecting sub-Saharan Africa such as AIDS, tuberculosis, malaria, hookworms and Ebola.

b. Most Promising Stories

The **EVIDENT** project highlights the opportunity Horizon 2020 provides in reacting to public health emergencies with appropriate and ad-hoc mobilisation of research funding. EVIDENT is one of the five projects funded under the Ebola Emergency Procedure. The project aims to study interactions between the Ebola virus and the host which will provide urgently needed

answers regarding the pathophysiology and transmissibility of the disease, and will help better guide the planned clinical trials on vaccines and potential treatments, as well as the management of patients. Results on the evolution of Ebola virus, published in Nature in June 2015, confirm that the virus from Guinea moved into Sierra Leone, most likely in April or early May. The viruses of the Guinea/Sierra Leone lineage mixed around June/July 2014. These data can be used in conjunction with epidemiological information to test retrospectively the effectiveness of control measures, and provides an unprecedented window into the evolution of the ongoing outbreak. EVIDENT has also identified novel biomarkers of outcome with potential to be used in clinical management, to inform current vaccine trials, and to develop post-exposure immunotherapy against Ebola.

Some babies are born with defective heart valves and heart valves can become diseased or defective as people grow. Treatment is to insert an artificial valve or one made from animal tissue. The **ESPOIR** project consists of a prospective trial of valves of human cadaveric origin which have been treated to remove cells to avoid immune rejection. Early results are promising and indicate that after implantation the valve becomes recellularised and grows with the patient, avoiding the need to replace valves with bigger and bigger ones as the patient develops. ESPOIR aims to treat 200 patients spread over eight European paediatric centres during the course of the trial.

HEALTH, DEMOGRAPHIC CHANGE AND WELL-BEING	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	633,20
EC contribution to signed grants in 2014 calls (EUR million)	660,73
Average EC contribution per signed grant (EUR million)	3,03
Participation	
Number of successful projects	218
EU-13 participation (EU-13/EU-28)	8.06%
Associated countries participation (associated countries/overall)	5.71%
Third countries participation (third countries/overall)	5.52%
Private sector participation (private/overall)	25.71%
SMEs participation (SME/overall)	19.18%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	94.95%
Success Rate (projects/proposals)	11.76%
Success Rate (€ allocated/requested)	11.13%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC1	N/A
Patent applications and patents awarded in the SC1	N/A
Number of prototypes and testing activities in the SC1	N/A
Number of joint public-private publications in the SC1	N/A

III.3.2 Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research, and the Bioeconomy

Societal Challenge 2 (SC2)

Intervention Logic (Rationale)

The main objective of the Societal Challenge 2 is to accelerate the transition to a sustainable European bioeconomy through sufficient supplies of safe and high quality food and bio-based products, productive and resource-efficient primary production systems and competitive and low carbon supply chains.

Under the Work Programme 2014-2015, three main priorities have been identified with an estimated budget of EUR 268.5 million:

- To ensure the availability of and access to sufficient safe and nutritious food for all citizens;
- To boost the marine and maritime economy by accelerating its potential through R&I;
- To support the development of an innovative, sustainable and inclusive Bioeconomy,

In 2014, 3 calls were launched (in addition to the SME instrument call):

Title of Call	Description
Sustainable food security H2020-SFS-2014 **Budget: EUR 147 million**	This call targets competitive and resource-efficient aquatic and terrestrial food production systems; sustainable management of natural resources; technologies for a sustainable food chain; safe foods and healthy diets for all; and a global food security system. Enabling technologies and space-enabled applications, adequately set in a societal context, will be an important element in achieving these goals. Overall, research and innovation actions within this challenge will cover the whole food chain, including both the supply and demand sides.
Blue growth: unlocking the potential of Seas and Oceans H2020-BG-2014 **Budget: EUR 101 million**	This call targets four cross-cutting marine and maritime priority domains supporting the Blue growth Agenda: valorising the diversity of marine life, new offshore challenge, ocean observation technologies and the socio-economic dimension. In term of international cooperation, the call supports the Atlantic Ocean Research Alliance launched by the Galway Statement in May 2013..
Innovative, sustainable and inclusive bioeconomy H2020-ISIB-2014 **Budget: EUR 44.5 million**	This call targets the supply side of the biomass and the bioproducts value chain. The objective is to develop innovative feedstocks, research and innovation on next generation bio-refineries using CO2 as direct feedstock, and supporting markets for bio-based products. This call complements the actions under the Bio-Based Joint Undertaking (see below).
Bio-Based Industries Private-Public Partnership **H2020-BBI-PPP-2014-1** **Budget: EUR 50 million**	This call targets actions aiming at strengthening existing value chains or form new ones, especially by creating links between existing value chains. In parallel research and innovation actions are foreseen to provide “next generation” enabling technologies. This calls covers four of the five

	value chains (from lignocellulosic feedstock to advanced biofuels, bio-based chemicals and biomaterials, the next generation forest-based value chains, the next generation agro-based value chains and emergence of new value chains from (organic) waste)
H2020-SMEINST-2014 **Budget: EUR 14 million**[114]	Bottom up call supporting SMEs. This call focused on two areas: the agro-food value chain and blue growth. In particular, actions aims at supporting efficiency gains in the agro-food value chain to increase climate resilience and improve shelf life, food safety and quality. Blue-growth related actions focus on marine biotechnology well as aquaculture related marine technologies and services.

Other actions launched in 2014 includes the call under the Bio-Based Industries Private-Public Partnership (call H2020-BBI-PPP-2014-1) with a total budget of EUR 50 million. This call targets actions aiming at strengthening existing value chains or form new ones, especially by creating links between existing value chains. In parallel research and innovation actions are foreseen to provide "next generation" enabling technologies. This calls covers four of the five value chains (from lignocellulosic feedstock to advanced biofuels, bio-based chemicals and biomaterials, the next generation forest-based value chains, the next generation agro-based value chains and emergence of new value chains from (organic) waste).

Participation

In 2014, the participation in Societal Challenge 2 actions through the above calls resulted in 943 eligible proposals, of which 590 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 1,83 billion, which represents 6,8 times the budget estimated in the WP 2014 for the Societal Challenge 2. After evaluation, 292 proposals scored above threshold (of which 84 from the SME instrument), while 121 proposals were finally retained (51 from the SME instrument).

The number of selected projects was 123 (of which 51 from the SME instrument) including 2 proposals retained from the reserve list. By 1st December 2015, the number of grants signed was 122 amounting to a budget allocation of EUR 341,51 million. On average, the amount of EC budget allocated per signed grant under the Societal Challenge 2 is EUR 2,80 million. This data is affected by the high number of small-scale SME instrument projects (EUR 0,26 million for projects within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 4,62 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Societal Challenge 2 represents 4.08% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 2.49% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Societal Challenge 2 show that EU-13/EU-28 participation rate is 9.71% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 7.07% and 4.98% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 30.23% and 18.89% respectively (Horizon 2020 averages: 30.59% and 16.07%).

[114] This budget was later topped up with an additional EUR 7 million.

Implementation

This Programme Part was implemented by DG RTD in the case of certain projects with policy-relevance (e.g. dissemination and exploitation projects) and the following Executive Agencies:

- REA
- INEA – Innovation and Network Executive Agency (for the Blue Growth call – Energy and Transport)
- EASME (for activities related to the SME instrument and for the Blue Growth call – Environment)
- Bio-Based Industries (BBI) Joint Undertaking (for the BBI-related projects)

The specific Time-to-Grant indicator for the Societal Challenge 2 is 92.62% (Horizon 2020 average: 89.40% excluding ERC projects), with higher figures for projects financed through the SME instrument (98.04%).

The success rates for the Societal Challenge 2 are 12.83% in terms of eligible proposals and 18.71% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are significantly lower than the average of the Societal Challenge 2 (8.64% and 7.34%): in fact, the success rates of the Societal Challenge 2 excluding the SME instrument are 19.83% and 19.91%.

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications
- New products, processes, and methods launched into the market.

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities

The calls for proposals were presented in an Information Day in Brussels in January 2014 which attracted a significant number of R&D stakeholders. In addition, country visits were organised in several Member States with a view to presenting and disseminating relevant information related to the calls. A pilot marine and maritime information sharing platform to disseminate all exploitable results from marine projects was set up. This platform will be further developed, notably with regard to an automatic transfer of relevant results from H2020 projects to the platform.

b. Most Promising Stories

The project "Discardless" on strategies for the gradual elimination of discards in European fisheries supports the reform of the Common Fisheries Policy on discard ban. Similarly, the large-scale project "ATLANTOS" on optimising and enhancing the integrated Atlantic Ocean Observing System also supports the Galway Statement.

The multi-actor approach will be implemented in the thematic network "WINETWORK". It will focus on the control and the fight against two key diseases which represent a threat for the economic viability of the entire sector and jeopardize the future production potential of the

EU. A participatory approach will be used to translate results from science and practical knowledge into technical datasheets that are used to prepare materials adapted to end-users.

The project 'SUSFANS'[115] aims at underpinning EU-wide food policies with respect to their impact on consumer diets and their implications for nutrition and public health in the EU, the environment, the competitiveness of the EU agri-food sector and global food and nutrition security. The project 'DIABOLO'[116] will contribute to the implementation of the EU Forest Strategy by supporting the provision of harmonised information for mapping and assessing the dynamic state of forest ecosystems and their services. The project 'nEUROSTRESSPEP'[117] on novel biocontrol agents for insect pests from neuroendocrinology has the potential for allowing the commercial exploitation of cutting-edge technologies.

The BBI JU Flagship project, FIRST2RUN aims at setting up a first-of-a-kind commercial scale biorefinery for converting low-input oilseed cultures into chemical building blocks, which are further processed into biolubricants, cosmetics and bioplastics, with by- and co-products from the process being also valorised for the production of energy and animal feed.

FOOD SECURITY, SUSTAINABLE AGRICULTURE AND FORESTRY, MARINE, MARITIME AND INLAND WATER RESEARCH, AND THE BIOECONOMY	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	269.07
EC contribution to signed grants in 2014 calls (EUR million)	341,51
Average EC contribution per signed grant (EUR million)	2,80
Participation	
Number of successful projects	123
EU-13 participation (EU-13/EU-28)	9.71%
Associated countries participation (associated countries/overall)	7.07%
Third countries participation (third countries/overall)	4.98%
Private sector participation (private/overall)	30.23%
SMEs participation (SME/overall)	18.89%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	92.62%
Success Rate (projects/proposals)	12.83%
Success Rate (€ allocated/requested)	18.71%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC2	N/A
Patent applications and patents awarded in the SC2	N/A
Number of prototypes and testing activities in the SC2	N/A
Number of joint public-private publications in the SC2	N/A

[115] http://www.susfans.org/

[116] http://diabolo-project.eu/

[117] http://neurostresspep.eu/

III.3.3 Secure, Clean and Efficient Energy

Societal Challenge 3 (SC3)

Intervention Logic (Rationale)

The main objective of the Energy Societal Challenge is to support European energy and climate policies, notably the EU Energy Union, by contributing to the transition to a reliable, affordable, publicly accepted, sustainable, competitive and efficient energy system, aiming at reducing fossil fuel dependency in the face of increasingly scarce resources, increasing energy needs and climate change.

Under the Work Programme 2014-2015, the following priorities have been identified and supported:

- Improving the efficiency of energy use (ca. EUR 190 million)
- Advancing competitive low-carbon energy technologies (ca. EUR 735 million)
- Demonstration sustainable energy solutions in Smart Cities and Communities (ca. EUR 155 million)

In 2014, 5 calls were supported:

Title of Call	Description
Energy Efficiency (EE) (H2020-EE-2014/2015) **Budget (SC3 only): EUR 92,5 million**	Supporting the efficient use of energy in the areas of • Buildings and consumers, • Heating and cooling, and • Industry and products. In addition, innovative solutions for financing sustainable energy innovations have been supported.
Competitive Low-Carbon Energy Technologies (LCE) (H2020-LCE-2014/2015) **Budget (SC3 only): EUR 359,31 million**	The call supported advancements in the following areas: • Renewable electricity and heating/cooling, • Modernisation of the European electricity grid, • Providing the energy system with flexibility through enhanced energy storage technologies, • Sustainable biofuels and alternative fuels for the European transport fuel mix, • Enabling the decarbonisation of the use of fossil fuels during the transition to a low-carbon economy, • Supporting the development of a European research area in the field of energy, and • Social, environmental and economic aspects of the energy system.
Smart Cities and Communities (H2020-SCC-2014-2015) **Budget (SC3 only): EUR 73,82 million**	This call aims at developing new, efficient, and user-friendly technologies and services bringing together in an integrated approach the areas of energy, transport, and ICT. Technology demonstration is complemented by support for new business cases and financing models, standardisation, scalability and replicability of the solutions, user acceptance

	and engagement.
SMEs for Energy (H2020-SMEINST-2014/2015) **Budget (SC3 only): EUR 33,95 million**	This call included the SME instrument topic which provided SMEs an opportunity to propose sustainable energy innovations in a completely bottom-up approach.
Fuel Cells and Hydrogen (H2020-JTI-FCH-2014-1) **Budget: EUR 93 million** (contribution of SC3 to the FCH JU in 2014 was EUR 60.3 million)	The call includes activities related to Transport and Energy as well as cross-cutting and overarching actions. The Energy Pillar aims to develop and demonstrate technologies to integrate hydrogen into Europe's energy system. This includes production of hydrogen form carbon-free or lean energy sources, storage and distribution of hydrogen and the use of hydrogen in stationary fuel cells to generate power and heat.

In addition, the Energy Societal Challenge supported the 'Blue Growth' call 2014 with EUR 3 million and contributed EUR 60.3 million to the Fuel Cells and Hydrogen Joint Undertaking.

Other actions launched in 2014 included a series of studies, support for relevant events and services, as well as subscriptions to international initiatives.

Participation

In 2014, the participation in Energy Societal Challenge through the above calls resulted in 1944 eligible proposals, of which 1 080 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 3,74 billion, which represents 5,8 times the budget estimated in the WP 2014 for the Energy Societal Challenge. After evaluation, 441 proposals scored above threshold (of which 155 from the SME instrument) while 240 proposals were finally retained (112 from the SME instrument).

The number of selected projects was 251, including 11 proposals retained from the reserve list, with an allocated financial contribution of EUR 651,39 million. By 1st December 2015, the number of grants signed was 249 amounting to a budget allocation of EUR 643,34 million. On average, the amount of EC budget allocated per signed grant under the Energy Societal Challenge is EUR 2,58 million. This data is affected by the high number of small-scale SME instrument projects (average of EUR 0,32 million for projects within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 4,34 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Energy Societal Challenge represents 7.69% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 5.18% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Energy Societal Challenge show that EU-13/EU-28 participation rate is 12.38% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 4.97% and 1.54% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 44.85% and 22.25% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by the Commission services in case of special relevance for policy making (e.g. ERA-NET Cofund actions, support to Stakeholder Platforms) and the Executive Agencies in other cases:

- EASME (for activities in the area of energy efficiency as well as regards the SME instrument),
- INEA (for activities in the LCE and SCC call that were not carried out by the Commission services.

Within this Societal Challenge, DG CONNECT has been closely involved in some topics and projects for which the centre of gravity of the activities is ICT[118].

Compared to the average for Horizon 2020 (89.40% excluding ERC projects), the time-to-grant indicator for the Energy Societal Challenge is 89.96%, with higher figures for projects financed through the SME instrument (99.11%).

The success rates for the Energy Societal Challenge are 12.35% in terms of eligible proposals and 16.14% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Energy Societal Challenge (10.37% and 13.14%).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;
- Share of the overall Energy challenge funds allocated to non-fossil-fuel-related activites and market-uptake of sustainable energy solutions;
- Primary energy savings triggered by the market uptake project (GWh/year per EUR million);
- Total amount of money invested by the stakeholders in sustainable energy as direct or indirect result from the measures developed by the market uptake project (amount in EUR million).

The first 4 KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

For the 5 KPI, only around 6% of the budget in the Energy Societal Challenge has been dedicated directly to fossil-fuel-related activities in 2014, thus well below the maximum of 15%[119]. As regards market uptake activities, 15.2% of the budget in the Energy Societal Challenge has been dedicated to such activities thus well in line with the Commission's commitment.

The 6 and 7 KPIs are reported by Horizon 2020 beneficiaries after the end of a project and in the mid-term reporting so will be available only after the mid-term reporting accomplished. However, at the proposal stage the market uptake projects indicate the estimated values of both indicators. As for H2020 Energy Efficiency Call 2014, the funded market uptake projects are expected to trigger around 20,44 GWh/EUR million in energy savings and more than EUR 450 million investments in sustainable energy.

[118] Involvement through sub-delegation.

[119] The budgetary contributions to the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) have not been counted as 'fossil fuels related'.

Conclusions

a. Dissemination activities

The calls for proposals were presented in a central Information Day in Brussels in December 2013 which attracted a huge interest from the stakeholder community. In addition, theme-specific information days were organised during 2014, in particular as regards energy efficiency, Smart Cities and Communities as well as smart grids and energy storage. National information events were supported by Commission staff on a number of occasions.

b. Most Promising Stories

Projects financed by the Energy Societal Challenge address important challenges that have been identified in a strategic process with the stakeholder community. Examples of very promising projects are:

- **NOBEL GRID**

NOBEL GRID will provide advanced tools and ICT services to all actors in the Smart Grid and retail electricity market in order to ensure cheaper prices, more secure and stable grids and clean electricity. The project's results will be tested in real conditions in five different electric cooperatives and non-profit demonstration sites in Italy, Belgium, the UK, Italy and Greece.
More information on the project's website: http://nobelgrid.eu/

- **CPVMatch**

To achieve maximum efficiency of solar cells, layers of different materials – each converting a specific part of the sun's spectrum – are placed on top of each other (monolithic multi-junction approach). In addition, an optical concentrating technology is used to concentrate the light reaching the solar call by more than 500 times. The combination of ultra-high efficient cells and optical concentration allows to significantly bring down the costs of solar electricity to below 5 €cent/kWh. The key objectives of CPVMatch are to realise solar cells and modules working at a concentration level ≥ 800x with an efficiency of 48 % and 40 %, respectively, with a low environmental impact.
More information on the project's website: https://cpvmatch.eu/

- **Market Uptake actions**

The objective of market uptake actions is to create the right market conditions in terms of awareness, capacity and skills of market actors; regulatory environment and investment climate to trigger innovation from the market. The **LabelPack A+** project helps to create harmonised regulatory conditions triggering innovation and supporting industry in the implementation of the energy labelling directive for combined heating and solar thermal systems (www.label-pack-a-plus.eu/home/calculate-the-label/). Another, different example of market uptake action is the project **SUNSHINE**, improving investment framework for energy efficiency by setting up an innovative investment scheme and business model with a high replicability potential across the Central and Eastern European countries (http://fcubed.eu/#home).

SECURE, CLEAN AND EFFICIENT ENERGY	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	639,87
EC contribution to signed grants in 2014 calls (EUR million)	643,34
Average EC contribution per signed grant (EUR million)	2,58
Participation	

	Number of successful projects	251
	EU-13 participation (EU-13/EU-28)	12.38%
	Associated countries participation (associated countries/overall)	4.97%
	Third countries participation (third countries/overall)	1.54%
	Private sector participation (private/overall)	44.85%
	SMEs participation (SME/overall)	22.25%
Implementation		
	Time-to-Grant (% of projects within TTG benchmark)	89.96%
	Success Rate (projects/proposals)	12.35%
	Success Rate (€ allocated/requested)	16.14%
Performance (KPI)		
	Publications in peer-reviewed high impact journals in the SC3	N/A
	Patent applications and patents awarded in the SC3	N/A
	Number of prototypes and testing activities in the SC3	N/A
	Number of joint public-private publications in the SC3	N/A
	Share of the overall Energy challenge funds allocated to non-fossil-fuel-related activities	6%
	Share of the overall Energy challenge funds allocated to market-uptake of sustainable energy solutions	15,2%

III.3.4 Smart, Green and Integrated Transport

Societal Challenge 4 (SC4)

Intervention Logic (Rationale)

The main objective of the Transport Societal Challenge is to boost the competitiveness of the European transport industries and to achieve a European transport system that is resource-efficient, climate-and-environmentally-friendly, safe and seamless for the benefit of all citizens, the economy and society.

In line with the objectives laid down in the Specific Programme, priorities in the Work Programme 2014-2015 are structured along four broad lines of activities aiming at:

- Resource efficient transport that respects the environment.
- Better mobility, less congestion, more safety and security.
- Global leadership for the European transport industry.
- Socio-economic and behavioural research and forward looking activities for policy

The estimated total budget for the Work Programme 2014-2015 is EUR 881.48 million.

In 2014, 3 calls were launched:

Title of Call	Description
Mobility for Growth H2020-MG-2014/2015 **Budget: EUR 558,5 million**	This call aims at fostering research and innovation on equipment and systems for vehicles, aircraft and vessels that will make them smarter, more automated, cleaner and quieter, while reducing the use of fossil fuels. It also promotes smart infrastructure solutions necessary to deploy innovative traffic management and information systems, advanced traveller services, efficient logistics, construction and maintenance technologies.
Green Vehicles H2020-GV-2014/2015 **Budget: EUR 159 million**	This scope of this call includes improvements in energy efficiency of road transport vehicles (both advanced power-train technologies and new vehicle architectures, weight reduction, improved aerodynamics and rolling resistance and component development for alternative fuel vehicles) and the use of new types of non-conventional energies in road transport such as electricity, CNG and LNG[120], renewable and tailored fuels.
Small Business Innovation for Transport H2020-IT-2014/2015 **Budget: EUR 74,83 million**	This call aims at enhancing the performance of SMEs. The European transport sector must have the capacity to deliver the best products and services, in a time and cost efficient manner, in order to preserve its leadership and create new jobs, as well as to tackle the environmental and mobility defies. The role of SMEs to meet these challenges is critical

[120] Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG)

	as they are key players in the supply chains.

In addition, the following activities were carried out:

Clean Sky 2 Call For Core Partners Wave 1 H2020-CS2-CPW01-2014-01 **Budget: EUR 206 million**	The First Clean Sky JU call for Core Partners aimed at selecting the first Core-Partners to become members of the Clean Sky Joint Undertaking and make a substantial commitment to Clean Sky 2 and its programme activities. The call consisted of 26 topics. The selected members will contribute to 6 technical areas of the Clean Sky programme, namely Large passenger Aircraft IADP, regional Aircraft IADP, Fast Rotorcraft IADP, Airframe ITD, Engines ITD and Systems ITD
FCH2 JU CALL FOR PROPOSALS 2014 H2020-JTI-FCH-2014-1 **Budget: EUR 93 million**	This Call is divided primarily into the Pillars identified in the Multi-Annual Work Plan: Transport, Energy and Cross-Cutting. In addition, Overarching projects, combining the entire supply chain from production of hydrogen all the way to its use in transport applications, are also included. The emphasis given to different actions in different pillars reflects the industry and research partners' assessment of the state of the technological maturity of the applications and their estimated importance to achieve critical objectives of the FCH 2 JU.

Other actions launched in 2014 included:

- A Fast Track to Innovation Pilot (No transport-specific budget)
- Developing a public European environmental modelling suite for aviation (EUR 2 million)
- Developing Europe wide open source transport models, technology watch, data and scenarios (EUR 5 million).

The Transport Societal Challenge also contributed to the Fuel Cells and Hydrogen Joint Undertaking, launched under the Energy Societal Challenge.

Participation

In 2014, the participation in the Transport Societal Challenge through the above calls resulted in 1 141 eligible proposals, of which 761 though the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 2 114,37 million, which represents 3,6 times the budget estimated in the WP 2014 for the Transport Societal Challenge. After evaluation, 323 proposals scored above threshold (of which 104 from the SME instrument) while 187 proposals were finally retained (94 from the SME instrument).

The number of selected projects was 187, with an allocated financial contribution of EUR 626,50 million. By 1st December 2015, the number of grants signed was 185 amounting to a budget allocation of EUR 626,40 million. On average, the EC budget allocated per signed grant under the Transport Societal Challenge is EUR 3,39 million. This data is affected by the high number of small-scale SME instrument projects (average of EUR 0,40 million per signed grant within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 6,34 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Transport Societal Challenge represents 7.40% of the Horizon 2020

budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 3.89% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Transport Societal Challenge show that EU-13/EU-28 participation rate is 8.01% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 4.33% and 1.77% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 56.28% and 21.77% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

Following the handover to the Innovation and Network Executive Agency (INEA) in December 2014, this Programme Part is being implemented primarily by INEA. Certain projects with particularly relevant policy content were retained and are being managed in-house by DG RTD, DG MOVE and DG CONNECT.

Within this Societal Challenge, DG CONNECT is responsible for some topics and projects for which the centre of gravity of the activities is ICT[121].

The time-to-grant indicator for the Transport Societal Challenge is 96.22% (Horizon 2020 average: 89.40 excluding ERC projects), with slightly lower figures for projects financed through the SME instrument (94.68%).

The success rates for the Transport Societal Challenge are 16.39% in terms of eligible proposals and 29.77% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Transport Societal Challenge (10.67% and 22.86%). The success rates are particularly low for the call H2020-SMEINST-1-2014, due to high oversubscription.

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities, overall appreciation, possible improvements.

Following the central Information Day held in Brussels at the end of 2013 to present the calls for proposals, national information events took place on a number of occasions during 2014 with support by Commission staff.

TRA (Transport Research Arena), the major conference on transport in Europe, took place in 2014 with the support of the European Commission. At TRA, a brokerage event for partners' search and for the use of projects results was organised and saw the participation of over 200 organisations.

Efforts were put in order to ensure a better complementarity between the Work Programme and activities funded by the Joint Technology Initiatives.

[121] Involvement through sub-delegation.

In the course of 2014, work started on the first edition of the Transport Achievements Report with the aim of bringing together achievements from projects funded during the FP7 for feed-back into policy making. While the report was effectively completed in 2015, it covers results from projects finalised in the course of 2014 and earlier.

The handover for the implementation of a large part of the Programme by INEA was prepared in the course of 2014 and successfully finalised at the end of that year.

Possible improvements include the need to address the challenges posed by the oversubscription by making phase 1 in the 2-step procedure more selective. In addition, the section on expected impacts of the next Work Programmes will be described in a more focussed way.

b. Most Promising Stories

Projects financed by the Transport Societal Challenge address important challenges that have been identified in a strategic process with the stakeholder community. An example of very promising project is SOLAR-JET. This project has produced the world's first 'solar' jet fuel from water and carbon dioxide (CO_2). The process uses a promising technology with the potential to turn a greenhouse gas into a resource – and increase Europe's energy security.

SMART, GREEN AND INTEGRATED TRANSPORT	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	578.91
EC contribution to signed grants in 2014 (EUR million)	626.40
Average EC contribution per signed grant (EUR million)	3.39
Participation	
Number of successful projects	187
EU-13 participation (EU-13/EU-28)	8.01%
Associated countries participation (associated countries/overall)	4.33%
Third countries participation (third countries/overall)	1.77%
Private sector participation (private/overall)	56.28%
SMEs participation (SME/overall)	21.77%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	96.22%
Success Rate (projects/proposals)	16.39%
Success Rate (€ allocated/requested)	29.77%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC4	N/A
Patent applications and patents awarded in the SC4	N/A
Number of prototypes and testing activities in the SC4	N/A
Number of joint public-private publications in the SC4	N/A

III.3.5 Climate Action, Environment, Resource Efficiency and Raw Materials

Societal Challenge 5 (SC5)

Intervention Logic (Rationale)

The main objective of the Climate Action Societal Challenge is helping to build a green economy, i.e a circular economy in sync with the natural environment. Therefore it focuses strongly on investments in innovation for a green economy, in (traditional) areas like waste, water or recycling. It also addresses gaps in the knowledge base to understand environmental changes, as well as policies, methods and tools to address environmental and climate challenges.

Under the Work Programme 2014-2015, two priorities have been identified, waste and water, with respectively EUR 73 and 67 million of estimated budget. Waste and water have been selected because of their potential for business opportunities and job creation, while tackling resource efficiency challenges. Europe is a world leader in those fields. The global waste market, from collection to recycling, is estimated at EUR 400 billion per annum, while the global water market (drinking and waste) reached EUR 250 billion in 2008, with annual investments of more than EUR 33 billion.

Water and waste are a substantial part of the so-called "Environmental goods and services sectors", which represented 5% of the EU's GDP in 2012 and employed 4.2 million people. Those sectors are constantly growing, including during the economic crisis. Their output has grown by more than 50% during the last decade.

In 2014, 3 calls were launched:

Title of Call	Description
Waste: A resource to Recycle, Reuse and Recover Raw Materials H2020-Waste-2014 **Budget: EUR 73 million**	This call is a response to the urgent need to move from a linear production and consumption model (extraction-use-throw) to a circular one, reaching a near-zero waste society. The main expected impacts are measurable reductions of waste generation and its associated costs, increasing competitiveness, in the whole production and consumption cycle.
Water innovation: Boosting its value for Europe H2020-Water-2014 **Budget: EUR 67 million**	The aim of the call is to seize new and significant market opportunities by positioning Europe as global leader in water-related innovative solutions. For this, it combines innovation actions (including demonstrations) with other actions aiming at increasing cooperation in the water area (ERA-Net Cofund, international cooperation) or to increase dissemination and exploitation of EU funded activities in this field.
Growing a Low Carbon, Resource Efficient Economy with Sustainable Supply of Raw Materials H2020-SC5-2014 **Budget: EUR 166 million**	This call focuses on investing on innovation for a green economy through multi-disciplinary R&I and an active involvement of socio-economic disciplines. There is a particular focus on supporting business in developing market eco-innovations. The call includes topics on climate change, with a particular focus on climate services, economics of climate change and mitigation actions. Other topics are focused on management of natural resources (e.g. biodiversity and eco-system

	services, innovation on soil decontamination), raw materials, and earth observation within GEOSS.

Other actions launched in 2014 included investments in other areas relevant for the Climate Action Societal Challenge, like climate change (climate services, economics of climate change and mitigation), management of natural resources, raw materials and earth observation. Climate Action Societal Challenge also contributed to the calls on Blue Growth (SC2), Energy Efficiency (SC3) and Disaster-Resilience (SC7).

Participation

In 2014, the participation in the Climate Action Societal Challenge through the above calls resulted in 1 059 eligible proposals, of which 785 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 1 489,89 million, which represents 4 times the budget estimated in the WP 2014 for the Climate Action Societal Challenge. After evaluation, 309 proposals scored above threshold (of which 128 from the SME instrument) while 131 proposals were finally retained (73 from the SME instrument).

The number of selected projects was 132, including 1 proposal retained from the reserve list. By 1st December 2015, the number of grants signed was 132 amounting to a budget allocation of EUR 315,07 million. On average, the amount of EC budget allocated per signed grant under the Climate Action Societal Challenge is EUR 2,39 million. This data is affected by the high number of small-scale SME instrument projects (average of 0,26 million for projects within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 4,87 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Climate Action Societal Challenge represents 3.72% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 2.74% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Climate Action Societal Challenge show that EU-13/EU-28 participation rate is 10.93% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 6.67% and 7.11% respectively (Horizon 2020 averages: 5.88% and 4.82), while participation from private sector and SMEs is 32.75% and 19.84% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by DG RTD and DG GROW, except the second stage evaluations that were conducted by EASME. Almost all funded projects are managed by EASME. The 11 exceptions are projects selected under topics that explicitly mentioned the exclusion from implementation by EASME in the Work Programme 2014-2015.

Within this Societal Challenge DG CONNECT is responsible for some topics and projects for which the center of gravity of the activities is ICT[122].

The time-to-grant indicator for the Climate Action Societal Challenge is 86.36% (Horizon 2020 average: 89.40% excluding ERC projects), with higher figures for projects financed through the SME instrument (100%).

The success rates for the Climate Action Societal Challenge are 12.37% in terms of eligible proposals and 21.30% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are lower than the average of the Climate Action Societal Challenge (8.73% and 13.27%). The success rates are particularly low for the call H2020-SMEINST-1-2014, due to high oversubscription.

[122] Involvement through sub-delegation.

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Overall appreciation

This year 2014 has marked an evolution towards a new R&I policy for environmental and climate-related issues, with the launch of four expert groups (on Green Growth, on Sustainable Development Goals, on Nature-Based Solutions and on Systemic Eco-Innovation) that intellectually supported the move from a core business focused on financing R&I projects to a systemic, integrative and transformative R&I agenda. The EU R&I agenda therefore includes, but it is not limited, to financing projects; it must tackle societal challenges through a systemic approach. The Work Programme 2014 established the first bases for this important shift.

b. Most Promising Stories

- EWIT is a coordination and support action between the EU and Africa on waste management. Most of the partners were involved in the Joint European and African Research & Innovation Agenda on Waste Management
- Atlantos – freshly started H2020 project dedicated to Atlantic Ocean Observing System. It is a huge project contributing the implementation of the Galway declaration on Atlantic Ocean Cooperation
- The **EU-PolarNet** (www.eu-polarnet.eu). For the first time, an integrated EU polar research programme is to be developed on the basis of input from all interest groups and international partners. It will:
  - ✓ provide a strategic framework & mechanisms to make best use of polar infrastructure,
  - ✓ pave the way for new partnerships leading to the co-design of polar research projects with real social benefits.

CLIMATE ACTION, ENVIRONMENT, RESOURCE EFFICIENCY AND RAW MATERIALS	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	348.26
EC contribution to signed grants in 2014 calls (EUR million)	315,07
Average EC contribution per project (EUR million)	2.39
Participation	
Number of successful projects	132
EU-13 participation (EU-13/EU-28)	10.93%

Associated countries participation (associated countries/overall)	6.67%
Third countries participation (third countries/overall)	7.11%
Private sector participation (private/overall)	32.75%
SMEs participation (SME/overall)	19.84%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	86.36%
Success Rate (projects/proposals)	12.37%
Success Rate (€ allocated/requested)	21.30%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC5	N/A
Patent applications and patents awarded in the SC5	N/A
Number of prototypes and testing activities in the SC5	N/A
Number of joint public-private publications in the SC5	N/A

III.3.6 *Europe in a changing world – Inclusive, Innovative and Reflective Societies*

Societal Challenge 6 (SC6)

Intervention Logic (Rationale)

The rationale of the Societal Challenge 6 is to support actions that will give European Union a cutting edge and sufficient resilience in facing the current and future difficulties affecting its development. In particular, it supports several aims in the three intertwined areas of inclusive, innovative and reflective societies. These concepts are complex and require multi-disciplinary approaches.

Under the Work Programme 2014-2015, three strategic priorities have been identified:

- The first priority is to gain a greater understanding of the societal changes in Europe and of their impact on social cohesion, as well as to analyse and develop social, economic, political inclusion and positive inter-cultural dynamics in the EU and with international partners, through cutting-edge science and inter-disciplinarity, technological advances and organisational innovations.
- The second priority is to foster the development of innovative societies and policies in Europe through the engagement of citizens, civil society organisations, enterprises and users in research and innovation, as well as the promotion of coordinated research and innovation policies.
- The third priority is to contribute to an understanding of Europe's intellectual basis, its history and the many European and non-European influences, as an inspiration for our lives today.

The estimated budget for the Work Programme in 2014 is EUR 114,4 Million.

In 2014, 5 calls were launched:

Title of Call	Description
Overcoming the Crisis: New Ideas, Strategies and Governance Structures for Europe Call Reference **Budget: EUR 36 Million**	The call focuses on socio-economic and behavioural research on: (1) the reform of the EU economic governance structure to better secure financial and economic stability (focusing on the 'Blueprint for a deep and genuine Economic and Monetary Union'); (2) the social, political, legal and cultural consequences of the crisis, such as higher unemployment, the widening of social disparities, rising Euroscepticism and distrust in politics, and the consequent national and EU-level responses; (3) understanding the evolution of the crisis: long-term structural problems and short-term crisis impact (including short run vs. long run crisis resolution strategies); and (4) the impacts of broader global trends on the EU's economy and governance (e.g. climate change, migration, promotion of human rights, etc).
Call - the Young Generation in an Innovative, Inclusive and	This call provides a comprehensive picture of the current young generation to help meet the challenges ahead and fulfil the goals of major European policy initiatives, such as "Youth on the Move", the Youth Employment Package and

Sustainable Europe Call Reference **Budget: EUR 20 Million**	the Youth Guarantee, among others. It addresses the situation of young people, their capabilities and resources, aspirations and creativity, prospects and needs by exploring a multitude of different dimensions, from the economic, social and individual perspective in order to ensure their full participation in an innovative, inclusive and sustainable Europe. Specific attention is paid to capturing the full diversity of young people in Europe and to addressing gender equality aspects. This call complements earlier research activities, aimed in particular at overcoming youth unemployment, which were funded under the 7th Framework Programme in the Socio-economic Sciences and Humanities theme.
Call - Reflective Societies: Cultural Heritage and European Identities Call Reference **Budget: EUR 23 Million**	This call explores the European diversities and the opportunities they bring, enhancing the understanding of Europe's intellectual and creative basis and paving the way for the European society to critically reflect upon itself, including its historical, cultural and normative roots and the historical trajectories of Europe's democratic institutions. By addressing the key issues of cultural heritage, identity formation as well as intellectual, artistic, creative and historical legacy of the European Union, this research contributes to a more resilient, innovative and creative European society pursuing the goal of 'Unity in diversity' whose importance and relevance has been highlighted by the recent financial and economic crisis. It also fosters the potential of digital technologies for facilitating the modelling, analysis, understanding and preservation of European cultural heritage, thus allowing richer interpretations and user experiences, as well as creative re-use.
Call - Europe as a Global Actor Call Reference **Budget: EUR 8,55 Million**	Research and innovation have an important role to play in addressing the complex challenges with which the world is confronted and in strengthening Europe's role on the global scene. To achieve this, the call provides two specific areas of intervention: − Stepping up international cooperation in research and innovation: to tackle global societal challenges, strengthen European research excellence and economic competitiveness and contribute to the Union's external relations; − Research to support Europe's role as a global actor: supporting the Union's external relations by contributing to the knowledge base on the external environment the Union operates in.
Call - New Forms of Innovation Call Reference **Budget: EUR 26,85**	These activities are in line with the Digital Agenda for Europe Flagship Initiative of the EU 2020 strategy and the e-Government Action Plan 2011-2015. Opening up and sharing assets in an open government context - making data, services and processes open - enables collaboration and

Million	increases bottom-up, participative forms of service design, production and delivery. The Innovation Union Flagship Initiative in 2010 as part of the EU2020 strategy for growth and jobs aims to create a vibrant, innovation-based economy. New knowledge on business models innovation and business models for SMEs in any sector of the economy can highly impact on European competitiveness and job creation. Open innovation and engagement of citizens and civil society are also important dimensions of innovative societies.

Other actions launched in 2014 included actions to strengthen the evidence base for research and innovation policies, to support the development of these policies and to experiment with new forms of innovation ("Actions to foster innovation policies"). The COST programme also received support in order to fund networks of scholars and other actors pursuing common objectives related to the objectives of Societal Challenge 6.

Participation

In 2014, the participation in Societal Challenge 6 through the above calls resulted in 474 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 1 126,75 million, which represents 7.5 times the budget estimated in the WP 2014 for the Societal Challenge 6. After evaluation, 243 proposals scored above threshold while 42 proposals were finally retained.

The number of selected projects was 47, including 5 proposals retained from the reserve list, with an allocated financial contribution of EUR 117,51 million. By 1st December 2015, the number of signed projects was 46 amounting to a budget allocation of EUR 115,56 million. On average, the amount of EC budget allocated per signed grant under the Societal Challenge 6 is EUR 2,51 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Societal Challenge 6 represents 1.39% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 0.98% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Societal Challenge 6 show that EU-13/EU-28 participation rate is 17.26% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 6.71% and 7.50% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 14.00% and 9.86% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented mainly by DG RTD and by DG CONNECT. The implementation of the Research and Innovation Actions has been delegated to the Research Executive Agency (REA), while the ERA-NET and the Coordination and Support Actions (CSA) were kept in the parent DGs (DG RTD and DG CONNECT).

The time-to-Grant indicator for the Societal Challenge 6 is 78.26% (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for the Societal Challenge 6 is 8.86% in terms of eligible proposals and 9.62% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;

- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities, overall appreciation, possible improvements.

With the launch of Horizon 2020, the Societal Challenge 6 (SC6) participated in a series of national events and info-days.

Moreover, to raise their visibility and awareness among key stakeholders, the SC6 actively participated in 2014 in high-level international conferences and events:

25 years after the fall of the Iron Curtain: achievements and challenges. The event organised by the 'Reflective societies' unit at the occasion of the 25th anniversary of the fall of the Iron Curtain in Brussels on the 5th of December was a remarkable success with the presence of more than 100 participants and several national media. The conference presented important insights of social sciences and humanities concerning the transformation process and formulated policy recommendations for deepening the integration of the European Union's Eastern and Western members or with regard to future enlargements.

Green, pink and white: can Europe still create jobs. More than 120 stakeholders participated at this event organised in the framework of the European research project NEUJOBS (Creating and adapting jobs in Europe in the context of the socio-ecological transition") in Brussels on 1 December 2014. The final results – combining both qualitative and quantitative results – were discussed by high-level European and national policy-makers.

Innovation Convention 2014. The Convention provided a platform to debate and inform policies that will contribute towards the building of a research and innovation eco-system in Europe that can support this objective.

Digital Venice. Digital Venice 2014 was a high-level meeting, hosted by the City of Venice and promoted by the Italian Presidency of the Council of the European Union with the support of European Commission – DG CONNECT, that gathered policy, industry and innovation leaders from all over Europe to trace the road to a growing, sustainable digital economy.

Stakeholders' workshop: Embedding Social Sciences and Humanities (SSH) in Horizon 2020. This event was organised in order to inform the stakeholder organisations of the previous and current Commission activities of integration SSH across the Societal Challenges and LEIT and to gather constructive input for further shaping the SSH dimensions in the 2016-17 Work Programme.

b. Most Promising Stories

Societal Challenge 6 addresses important challenges that have been identified in a strategic process with the stakeholder community. Examples of very promising projects with strong potential European added value are:

ADEMEU project (EURO-1-2014: Resilient and sustainable economic and monetary union in Europe). In context of the European debt crisis and associated deep recession, ADEMU is at the frontier of dynamic macroeconomic research, and the project will generate new knowledge that will be used to provide a rigorous assessment of the current institutional framework, and detailed proposals for improving it. It will also be a focal point in debates among academics, policymakers and other stakeholders regarding the implementation of new

policies. The scope of the project will include a full consideration of political economy and legal dimensions to alternative institutional reforms.

YMOBILITY project (YOUNG-2-2014 Young mobility: opportunities, impacts, policies). The project develops a comprehensive research programme by identifying, and quantifying, the main types of international youth mobility in the EU, and their key characteristics. Particular attention will be given to differences between and within three main types: highly skilled, less skilled and students. The project will analyse the individual outcomes in terms of both employability and careers (skills and competences) and noneconomic terms (welfare and identities). The study will focus on 9 countries representing different contexts for youth mobility: Romania, Slovakia and Latvia as sources of emigration and return; the UK and Sweden as destinations for migrants; Germany, Italy, Ireland and Spain as both major destinations and countries of origin. Experimental methods will be used to assess how individuals will respond to different scenarios of future economic and social change.

EUROPE IN A CHANGING WORLD – INCLUSIVE, INNOVATIVE AND REFLECTIVE SOCIETIES	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	149.27
EC contribution to signed grants in 2014 calls (EUR million)	115,56
Average EC contribution per signed grant (EUR million)	2,51
Participation	
Number of successful projects	47
EU-13 participation (EU-13/EU-28)	17.26%
Associated countries participation (associated countries/overall)	6.71%
Third countries participation (third countries/overall)	7.50%
Private sector participation (private/overall)	14.00%
SMEs participation (SME/overall)	9.86%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	78.26%
Success Rate (projects/proposals)	8.86%
Success Rate (€ allocated/requested)	9.62%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC6	N/A
Patent applications and patents awarded in the SC6	N/A
Number of prototypes and testing activities in the SC6	N/A
Number of joint public-private publications in the SC6	N/A

III.3.7 Secure Societies – Protecting freedom and security of Europe and its citizens

Societal Challenge 7 (SC7)

Intervention Logic (Rationale)

The main objectives of the Secure Societies Societal Challenge actions are to enhance the resilience of our society against natural and man-made disasters; to fight crime and terrorism ranging from new forensic tools to protection against explosives; to improve border security, ranging from improved maritime border protection to supply chain security and to support the Union's external security policies including through conflict prevention and peace building; and to provide enhanced cyber-security.

Under the Work Programme 2014-2015, 60 topics have been identified with EUR 396 million of estimated budget. These topics are spread over 4 calls launched in 2014:

- Disaster-resilience: safeguarding and securing society, including adapting to climate change – budget EUR 124 million
- Fight against crime and Terrorism – budget EUR 98 million
- Border Security and External Security – budget EUR 62 million
- Digital Security: Cybersecurity, Privacy and Trust – budget EUR 97 million

In 2014, 4 calls were launched:

Title of Call	Description
Border Security and External Security H2020-BES-2014 **Budget: EUR 62 million**	On the one hand this call targets the development of technologies and capabilities which are required to enhance systems, equipment, tools, processes, and methods for rapid identification to improve border security. It also addresses supply chain security in the context of the EU's customs policy. On the other hand this call focuses on new technologies, capabilities and solutions which are required to support the Union's external security policies in civilian tasks.
Disaster-resilience H2020-DRS-2014 **Budget: EUR 124 million**	Securing the society against disasters is one of the central elements of the functioning of any society. There is barely any societal sector which is not to some extent concerned by disasters and related resilience and security issues. The objective of this call is to reduce the loss of human life, environmental, economic and material damage from natural and man-made disasters, including extreme weather events, crime and terrorism threats.
Fight against crime and Terrorism H2020-FCT-2014 **Budget: EUR 98 million**	The ambition of this call is both to avoid an incident and to mitigate its potential consequences. This requires new technologies and capabilities for fighting and preventing crime (including cyber-crime), illegal trafficking and terrorism (including cyber-terrorism), including understanding and tackling terrorist ideas and beliefs to also avoid aviation related threats.
Digital Security	The call focused on innovation actions demonstrating the viability and maturity of state-of-the-art in information

H2020-DS-2014-1 **Budget: EUR 97 million**	security risk management, access control and privacy enhancing solutions. Furthermore, the solutions are going to be validated in real life environments, in large scale demonstrators and directly involving end users.

Other actions launched in 2014 included a grant to the Joint Research Centre – Institute for the Protection and Security of the Citizen in support to the implementation of the Security Industrial Policy and Action Plan through the European Reference Network for Critical Infrastructure Protection (ERNCIP). The aim of this action is to promote EU-wide standards of security technologies, tests and evaluations of security equipment, and respective certifications.

Participation

In 2014, the participation in the Secure Societies Societal Challenge through the above calls resulted in 622 eligible proposals, of which 178 through the SME instrument. The cumulative amount of EU contribution requested under these proposals was EUR 1 976,16 million, which represents 9 times the budget estimated in the WP 2014 for the Secure Societies Societal Challenge. After evaluation, 234 proposals scored above threshold (of which 34 from the SME instrument) while 71 proposals were finally retained (30 from the SME instrument).

The number of selected projects was 79, including 8 proposals retained from the reserve list with an allocated financial contribution of EUR 216,19 million. By 1st December 2015, the number of grants signed was 78 amounting to a budget allocation of EUR 214,59 million[123]. On average, the amount of EC budget allocated per signed grant under the Secure Societies Societal Challenge is EUR 2,75 million. This data is affected by the number of small-scale SME instrument projects (average of EUR 0,18 million for projects within the SME instrument). The average size of collaborative projects excluding the SME instrument is EUR 4,27 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the Secure Societies Societal Challenge represents 2.55% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 1.64% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the Secure Societies Societal Challenge show that EU-13/EU28 participation rate is 12.77% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 7.99% and 1.69% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 36.56% and 21.66% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by the Directorate-General for Migration and Home Affairs (DG HOME), responsible for the calls BES (Border and External Security), DRS (Disaster-resilience) and FCT (Fight against Terrorism and Crime), and DG CONNECT, responsible for the DS (Digital Security) call.

The time-to-grant indicator for the Societal Challenge 7 is 79.49% (Horizon 2020 average: 89.40% excluding ERC projects), with slightly higher figures for projects financed through the SME instrument (80%).

The success rates for the Societal Challenge 7 are 11.41% in terms of eligible proposals and 9.64% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). The success rates of the SME instrument are higher than the average for the

[123] This includes EUR 18million contribution from SC5 to the DRS Focus Area.

Societal Challenge 7 (17.01% and 16.13%). The success rates are particularly low for the following calls: H2020-DRS-2014 (Disaster Reliance), H2020-DS-2014-1 (Digital Security), H2020-FCT-2014 (Fight against Terrorism and Crime).

The Key Performance Indicators which are particularly relevant for the Societal Challenges are:

- Number of publications in peer-reviewed high impact journals;
- Number of patent applications and patents awarded;
- Number of prototypes and testing activities;
- Number of joint public-private publications;

These KPIs are reported by Horizon 2020 beneficiaries after the end of a project and will be available only after the critical mass of finished projects has been reached. First relevant data available are expected as from 2018. Their current value is therefore not available in this Annual Monitoring Report.

Conclusions

a. Dissemination activities

The main dissemination activity of 2014 was the Security Research Event 2014 (SRE '14)" at CPExpo, held in Genoa, Italy, 9-11 December 2014. The purpose of the SRE '14 was to demonstrate how FP7-funded security research has contributed to the growth of the European security industry and market, as well as to highlight the new funding opportunities provided by Horizon 2020.

b. Most Promising Stories

The project BODEGA ("BOrdDErGuArd - Proactive Enhancement of Human Performance in Border Control") will investigate and model Human Factors in border control to provide innovative socio-technical solutions for enhancing border guards' performance of critical tasks, support border management decision-making, and optimize travellers' border crossing experience. BODEGA will develop a toolbox which integrates the solutions for easy adoption of the BODEGA's results by stakeholders in border control. This toolbox will integrate ethical and societal dimensions to enable a leap of border control towards improved effectiveness and harmonisation across Europe.

The project VisiOn (Visual Privacy Management in User Centric Open Environments) will deliver a Visual Privacy Management Platform, which will empower European citizens to take control of their personal data and achieve their desired level of privacy by creating and monitoring a personal Privacy Level Agreement. The platform will provide users with a clear way to visualise their privacy preferences, relevant threats and trust issues along with an insight into the economic value of their own user data.

SECURE SOCIETIES – PROTECTING FREEDOM AND SECURITY OF EUROPE AND ITS CITIZENS	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	210[124]
EC contribution to signed grants in 2014 calls (EUR million)	214,59[125]
Average EC contribution per signed project (EUR million)	2.75

[124] This includes the EUR 18million contribution from SC5 to the DRS Focus Area.

[125] This includes the EUR 18million contribution from SC5 to the DRS Focus Area.

Participation	
Number of successful projects	79
EU-13 participation (EU-13/EU-28)	12.77%
Associated countries participation (associated countries/overall)	7.99%
Third countries participation (third countries/overall)	1.69%
Private sector participation (private/overall)	36.56%
SMEs participation (SME/overall)	21.66%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	79.49%
Success Rate (projects/proposals)	11.41%
Success Rate (€ allocated/requested)	9.64%
Performance (KPI)	
Publications in peer-reviewed high impact journals in the SC7	N/A
Patent applications and patents awarded in the SC7	N/A
Number of prototypes and testing activities in the SC7	N/A
Number of joint public-private publications in the SC7	N/A

III.4. Spreading Excellence and Widening Participation (SEWP)

Intervention Logic (Rationale)

The research and innovation potential of the Member States, despite some recent convergence, remain very different, with large gaps between "innovation leaders" and "modest innovators". The specific objectives of Part IV of Horizon 2020, Spreading Excellence and Widening Participation (SEWP) are to unlock excellence in low-performing RDI regions and Member States and associated countries; to widen participation of these countries in Horizon 2020; to contribute to the realisation of the European Research Area. Therefore, it supports actions aimed at strengthening the institutional, scientific and networking capacities of centres of excellence located in low performing regions and Member States, on the basis of partnerships with internationally leading institutions and researchers.

In a complementary way, synergies with the European Structural and Investment (ESI) Funds are relevant, firstly to ensure the sustainable integration of the beneficiary institutions into the national research landscapes, secondly to increase impact of investments in low performing RDI regions.

In 2014, 3 calls were launched:

Title of Call	Description
Teaming H2020-WIDESPREAD-1-2014 **Budget: EUR 14,22 million**	Teaming invests in Europe's research and innovation potential through supporting the creation of new (or upgrading of existing) Centres of Excellence on the basis of partnerships with internationally leading institutions. It involves two (2) parties: an institution of research and innovation excellence (public or private) or

	a consortium of such institutions and the participant organisation from a low performing Member State[126]. Both parties are required to sign the grant agreement. The coordinator of the project is the participant organisation from the low performing Member State.
ERA Chairs H2020-WIDESPREAD 2-2014: ERA Chairs **Budget: EUR 33,6 million**	ERA Chairs bring outstanding researchers to universities and other research organisations that have high potential for research excellence. On their side, institutions should mobilise support from different funding sources, including from the European Structural and Investment Funds, to invest in facilities and infrastructures in the context of Smart Specialisation Strategies and commit to institutional change and a broader support to innovation.
Transnational network of national contact points (NCP) H2020-WIDESPREAD-3-2014 **Budget: EUR 2 million**	The transnational network of national contact points (NCPs) aims to facilitate the trans-national co-operation between NCPs, helping less experienced entities in low performing Member States or regions, bridge the knowledge gap and rapidly acquire know-how accumulated in other countries thus enabling better access to funding opportunities in the EU Framework Programmes and beyond.

Other actions launched in 2014 included the WIRE Conference .The two-day conference (WIRE V) was organised during the EU Greek Presidency in Athens and focused on enhancing research and innovation investment as well as policy efficiency, in the context of the ESIF new programming period (2014-2020). Attention was given to the new specific objective of Horizon 2020 on Spreading Excellence and Widening Participation.

Participation

In 2014, the participation in Spreading Excellence and Widening Participation (SEWP) actions through the above calls resulted in 245 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 255,26 million, which represents 3.7 times the budget estimated in the WP 2014 for SEWP actions. After evaluation, 148 proposals scored above threshold while 40 proposals were finally retained.

The number of selected projects was 46, including 6 proposals retained from the reserve list. By 1st December 2015, the number of grants signed was 46 amounting to a budget allocation of EUR 50,11 million. On average, the amount of EC budget allocated per signed grant under SEWP actions is EUR 1,09 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful projects in the SEWP actions represents 0.59% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 0.96% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in the SEWP actions show that EU-13/EU-28 participation rate is 49.44% (Horizon 2020 average: 9.87%) which clearly reflects the objective of this part of the Programme aimed at strengthening the participation of countries having a lower R&I

[126] For example a national or regional authority, or a research agency at national or regional level; the presence of a local partner research institution is encouraged as it could provide additional relevance to the teaming process.

performance. Based on the composite indicator of research excellence[127] and applying the 70% of EU average threshold, all the EU-13 plus Luxembourg and Portugal have become eligible to apply as coordinators for Teaming, Twinning and ERA Chairs.

Participation from associated and third countries is 2.70% and 0.00% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 5.41% and 3.78% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by DG RTD in collaboration with the Research Executive Agency (REA). The communication and evaluation activities related to the calls "Teaming" (H2020-WIDESPREAD-1-2014) and "ERA Chairs" (H2020-WIDESPREAD 2-2014: ERA Chairs) were carried out by DG RTD and, once completed, their implementation was transferred to the Research Executive Agency (REA). The communication and evaluation activities of the call "Transnational network of national contact points" (H2020-WIDESPREAD-3-2014) were managed by DG RTD, which currently carries on its implementation.

The time-to-grant indicator for the SEWP actions is 82.61% (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for the SEWP actions are 16.33% in terms of eligible proposals and 17.71% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively).

The Key Performance Indicator to measure progress towards Spreading Excellence and Widening Participation is:

- Evolution of the publications in high impact journals in the given research field

The measurement of this indicator will be possible at the end of the projects and will be collected by the dedicated project report. First relevant data available are expected as from 2018. The aggregated data will be available at the completion of all projects. Its current value is therefore not available in this Annual Monitoring Report.

Conclusions

Following the launch of Horizon 2020, several dissemination activities took place during 2014. An Infoday was organised right after the publication of the Teaming and ERA Chair calls. On 25 March 2014 a high-level conference on Teaming took place in Warsaw. The event was organised by the Polish Government and DG RTD was represented by the Director General.

Additionally, a stakeholder's lunch was held in Brussels to raise visibility and awareness among key-target audiences and several presentations on SEWP were given in Brussels. A

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[127] The composite indicator of Research Excellence measures the research excellence in Europe, meaning the effects of European and national policies on the modernization of research institutions, the vitality of the research environment and the quality of research outputs in both basic and applied research. The indicator is composed of four variables:

- The share of highly cited publications in all publications where at least one of the authors has an affiliation in a given country;

- Number of top scientific universities and public research organizations in a country divided by million population;

- Patent applications per million population;

- Total value of ERC grants received divided by public R&D performed by the higher education and government sectors;

Less-performing Member States in terms of research and innovation are those that rank below 70% of the EU-28 average of the composite indicator on Research Excellence.

dedicated session was given to SEWP during the Week of Innovative Regions (WIRE) Conference organised in Athens under the Greek Presidency.

SPREADING EXCELLENCE AND WIDENING PARTICIPATION	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	69,26
EC contribution to signed grants in 2014 calls (EUR million)	50,11
Average EC contribution per project (EUR million)	1,09
Participation	
Number of successful projects	46
EU-13 participation (EU-13/EU-28)	49.44%
Associated countries participation (associated countries/overall)	2.70%
Third countries participation (third countries/overall)	0.00%
Private sector participation (private/overall)	5.41%
SMEs participation (SME/overall)	3.78%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	82.61%
Success Rate (projects/proposals)	16.33%
Success Rate (€ allocated/requested)	17.71%
Performance (KPI)	
Evolution of the publications in high impact journals in the given research field	N/A

III.5. Science with and for Society (SWAFS)

Intervention Logic (Rationale)

The specific objective "Science with and for society" is to build effective cooperation between science and society, foster the recruitment of new talent for science, and pair scientific excellence with social awareness and responsibility.

Under the Work Programme 2014-2015, the following priorities have been identified:

- make scientific and technological careers attractive to young students, and foster sustainable interaction between schools, research institutions, industry and civil society organisations;
- promote gender equality, in particular by supporting structural changes in research institutions and in the content and design of research activities;
- integrate society in science and innovation issues, policies and activities by incorporating the needs and values of citizens, thereby increasing the quality, relevance, social acceptability and sustainability of research and innovation outcomes in various fields of activity, from social innovation to areas such as biotechnology and nanotechnology, etc.
- encourage citizens, including children and youth, to engage in science through formal and informal science education, and promote the diffusion of science-based activities, namely in science centres and through other appropriate channels;
- develop the accessibility and the (re-)use of the results of publicly-funded research;
- develop the governance for the advancement of responsible research and innovation by all stakeholders (researchers, public authorities, industry and civil society organisations), which is sensitive to the needs and demands of society, and promote an ethics framework for research and innovation;
- take due and proportional precautions in research and innovation activities by anticipating and assessing potential environmental, health and safety impacts;
- improve knowledge on science communication in order to enhance the quality and effectiveness of interactions between scientists, general media and the public.

In 2014, 4 calls were launched with an overall estimated budget of EUR 43,25 million:

Title of Call	Description
Making science education and careers attractive for young people (SEAC) H2020-SEAC-2014-1 **Budget: EUR 13.15 million**	Call's objectives: • Developing scientific citizenship by promoting innovative pedagogies in science education, attracting more young people towards science, with a special emphasis on girls, and addressing the challenges faced by young people, in pursuing careers in science, technology, engineering and innovation; • Developing Responsible Research and Innovation in Higher Education Curricula; • Easing the access to scientific careers by increasing the service level of the EURAXESS Services Network.
Promoting gender	Call's objectives: •

equality in research and innovation (GERI) H2020-GERI-2014-1 **Budget: EUR 9.5 million**	• Encouraging girls to study science and female students to further embrace a career in research; • Analysing the impact of gender diversity in research teams on research and innovation outcomes; • Developing a common framework to evaluate national initiatives to promote gender equality in research policy and research organisations; • Supporting research organisations to implement gender equality plans.
Integrating society in science and innovation (ISSI) H2020-ISSI-2014-1 **Budget: EUR 10.3 million**	Call's objectives: • Developing citizens' interest and capacities for science and allowing them to actively participate in various scientific activities (e.g. exhibitions and science cafés, grass roots "Do It Yourself" (DiY) creative re-use communities, on-line mechanisms for knowledge-based policy advice); • Fostering the dissemination of information and good practices through a Knowledge Sharing Platform (KSP), including networking, monitoring and assessing relevant initiatives; • Supporting structural change in the research organisation and higher education institutions to promote Responsible Research and Innovation.
Developing governance for the advancement of responsible research and innovation (GARRI) H2020-GARRI-2014-1 H2020-GARRI-NCP-2014-1 **Budget: EUR 8.3 million**	Call's objectives: • Fostering Responsible Research and Innovation uptake in current research and innovations systems (including in industrial context); • Underpinning activities related to Text and Data Mining (TDM), innovative approach to release and disseminate research results and measure their impact; • Promoting ethics in research, including research integrity, reducing the risk of ethics dumping of non-ethical practices to non EU countries. • Supporting the Science with and for Society National Contact Point (NCP) in Horizon 2020; and National Contact Point for quality standards and horizontal issues.

Participation

In 2014, the participation in Science With And For Society (SWAFS) actions through the above calls resulted in 247 eligible proposals. The cumulative amount of EU contribution requested under these proposals was EUR 423,50 million, which represents almost 10 times the budget estimated in the WP 2014 for SWAFS actions. After evaluation, 126 proposals scored above threshold while 21 proposals were finally retained.

The number of selected projects was 23, including 2 proposals retained from the reserve list. By 1st December 2015, the number of grants signed was 23 amounting to a budget allocation of EUR 48,47 million. On average, the amount of EC budget allocated per signed grant under SWAFS is EUR 2,11 million.

Compared to the overall figures of Horizon 2020, the EU financial contribution allocated to successful project in SWAFS actions represents 0.57% of the Horizon 2020 budget allocated

to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 0.48% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in SWAFS actions show that EU-13/EU-28 participation rate is 23.79% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 9.64% and 5.72% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 10.84% and 8.13% respectively (Horizon 2020 averages: 30.59% and 16.07%).

Implementation

This Programme Part was implemented by DG RTD with the REA support.

None of the 23 grants signed within SWAFS actions have been signed within the time-to-grant benchmark (Horizon 2020 average: 89.40% excluding ERC projects). The success rates for SWAFS actions are 8.50% in terms of eligible proposals and 10.57% in terms of EU funding requested (Horizon 2020 averages: 13.39% and 14.51%). These overall rates are particularly affected by the low success rates of the call H2020-SEAC-2014-1 (5.71% and 6.82% respectively), which attracted more than half of the SWAFS eligible proposals.

The Key Performance Indicator to measure progress towards Science With And For Society (SWAFS) is:

- Number of institutional change actions promoted by the programme

These KPIs will be reported by the Horizon 2020 beneficiaries, particularly through the projects funded under the Topics ISSI.5.2014.2015 - *Supporting structural change in research organisations to promote Responsible Research and Innovation* and GERI.4.2014-2015 - *Support to research organisations to implement gender equality plans.* This information will be made available by Horizon 2020 beneficiaries only at the end of their respective projects; hence at this stage the indicator cannot be measured.

Conclusions

a. Dissemination activities

With the launch of Horizon 2020, several dissemination activities took place during 2014. The Network of National Contact Points (NCP) for SWAFS was extensively used for dissemination to potential applicants and other stakeholders. One NCP meetings was organised in Brussels (May), and Project Officers participated to several info days organised by the NCPs. Moreover, to raise their visibility and awareness among key-target audiences, SWAFS was present in 2014 at high-level international conferences and events: at the 64th Lindau Nobel Laureate Meeting, at the ESOF 2014 (Euroscience Open Forum) in Copenhagen and at the Conference *Science, Innovation and Society: achieving Responsible Research and Innovation* organised in Rome under the Italian Presidency.

b. Most Promising Stories

Projects financed by the SWAFS address important challenges that have been identified in a strategic process with the stakeholder community. Examples of very promising projects are:

- **ER4STEM** - Educational Robotics for STEM - Call H2020-SEAC-2014-1

  ER4STEM will refine, unify and enhance current European approaches to STEM education through robotics in one open operational and conceptual framework. The concept is founded on three important pillars of constructionism: 1. engaging with powerful ideas, 2. building on personal interests, and 3. learning through making (or presenting ideas with tangible artefacts). The ER4STEM framework will coherently offer students aged 7 to 18 as well as their educators different perspectives and approaches to find their interests and strengths in robotics to pursue STEM careers through robotics and semi-autonomous smart devices. At the same time students will learn about technology (e.g. circuits), about a domain (e.g. math) and acquire skills (e.g. collaborating, coding).

Innovative approaches will be developed to achieve an integrated and consistent concept that picks children up at different ages, beginning in primary school and accompany them until graduation from secondary school.

- **PLOTINA** - Promoting gender balance and inclusion in research, innovation and training - H2020-GERI-2014-1

The overall objective of PLOTINA is to enable the development, implementation and assessment of self-tailored Gender Equality Plans (GEPs) with innovative and sustainable strategies for the Research Performing Organizations (RPOs) involved. This objective will be achieved by: i) Stimulating a gender-aware culture change; ii) Promoting career-development of both female and male researchers to prevent the waste of talent, particularly for women; iii) Ensuring diversification of views and methodologies (in this case by taking into account the gender/sex dimension and analysis) in research and teaching.

- **CIMULACT** – CITIZEN AND MULTI-ACTOR CONSULTATION ON HORIZON2020 - H2020-ISSI-2014-1

In short, CIMULACT will:

- ✓ Create vision and scenarios that connect societal needs with future expected advances in Science and their impact on technology, society, environment etc. in connection to the grand challenges
- ✓ Provide concrete input to Horizon 2020 through recommendations and policy options for R&I and simulated calls for the Horizon2020 Work Programmes.
- ✓ Engage citizens and stakeholders in a highly participatory debate/consultation/process on scenarios for desirable sustainable futures and research
- ✓ Build capacities in citizen and multi-actor engagement in R&I through development, experimentation, training and assessment of methods for engagement
- ✓ Facilitate dialogue and shared understanding between policymakers, citizens, and stakeholders
- ✓ Reveal the relative merits of the citizen focussed consultations

- **TRUST** - Creating and enhancing TRUSTworthy, responsible and equitable partnerships in international research - H2020-GARRI-2014-1

The goal of the TRUST Project is to catalyse a global collaborative effort to improve adherence to high ethical standards around the world.

Achieving equity in international research is one of the pressing concerns of the 21st century. Many international groups and organisations are working on governance frameworks and standards to guide research activities after progressive globalization. However, their efforts are disparate and lacking a guiding vision. In an interdisciplinary collaboration between multi-level ethics bodies, policy advisors, civil society organisations, funding organisations, industry and academic scholars from a range of disciplines, this project combines long-standing, highly respected efforts to build international governance structures with new exciting network opportunities between Europe, India, Sub-Saharan Africa, China and Russia.

TRUST will open up new horizons in improving adherence to high ethical standards in research globally. The project's strategic output are three sets of tools based on participatory engagement covering all continents: (1) a global code of conduct for funders, (2) a fair research contracting on-line tool and (3) a compliance and ethics follow-up tool, which takes limited resources into account.

SCIENCE WITH AND FOR SOCIETY	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	43.25
EC contribution to signed grants in 2014 calls (EUR million)	48,47
Average EC contribution per signed grant (EUR million)	2,11
Participation	
Number of successful projects	23
EU-13 participation (EU-13/EU-28)	23.79%
Associated countries participation (associated countries/overall)	9.64%
Third countries participation (third countries/overall)	5.72%
Private sector participation (private/overall)	10.84%
SMEs participation (SME/overall)	8.13%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	0.00%
Success Rate (projects/proposals)	8.50%
Success Rate (€ allocated/requested)	10.57%
Performance (KPI)	
Number of institutional change actions promoted by the programme	N/A

III.6. European Institute of Innovation and Technology (EIT)

Intervention Logic (Rationale)

Europe faces structural weaknesses when it comes to innovation capacity and the ability to deliver new services, products and processes, thereby hampering sustainable economic growth and job creation. Several factors underlie these weaknesses; examples include the under-utilisation of existing research strengths in terms of creating economic or social value, the lack of research results being brought to the market and a less developed entrepreneurial mind set in the EU. The EIT has been established to contribute to sustainable European growth and global competitiveness by reinforcing the innovation capacity of Member States and the Union. The EIT has been specifically mandated to involve higher education, research and business activities at the highest standards, and in doing so, facilitate and enhance networking and co-operation, and create synergies among innovation communities in Europe.

The EIT operates primarily through excellence-driven, highly autonomous partnerships (the EIT Knowledge and Innovation Communities – KICs) that foster innovation and entrepreneurship in specified societal themes. KICs consist of higher education institutions, research organisations, companies and other stakeholders. KICs have to apply the principle of Knowledge Triangle Integration and are shaped as a network of local eco-systems (Co-location Centres). In 2009, a call for KIC proposals was organised to appoint the three " first wave" KICs addressing the societal challenges climate change adaptation and mitigation (Climate-KIC), sustainable energy (KIC InnoEnergy) and future information and communication society (EIT Digital). EIT and its KICs transfer and apply higher education, research and innovation activities for new business creation, conduct cutting-edge and innovation-driven research in areas of key economic and societal interest and nurture entrepreneurial people through education and training. Good practices and experiences are shared with stakeholders in EU Member States.

Under the Work Programme 2014-2015, five priorities have been identified: the consolidation and fostering of the growth and impact of the three first-wave KICs established in 2009, the creation of two new KICs in 2014, the extension of the impact of the EIT beyond KICs by making good practices and experiences of KICs available new stakeholders, including the EIT's Regional Innovation Scheme for areas in Europe with low innovation capacity.

In 2014, a call to designate KICs in the areas of raw materials and healthy living and active ageing was successfully completed. These second wave KICs, EIT Raw Materials and EIT Health, submitted their first business plan in 2015 as part of their start-up period.

In 2014, an EIT Stakeholder Forum (incl. the Member State Configuration) was organised.

Title of Call/assessment	Description
Review 2013 performance and cost reports of the three first wave KICs	Assessment of the 2013 performance of the individual KICs in terms of education, innovative products and services put on the market, the creation of new businesses and operational efficiency and effectiveness. Assessment of compliance of cost statements with EU regulations and rules.
Allocation of funding for 2015 to the three first wave KICs based on an assessment of their Business Plans.	Assessment of the 2015 Business Plan of the individual KICs in terms of planned activities for education, innovation, business creation and outreach and decisions about funding.
Call for KIC Proposals:	Call for EIT This KIC focuses on the broader issue of innovation for healthy living and active ageing and contributes

EIT Health	to the delivery of the Europe 2020 agenda and its objectives on employment, innovation, education and social inclusion. EIT Health has successfully been designated in 2014.
Call for KIC Proposals: EIT Raw Materials	This KIC reaps the economic benefits from and addresses the need to develop innovative solutions for the cost-effective, low carbon and environmentally friendly exploration, extraction, processing, use, re-use, recycling and end of life management of raw materials. It contributes to the delivery of the Europe 2020 agenda and its objectives on climate and energy, employment, innovation and education. EIT Raw Materials has successfully been designated in 2014.

Participation

The EIT Call for KIC Proposals launched on 14 February 2014 resulted in seven eligible proposals. As planned, two new KICs were designated. The EIT Health consortium consisted of more than 50 partners, another 90 associate organisations, including leading businesses, research centres and universities from 9 EU countries. The EIT Raw Materials KIC brings together more than 100 partners from 20 EU Member States.

In 2014, 632 institutions participated in the three first wave KICs designated in 2009. The total budget requested was EUR 215,3 million. After discussions and revisions of the business plans EUR 218,5 million was allocated, the budget actually consumed in 2014 by the first wave KICs was EUR 187,3 million. A breakdown of the figures for ***the three first wave KICs*** is given in the following table:

	Number	Reported EIT Funding (EUR million)	Reported Cofunding (EUR million)	Reported Total Funding of KCA (EUR million)
Businesses	233	30,98	6,90	197,52
SMEs	127	8,70	0,65	15,59
Cities, Regions, NGOs	55	4,69	1,00	58,79
Eco-System	12	1,02	0,30	2,03
Higher Education	116	81,73	9,31	375,12
KIC LE and CLCs	7	28,28	0,53	0,46
Research	82	31,87	3,97	149,19
Grand Total	**632**	**187,27**	**22,67**	**798,70**

On average, about 5% of the budget was spent on Communications and Outreach, 20% on Education, 14% on Entrepreneurship, 48% on Innovation projects and 12% on management and Coordination.

Implementation

The implementation of this Programme's Part was carried on by the EIT's operational units: Partnerships Management (PAM) and Policy and Communications (PAC). Within the EIT, the PAM unit is responsible for the entire grant management cycle.

A multi-annual framework programme agreement has been concluded with the first wave KICs and will be done with the new KICs. Annually, grants are allocated in a competitive manner on the basis of business plans and performance reports that are reviewed by the EIT.

The (amended) KIC Business Plans are the basis for the award of the EIT grant and are annexed to the specific grant agreement. KIC Business Plans describe the implementation of the seven-year KICs' strategy and the planned portfolio of KIC activities for a particular period (typically a calendar year). A KIC business plan includes the operationalisation of the KIC's strategy through for instance, its governance, management and organisational

structures; the selection, description, and management of the KIC's portfolio of planned activities. It includes clear targets, deliverables and key performance indicators for each KIC added value activity. The EIT assesses the business plan. The decision on the funding allocation for the activities proposed is based on the business plan assessment in addition to analysis of the past performance and multi-annual strategy. KIC Performance and Cost Reports serve as the primary documents to assess the implementation of the corresponding business plan, the budget and the eligible expenditure of the annual EIT financial contribution. They provide a synthetic but strategic presentation of the implementation for the reference year of the business plan, through 'self-assessment' of executed activities and their results. KIC reports include the values for Key Performance Indicators.

During 2014, the EIT Regional Innovation Scheme was introduced in order to enable EIT activities to reach out to regions in Europe with weaker innovation capacity. Furthermore, a new EIT website and EIT community brand identity were launched, including brand architecture, community values, brand tone and a new visual identity, as well as a naming convention for the EIT KICs.

Conclusions

During 2014, the EIT made important progress in all areas of its operations while some challenges remained and were addressed as a matter of priority and with a sense of urgency.

With the amendments of both the EIT Regulation and EIT Financial Regulation, the EIT was fully integrated into Horizon 2020: the EU Framework Programme for Research and Innovation.

The first wave of the EIT's Knowledge and Innovation Communities (KICs) has steadily grown in terms of budget, activities, and results. The EIT Community was further enlarged through the creation of two new KICs in the areas of healthy living and active ageing (EIT Health) and sustainable exploration, extraction, processing, recycling and substitution of raw materials (EIT Raw Materials), creating a new momentum and scaling up of the EIT's contributions to Europe's innovation landscape, sustainable growth and global competitiveness.

The EIT has grown as an institute and laid the basis for the implementation of its ambitions towards further impact, financial sustainability of the KICs' activities and outreach across Europe and beyond.

EUROPEAN INSTITUTE OF INNOVATION AND TECHNOLOGY	
Summary	**2014**
Budget	
Estimated total budget in WP 2014 (EUR million)	223.6
Budget actually allocated in 2014 (EUR million)	187.3
Average EC contribution per ***KIC*** (EUR million)	62.4
Participation	
Number of successful projects	n.a.
Number of participations (***partners in KICs***)	632
EU-13 participation (EU-13/EU-28)	13.1%
Associated countries participation (associated countries/overall)	0.3%
Third countries participation (third countries/overall)	0.6%

Private sector participation (private/overall)[128]	56.9%
SMEs participation (SME/overall)[129]	20.1%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	N/A
Success Rate (projects/proposals)	N/A
Success Rate (€ allocated/requested)	N/A
Performance (KPI)	
Attractiveness of Educational Programmes	3.13
Number of new graduates	241
Number of business ideas incubated	443
Number of start-ups or spin-offs created	90
Knowledge Transfer/Adoption	285
New or improved products/services/processes launched into the market	71

[128] Calculated as Number of Business partners divided by Number of all partners.

[129] Calculated as Number of SME partners divided by Number of all partners.

III.7. Euratom Research and Training Programme 2014-2018

Intervention Logic (Rationale)

The main objective of the Euratom Research and Training Programme is to pursue nuclear research and training activities with an emphasis on continuous improvement of nuclear safety, security and radiation protection, notably to potentially contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way.

Euratom supports fission research, essentially aimed at enhancing the safety and performance record of nuclear energy production technologies, contributing to the development of safe and publicly acceptable solutions for the management of radioactive waste and furthering the understanding of the effects of low doses of ionising radiation on humans and the environment in order to ascertain strategies relevant to radiation protection.

Euratom fusion research is aimed at developing magnetic confinement fusion as a new energy source. First objective is to move towards demonstration of feasibility of fusion as a power source by exploiting existing and future fusion facilities. The second objective is to lay the foundations for future fusion power plants by developing materials, technologies and conceptual designs.

Under the Work Programme 2014-2015, 6 fission research priorities for implementation through one call for proposals for two budget years (2014 and 2015) have been identified with EUR 87,87 million of estimated budget.

- Support safe operation of nuclear systems (EUR 27,8 million)
- Contribute to the development of solutions for the management of ultimate radioactive waste (EUR 16,7 million)
- Foster Radiation Protection (EUR 19 million)
- Cross-cutting aspects for nuclear fission and radiation protection (EUR 13 million)
- Support the development of nuclear competences at Union level and socio-economic aspects (EUR 9,37 million)
- Security of supply of nuclear fuel (EUR 2 million)

In 2014, 2 calls were launched:

Title of Call	Description
Nuclear Fission and Radiation Protection NFRP-2014/2015 **Budget: € 85,87 million**	This call for proposals for nuclear fission and radiation protection features 15 topics targeting various areas of research, from safe operation of nuclear systems, development of longer term solutions for waste, to radiation protection and development of medical applications of radiation, including, inter alia, the research for secure and safe supply and use of radioisotopes. Other topics aim at supporting the development of nuclear competences and socio-economic aspects.
Nuclear Fission and Radiation Protection (2) NFRP-2014/2015-2 **Budget: € 2 million**	This specific topic focuses on safety aspects of loading Western nuclear fuel assemblies in Russian pressurized reactors (VVER) operated in the EU. This action concerns safety research for licensing of nuclear fuel and addresses the top priority of reduction of EU energy dependency made by the European Council on 20/21 March 2014.

Other actions launched in 2014 include:

A new framework for supporting fusion research was established and it replaced previous instruments (the European Fusion Development Agreement (EFDA) and the Contracts of Association between the Commission and national fusion laboratories, which expired at the end of 2013). The new framework[130] consists of (i) multiannual support (EUR 424 million during 2014-2018), through a Horizon 2020 Grant Agreement for a European joint programming co-fund action, to a consortium of national fusion laboratories and institutes (EUROfusion) to implement a joint programme based on the fusion roadmap[131], and (ii) support for the continued operation of JET, the Joint European Torus (€ 283 million during 2014-2018), as the principal research device exploited under this joint programme. This new approach to fusion research in Europe promotes enhanced integration across Europe in order to ensure the success of ITER and electricity generation from a "DEMO" device around the middle of the century. Fusion research in Europe has always been the best example Europe can offer of a unified research programme, and the establishing of EUROfusion and the continued exploitation of JET maintains and reinforces this unity.

The European Prize for Innovation in Fusion Research (SOFT Innovation Prize) awarded in September 2014: it highlights and rewards the excellence in innovation that can be found in fusion energy research as well as the quality of the researchers and industries involved. The first edition of the prize went to the two scientists from Karlsruhe Institute of Technology (KIT) in Germany, Christian Day and Thomas Giegerich, for their development of a new vacuum pumping process for future fusion power plants. This new process, called the KALPUREX process, simplifies the currently utilized pumping schemes making them economically more attractive, while also improving tritium handling and related safety.

Participation[132]

In 2014, the participation in Euratom fission actions through the above calls resulted in 66 eligible proposals. The cumulative amount of Euratom contribution requested under these proposals was EUR 233,75 million, which represents 2.5 times the Euratom budget estimated in the Euratom Work Programme 2014-2015. After evaluation, 55 proposals scored above threshold while 22 proposals were finally retained.

The number of selected projects was 23, including 1 proposal retained from the reserve list with an allocated financial contribution of EUR 90,18 million. By 1 December 2015, the number of grants signed was 22 amounting to a budget allocation of EUR 87,67 million. On average, the amount of Euratom budget allocated per signed grant is EUR 3,99 million.

Compared to the overall figures of Horizon 2020, the Euratom budget allocated for indirect actions to successful projects represents 1.06% of the Horizon 2020 budget allocated to calls closed in 2014 (EUR 8 467,83 million). The number of successful projects is 0.48% of the Horizon 2020 total number of successful projects (4 809).

Participation trends in Euratom indirect action show that EU-13/EU-28 participation rate is 22.25% (Horizon 2020 average: 9.87%). Participation from associated and third countries is 4.85% and 6.12% respectively (Horizon 2020 averages: 5.88% and 4.82%), while participation from private sector and SMEs is 23.47% and 6.38% respectively (Horizon 2020 averages: 30.59% and 16.07%).

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[130] Established in accordance point (i) of the Annex I of the Council regulation (Euratom) No 1314/2013 of 16 December 2013 on the Research and Training Programme of the European Atomic Energy Community (2014-2018) complementing the Horizon 2020 Framework Programme for Research and Innovation, OJ L 347, 20.12.2013.

[131] 'Fusion Electricity – A roadmap to the realisation of fusion energy', https://www.euro-fusion.org/eurofusion/the-road-to-fusion-electricity/

[132] In order to avoid distortion of the data on the participation in the Euratom 2014-2015 call, this section excludes data on ad-hoc 2014 call launched for the implementation of fusion roadmap. This call has been launched for named beneficiary (EUROfusion consortium) – see footnote 51.

In the fusion research programme, all national laboratories and institutes (ex-EFDA signatories) present in the previous Framework Programme are EUROfusion partners, involving all Member States except Luxembourg and Malta and also including Switzerland as a Euratom Associated Country. In addition, there are more than 100 linked third parties mentioned in the Grant Agreement. The initial financing by the Euratom programme to the consortium, under the terms of the programme co-fund Grant Agreement, amounted to EUR 70.5 million from the 2014 budget. On average, under the terms of the 5-year Grant Agreement, the Euratom programme will contribute a maximum of 55% of the eligible costs of the EUROfusion partners in implementing the joint programme. Under the terms of the new bilateral contract with the JET operator, the Culham Centre for Fusion Energy (CCFE), UK, the cost of JET operation amounted to EUR 72.7 million from the Euratom budget for the 15 months from Jan 2014 – March 2015.

Further to the positive trend of participation of third countries in fission research under the previous Euratom 7th Framework Programme (2007-2013) where there have been 57 non-Euratom entities with 99 participations in 52 projects (39% of the total number of projects) from which 40 participations were co-funded by Euratom. Under the 2014-2015 call there have been 27 non-Euratom entities from 7 countries and one International Organization in fission Grant Agreements, with 18 participations (6 of which were co-financed by Euratom) in 15 projects. The international participation is expected to be maintained under the forthcoming calls.

Implementation

It should be recalled that the European Commission is the executive institution under the Euratom Treaty, and the Commission retains overall responsibility for Community research and innovation policy in the nuclear field, and this extends to all related programme and project management, as well as the coordination of international cooperation with key third countries. The majority of these tasks are undertaken by the units G4 (fission call for proposals) and G5 (European Joint Programme in fusion research), with the support of the strategy unit G1, and the administration and finance unit G6 of Directorate-General for Research and Innovation of the European Commission.

Unit G4 is in charge of fission and radiation protection research focused on the safety of existing nuclear power plants and more sustainable ones for the future. Nuclear safety is clearly a cross-border issue with added European value, in particular for the adoption of technical standards for nuclear safety to be applied in the EU. This applies to reactor systems, radioactive waste management and radiation protection as well as education and training. Support is provided to the most relevant projects for their excellence demonstrated, in particular, by their contribution to improve the state-of-the-art in the field of nuclear safety. This is of paramount importance for Energy Union and the role nuclear energy could play in this policy.

The time-to-grant (TTG) indicator for Euratom indirect actions is 68.18% (Horizon 2020 average: 89.40% excluding ERC projects). In most cases, the Grant Agreements have been signed before the TTG benchmark. However, in some cases with more complicated grant preparation procedure it was signed after the imposed maximum TTG period due to the complexity of issues to be solved in the course of the Grant Agreement preparation (GAP) procedure.

The success rates for Euratom indirect actions are 33.33% in terms of eligible proposals and 37.63% in terms of Euratom funding requested (Horizon 2020 averages: 13.39% and 14.51% respectively). Overall the Euratom-specific success rates are significantly higher than the average Horizon 2020 success rates, due to high degree of consolidation of the research efforts in this domain.

Conclusions

a. Dissemination activities

The calls for proposals were presented in a central Information Day in Brussels in December 2013 which attracted a huge interest from the stakeholder community. National information events were supported by Commission staff on a number of occasions. Further dissemination activities have been conducted in particular in the field of radiation protection, notably regarding the effects of low-dose radiation on human health and the environment. Radiation protection is indeed the main aim of nuclear safety and successes in this domain pave the way for further EU integration of research in nuclear safety and radioactive waste management. The way the programme is being structured in radiation protection should serve as a test case for the overall programme.

b. Most Promising Stories

Examples of very promising projects are:

- **SCO2-HeRo**

  SCO2-HeRo project aims at demonstrating a new safety concept that could avoid Fukushima-like accidents. The "supercritical CO2 heat removal system" removes residual heat from nuclear fuel without the requirement of external power sources. This system therefore can be considered as an excellent backup cooling system for the reactor core or the spent fuel storage in the case of a station blackout and loss of ultimate heat sink. If successful, the SCO2-HeRo project will allow existing reactors to avoid in the case of an accident, early radioactive releases that would require off-site emergency measures as required by the new nuclear safety Directive.
  More information on the project's website: http://www.sco2-hero.eu/

- **Concert - European Joint Programme for the Integration of Radiation Protection Research**

  In the area of radiation protection, Euratom conducts research for several years to determine the effects of exposures at low doses in terms of development of cancerous and non-cancerous diseases, especially in connection with the strategic agenda of the European Platform MELODI. Several epidemiological studies are thus conducted to date to estimate the risk of developing a cancer or a non-cancerous condition associated with human exposure to ionizing radiation in low doses, from exposure from occupational, environmental or medical origin. Radiobiology experimental studies are also being conducted to understand the effects and mechanisms associated with chronic exposure to low doses due to a contaminated environment (external irradiation and internal contamination with drinking water). This research will provide EU policy makers with an independent scientific opinion based on more information than epidemiology alone, thus reducing uncertainties and reinforcing a reasonable approach to the precautionary principle.
  More information on the project's website: http://www.concert-h2020.eu/

- **JET and EUROfusion – European Joint Programme in fusion research**

  JET is the operational fusion device that is closest to ITER in design, thanks in particular to the all-metal 'ITER-like' inner wall installed on JET in a major refit 2009-2012, and current scientific exploitation of JET by EUROfusion is therefore wholly to support the ultimate success of ITER, through investigating ITER plasma scenarios and mitigating ITER operational risks. During 2014, experimental results from JET continued to challenge our understanding of the behaviour of plasmas in 'all metal' tokamaks. This will enable the fusion research community to resolve remaining issues before ITER becomes operational, thereby accelerating the research programme on ITER and enabling significant cost savings.

In EUROfusion, it is not only JET that is exploited but also other key 'medium-sized' tokamaks and linear plasma devices in other countries (e.g. ASDEX-Upgrade in IPP, Germany, and TCV in Lausanne). The joint programming approach that is now central to EUROfusion has enabled the more efficient planning of experiments in all these devices, so that the most appropriate one is used in each case, with obvious efficiency savings. The related access and mobility of researchers together with the dissemination and sharing of results are assured through the joint programme, once again underlining that the fusion research programme is best example that Europe can offer of ERA – the 'European Research Area' – in action.

The fusion roadmap remains the fundamental guiding document of the joint programme, representing a comprehensive and detailed goal-oriented approach to the challenge of developing magnetic confinement fusion as an energy source. Though fusion remains a long-term endeavour we can already point to tangible and incremental progress along this roadmap thanks to the achievements of EUROfusion in the first year (2014) of the joint programme, during which the consortium achieved all its high-level objectives and reached on average 80% of the milestones.
More information on the project's website: https://www.euro-fusion.org/

EURATOM RESEARCH AND TRAINING PROGRAMME 2014-2018	
Summary	**2014**
Budget	
Estimated total budget in Euratom WP 2014-2015 (EUR million)	87,87
EC contribution to signed grants in 2014 calls (EUR million)	87,67
Average EC contribution per signed grant (EUR million)	3,99
Participation	
Number of successful projects	23
EU-13 participation (EU-13/EU-28)	22.25%
Associated countries participation (associated countries/overall)	4.85%
Third countries participation (third countries/overall)	6.12%
Private sector participation (private/overall)	23.47%
SMEs participation (SME/overall)	6.38%
Implementation	
Time-to-Grant (% of projects within TTG benchmark)	68.18%
Success Rate (projects/proposals)	33.33%
Success Rate (€ allocated/requested)	37.63%
Performance (KPI)	
The number of projects (joint research and/or coordinated actions) likely to lead to a demonstrable improvement in nuclear safety practice in Europe.	8
The number of projects contributing to the development of safe long term solutions for the management of ultimate nuclear waste.	5
Training through research - the number of PhD students and postdoctoral researchers supported through the Euratom fission projects.	N/A[133]

[133] Data not available yet for fission projects.

	The number of fellows and trainees in the Euratom fusion programme.	17
	The number of projects likely to have a demonstrable impact on regulatory practice regarding radiation protection and on development of medical applications of radiation.	1
	The number of publications in peer-reviewed high impact journals	200[134]
	The percentage of the Fusion Roadmap's milestones, established for the period 2014-2018, reached by the Euratom Programme.	10%
	The number of spin-offs from the fusion research under the Euratom Programme.	1
	The patents applications generated and patents awarded on the basis of research activities supported by the Euratom Programme.	1
	The number of researchers having access to research infrastructures through Euratom Programme support.	872[135]

[134] Data for fusion research only. Data for fission projects not available yet.

[135] Ibid.

ANNEX IV: IMPLEMENTATION TOWARDS THE CROSS-CUTTING ISSUES

IV.1. Contribution to the realisation of the ERA

Intervention Logic (Rationale)

The European Research Area (ERA) is a unified research area open to the world based on the Internal market, in which researchers, scientific knowledge and technology circulate freely. Through the ERA, the Union and its Member States will strengthen their scientific and technological bases, their competitiveness and their capacity to collectively address grand challenges.

In its 2012 policy Communication on the ERA, the European Commission committed to reach a significant improvement in Europe's research performance to promote growth and job creation. The European Council of … has called for the completion of ERA by 2014. The measures in the Communication will have to be implemented by EU Member States, the Commission and Research Organisations.

To complete ERA and maximise the return on research investment, Europe must increase the efficiency and effectiveness of its public research system. This requires more cooperation so that the brightest minds work together to make greater impact on grand challenges (e.g. demographic-ageing, energy security, mobility, environmental degradation), and to avoid unnecessary duplication of research and infrastructure investment at national level. It also requires more competition to ensure that the best researchers and research teams receive funding - those able to compete in the increasingly-globalised and competitive research landscape.

Horizon 2020 and the earlier Framework Programmes are the financial pillars of the Union's actions and have been key instruments to support ERA development. Funding measures are crucial to the realisation of ERA and have important effects on coordination and governance, common agenda setting, researcher's mobility and pooling of resources. Horizon 2020 will be crucial in driving ERA reforms at national level. Horizon 2020 provides support to Member States and the main stakeholders in implementing the ERA reform agenda across key priorities (between brackets Horizon 2020 instruments that contribute to the objective of the respective priority):

1. More effective national research systems (Policy Support Forum)
2. Optimal transnational co-operation and competition on common research agendas, grand challenges and infrastructures (P2P's, ESFRI and ERIC[136])
3. An open labour market for researchers facilitating mobility, supporting training and ensuring attractive careers (Euraxess and Resaver)
4. Gender equality and gender mainstreaming in research. Encouraging gender diversity to foster science excellence and relevance (Integrating gender, Science for Society)
5. Optimal circulation and transfer of scientific knowledge to guarantee access to and uptake of knowledge by all. (communication and dissemination of programme results, demonstration and pilot projects)

Implementation

In order to measure the contribution of Horizon 2020 to the realisation of the ERA, the following indicators have been identified:

[136] ESFRI: European Strategy Forum on Research Infrastructures; ERIC: European Research Infrastructure Consortium.

- Annual number of research positions advertised on EURAXESS Jobs
- Number of national research infrastructures networked (in the sense of being made accessible to all researchers in Europe and beyond through Union support)
- Number and share of Open access articles published in peer-reviewed journals
- Number of projects that make scientific data accessible and re-usable and number of scientific datasets made accessible and re-usable.
- Number of Multiannual Implementation Plans adopted by Joint Programming Initiatives

The number of research positions advertised on EURAXESS Jobs between 1 January and 31 December 2014 comprised 47 841 job vacancies and 12 384 fellowships.

Preliminary results show that the number of national research infrastructures networked thanks to Horizon 2020 support in the calendar year 2014 was 28 559.

Regarding the third and fourth indicators, they measure the ERA priority aiming at "optimal circulation, access to and transfer of scientific knowledge". A major challenge is to broadly implement Open Access - i.e. free online access to and use of publicly-funded scientific publications and data - given the uneven state of advancement of Member State policies in this area. The Commission is leading by example by making open access to peer-reviewed scientific publications resulting from Horizon 2020 mandatory and by running a limited and flexible pilot action for open research data in Horizon 2020.

Open access can be defined as the practice of providing on-line access to scientific information, including peer-reviewed scientific research articles and data. The EU now mandates open access to all peer reviewed publications resulting from Horizon 2020 to improve access to scientific information and to boost the benefits of public investment in research. In order to comply with the open access publications requirement, beneficiaries must, at the very least, ensure that their publications can be read online, downloaded and printed. Since Horizon 2020 projects have yet to produce a significant number of scientific publications or datasets, no specific quantitative data on the indicators related to scientific publications can yet be provided in the Annual Monitoring Report 2014.

In addition, as the right to access and re-use digital research data is a necessary element of a global policy on dissemination of data and knowledge, the EU is running a Pilot on Open Research Data in Horizon 2020, which also concerns data underlying publications. Its aim is to improve and maximise access to and re-use of research data. Several areas are covered by the Pilot137. Projects have the possibility to opt out of the pilot. Individual actions funded under other areas of the Work Programme can participate in the Pilot on a voluntary basis. A further new element in Horizon 2020 is the use of Data Management Plans (DMPs) detailing what data the project will generate, whether and how it will be exploited or made accessible for verification and re-use, and how it will be curated and preserved. The use of a Data Management Plan is required for projects participating in the Open Research Data Pilot. The first figures relating to the Open Research Data Pilot are the following: out of 3 054 Horizon 2020 proposals analysed in June 2014138, 1 824 were in the areas covered by the Pilot and

[137] Areas of the 2014-2015 Work Programme participating in the Open Research Data Pilot are: Future and Emerging Technologies (FET); Research infrastructures – part e-Infrastructures; Leadership in enabling and industrial technologies – Information and Communication Technologies (LEIT-ICT); Societal Challenge 3 (Energy) – part Smart cities and communities; Societal Challenge 5 (Climate) – except raw materials; Societal Challenge 6 (inclusive, innovative and reflective Societies); Science with and for Society (SWAFS).

[138] Data extracted from CORDA, June 2014.

1 230 were not. Out of the "in scope" proposals, 24.2% opted out. Out of the "not in scope" proposals, 27.2% opted in.

The Joint Programming Initiatives (JPIs) stem from the Joint Programming Process, one of the building blocks of the European Research Area (ERA) launched in 2008. In this structured and strategic process, Member States agree, on a voluntary basis and in a partnership approach, on common visions and they implement Strategic Research Agendas (SRA) together. Ten Joint Programming Initiatives (JPIs) have been launched to date. They have established their own governance structures and have elaborated their SRAs, or are in the final stages of their preparation. In 2014 the following 6 out of 10 JPIs[139] had adopted annual implementation plans:

- A Healthy Diet for a Healthy Life (HDHL)
- Agriculture, Food Security and Climate Change (FACCE)
- Connecting Climate Knowledge for Europe (Climate)
- EU Joint Programme - Neurodegenerative Disease Research (JPND)
- More Years, Better Lives - The Potential and Challenges of Demographic Change (MYBL)
- Water Joint Programming Initiative: Water Challenges for a Changing World (Water)

Conclusions

The contribution of Horizon 2020 to the realisation of ERA can only be established partially on the basis of the set of 5 indicators under the implementation part. A more refined contribution could be established on the contributions of the individual instruments under the intervention logic.

An overall impact assessment of ERA was included in the Staff Working Document 2012: http://ec.europa.eu/research/era/pdf/era-communication/era-impact-assessment_en.pdf

IV.2. Widening Participation

Despite some recent convergence, the research and innovation potential of the Member States,remain very different, with large gaps between “innovation leaders” and “modest innovators”. Activities under the Spreading Excellence and Widening Participation specific objectives are aimed at unlocking excellence in low performing regions, thereby widening participation in Horizon 2020 and contributing to the realisation of the ERA. In a complementary way, synergies with the European Structural and Investment (ESI) Funds are supported as a way to increasing impact of investments in low performing regions in terms of Research & Innovation, thereby widening participation in Horizon 2020.

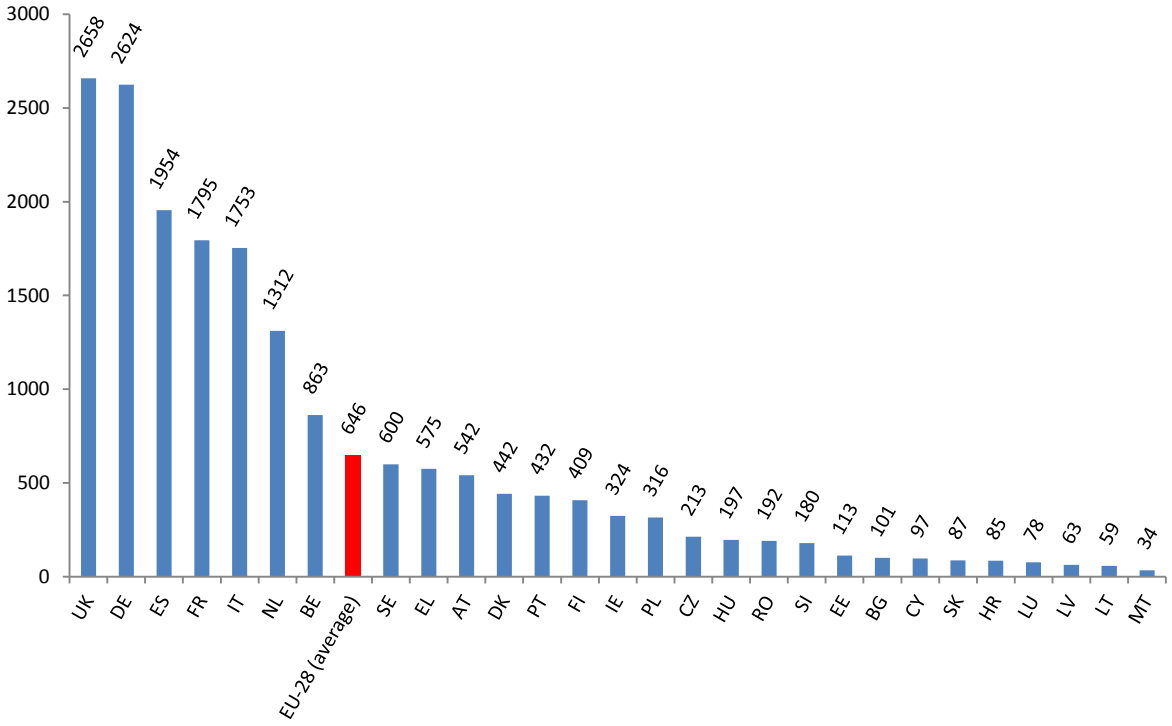
Widening participation is measured through the following indicators:

- Total number of participations by EU-28 Member States;
- Total amount of financial contribution by EU-28 Member States (EUR million).

The number of participations in grants signed before 1 December 2015 disaggregated by EU-28 Member States is presented in chart 2 below:

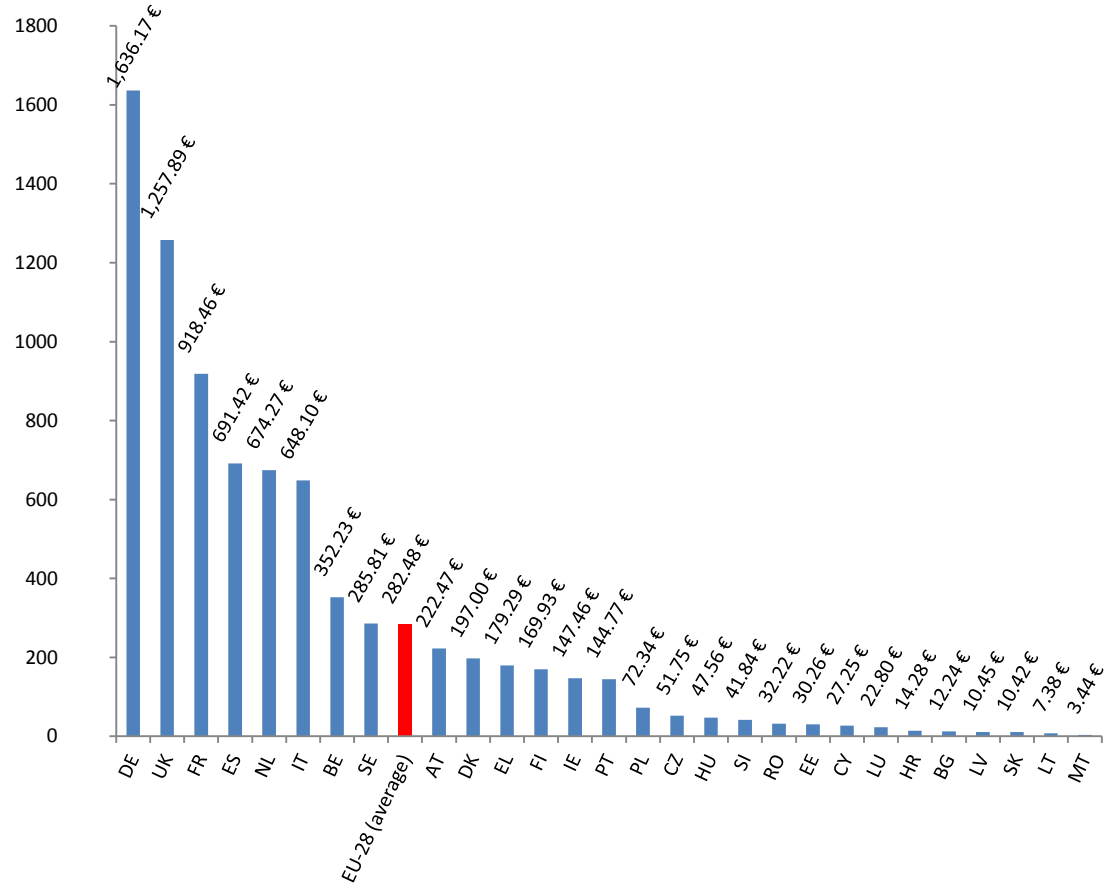
[139] The remaining four (Antimicrobial Resistance, Cultural Heritage, Oceans, Urban Europe) are in the process of developing their implementation plans.

Chart 2: EU Member States' participations in grants signed before 1 December 2015



The amount of financial contribution by EU-28 Member States for grant agreements signed before 1 December 2015 is presented in chart 3:

Chart 3: EU contribution to grants signed before 1 December 2015 by EU Member States



IV.3. SMEs Participation

Intervention Logic (Rationale)

99% of European businesses are Small and Medium sized Enterprises (SMEs) that contribute to almost two thirds of job creation in the EU. SMEs also play a key role in fostering innovation and have the ability to market new products quickly. Therefore, in Horizon 2020, SMEs are encouraged to participate across all activities, in particular in the Leadership in Enabling and Industrial Technologies (LEITs) and Societal Challenges pillars.

Stimulating SME participation across the programme is a cross-cutting issue, managed through the monitoring and analysis of the different support mechanisms that are aimed at helping SMEs to deliver innovation to the market, in view of taking possible corrective measures.

In line with the target set by the EU Parliament and the Council, SMEs are expected to receive funding amounting to 20% of the total combined budgets of the Societal Challenges and the specific objective LEITs. Around EUR 9 billion of the Horizon 2020 budget shall support SME innovation through grants. The bulk of it is allocated to SMEs participating as partners in consortiums conducting collaborative research and innovation projects.

The new dedicated SME instrument encourages for-profit SMEs to put forward their most innovative ideas with an EU dimension. With a budget of close to EUR 3 billion, the SME instrument aims to support early-stage SMEs performing high-risk research and breakthrough innovation. It targets highly-innovative SMEs showing a strong ambition to develop, grow and internationalise. It has been used across all Societal Challenges and the LEITs specific objective. It provides easy access with simple rules and procedures in three different stages covering the whole innovation cycle. Only SMEs are able to apply for funding. Even single company can be supported to ensure market relevance and increase commercialisation of project results.

The Commission prepared for the implementation of the Fast Track to Innovation (FTI) pilot, leading to a timely and successful launch of the continuously open call by EASME on 6 January 2015. The pilot supports innovation actions under LEITs and Societal Challenges, conducted by industry-intensive consortiums with a minimum of 3 up and a maximum of 5 participants. Time-to-grant is set at six months.

The Second Eurostars Joint Programme (2014-2020) is undertaken by several Member States and Associated countries in the framework of Eureka, with the financial contribution of the EU. It promotes market-oriented transnational research activities of research performing SMEs in any field. By pooling together national resources, Eurostars also aims at strengthening integration and synchronization of national research programmes contributing to the achievement of the European Research Area. Its budget is significantly higher than its predecessor (the first Eurostars Joint Programme).

In addition, the new generation of debt and equity instruments – InnovFin - EU Finance for Innovators – will generate direct investment of more than EUR 24 billion and total final investment of more than EUR 50 billion into research and innovation activities. Of that money, at least a third is likely to be absorbed by SMEs and small midcaps below 500 employees.

Implementation

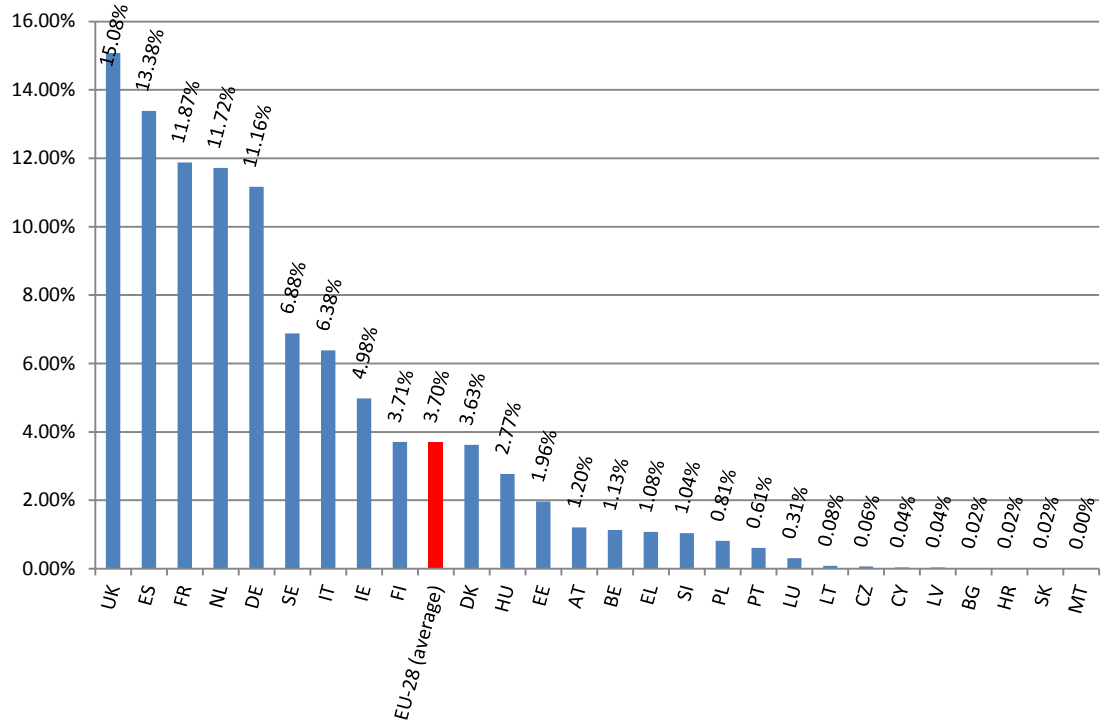
The SMEs Participation as cross-cutting issues is measured through the following indicators:

- Share of the EU financial contribution to LEIT and Societal Challenges going to SMEs (LEIT and Societal Challenges).

  Statistical results for the 2014 show that 23.09% (EUR 1 068 million) of the 2014 budget allocated to LEIT and Societal Challenges (EUR 4 624 million) is allocated to SMEs. This demonstrates that the 20% target has been reached in 2014.

- Share of the EU financial contribution to LEIT and Societal Challenges going to the SME Instrument[140].
  In line with the EU regulation establishing Horizon 2020, 5,51% (EUR 255 million) of the total combined budgets for the specific objective LEIT and the priority 'Societal challenges' was allocated to signed grants from the dedicated SME instrument in 2014. Progress towards meeting the 7% target is therefore well on track.

Chart 4: Share of EU funding allocated to Member States through the SME instrument



Conclusions

The first year of implementation of Horizon 2020 shows that the objective of increasing the participation of innovative SMEs is following a positive trajectory.

The budget allocated to innovative and research-performing SMEs is above the target objective of 20% of the combined budgets for LEITs and the Societal Challenges. Complementary support schemes, such as the SME instrument, have been put in place, in order to respond to the specific financing needs of SMEs all along their innovation cycle. This demonstrates that Horizon 2020 very much responds to the needs of innovative SMEs, in order to concretely help them to deliver innovation onto the market.

IV.4. Social Sciences and Humanities (SSH)

Intervention Logic (Rationale)

One of the novelties of the Horizon 2020 programme is the systematic and strategic integration of the social sciences and humanities into each of the priorities of Horizon 2020.

[140] On average over the duration of Horizon 2020, within the above-mentioned 20% target.

The Horizon 2020 Regulation provides the legal basis and the main guidelines for the integration of SSH as a cross-cutting issue across the Framework Programme, in addition to being a key component of Societal Challenge 6.[141]

The SSH encompass a wide range of disciplines such as sociology and economics, psychology and political science, history and cultural sciences, law and ethics. Contributions from these research and activity fields are needed under Horizon 2020 to generate new knowledge, support evidence-based policymaking, develop key competences and produce interdisciplinary solutions to both societal and technological issues. The aim of mainstreaming the SSH across Horizon 2020 is to make sure that contributions from these disciplines are fully integrated into projects in order to appropriately tackle societal challenges, stimulate growth and help fulfil the objectives of the European Union.

Important work has already been done since the launch of Horizon 2020. The activities focus on four priorities. They will be continued during the entire duration of Horizon 2020.

Improving the quality of topics:

In cooperation with a strong network of SSH liaison officers that has been established across all Societal Challenges and LEIT parts of the programme, all topics in the Work Programme 2014-15 were screened for their potential SSH relevance. In a next step, appropriate wording was introduced in order to make sure that the SSH dimensions constitute an integral part of the topic description and are recognised by proponents. To this end, a series of workshops were organised addressing concrete thematic priorities and exploring the concrete needs for interdisciplinary research cooperation to tackle them.

This work will be continued with a view to the preparation of the successive Work Programmes in an even more proactive manner. The ultimate aim is to make SSH research questions an integral part of the development process for new research questions. Special efforts should be undertaken to include the important insights the humanities can offer to address societal challenges.

Improving the quality of evaluation:

To ensure a fair and consistent evaluation of SSH-flagged topics, the participation of experts with SSH expertise in the evaluation panels is key. Based on a sample of 40 evaluated SSH-flagged topics, in 2014, out of 688 evaluators, 10% had a background in one or more SSH disciplines and 42% had interdisciplinary competence in both SSH and non-SSH disciplines. Furthermore, a briefing on the concept of SSH integration and the role of SSH research in SSH-flagged topics was developed both for moderators and for evaluators and was consistently used in the evaluations. The quality of SSH expertise in the evaluation panels will be continuously monitored in the forthcoming evaluations.

Improving the quality of monitoring and feedback:

A monitoring report carried out by DG RTD shows that a substantial number of funded projects in the societal challenges and LEIT parts of the programme have integrated SSH contributions[142]. However, there are substantial differences between the different societal

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[141] It states that: "*Social sciences and humanities research will be fully integrated into each of the priorities of Horizon 2020 and each of the specific objectives and will contribute to the evidence base for policy making at international, Union, national, regional and local level. In relation to societal challenges, social sciences and humanities will be mainstreamed as an essential element of the activities needed to tackle each of the societal challenges to enhance their impact.*"

[142] Integration of Social Sciences and Humanities in Horizon 2020: participants, budget and disciplines. Monitoring Report on SSH-flagged projects funded in 2014 under the Societal Challenges and Industrial Leadership. European Commission, 2015 (ISBN 978-92-79-50762-5).

challenges and the parts of pillar 2 (Leadership in emerging and industrial technologies, LEIT).

The monitoring of the integration of SSH as a cross-cutting issue will be repeated on a regular basis. A regular report on SSH integration will be published both internally and externally and will serve as guidance for Commission services, for applicants, for research policy makers and for the research and innovation community at large.

Improving the quality of communication:

An effective communication and dissemination strategy is essential to achieve a satisfactory level of SSH integration across Horizon 2020. The Commission is aware that many scientists are still reluctant to engage into interdisciplinarity work because of complex inter-knowledge issues and practical problems. Reaching out to all relevant stakeholders in the scientific community (both SSH and non SSH disciplines) will raise the awareness on the importance of tackling societal challenges in a multidisciplinary perspective. In this context, the Commission will further streamline its communication strategy by involving the network of contact points at national level and by addressing interdisciplinary concerns through dedicated fora for debates with the scientific communities.

In terms of policy considerations, there is a strong conviction that a full integration of the SSH in the whole process from agenda setting to evaluation of proposals will lead to a larger impact on political, societal and economic processes through the funded projects.

Implementation

According to the SSH report published on 15 October 2015 and based on the estimated total funding for the calls for proposals in LEITs and Societal Challenges parts of the Work Programme 2014 amounting to EUR 4 billion, EUR 1.1 billion were dedicated to topics flagged for SSH. Under these topics, EUR 236 million (i.e. 21%) went to SSH partners. Overall, the share of budget going to SSH partners amounted to 6% of the estimated total budget of EUR 4 billion. SSH partners account for 26% of the total number of consortia partners in projects funded under topics flagged for SSH (including SC6 that represents 7% of the total).

In 2014, the SSH partners covered a broad range of institutional backgrounds: higher education establishments, research organisations, and the public and private sectors. Together, higher education establishments and non-profit research organisations account for 67% of SSH partners while public sector institutions (such as ministries) account for 3%. In addition, 17% of SSH partners come from the private sector (for-profit research organisations, SMEs, consulting agencies, etc.) while the remaining 13% are categorised as 'others' and mainly include civil society organisations.

In terms of countries represented, the SSH partners come predominantly from the EU-15 Member States (83%), in particular from the United Kingdom (16%), Germany (10%), the Netherlands (9%), Italy (8%), Belgium (7%), Spain (7%) and France (7%). Combined, the top seven countries account for 64% of the SSH partners. In contrast, only 10% of the SSH partners come from the EU-13 Member States. We are therefore facing a significant geographical divide between the EU-15 and the EU-13.

Regarding the variety of SSH disciplines in the funded projects, contributions from the fields of economics, business and marketing (53%) and political science, public administration and law (38%) are well integrated while many other SSH disciplines are underrepresented. This is especially the case for the humanities and the arts which contribute to only 9% of funded projects with an SSH dimension.

The quality of SSH integration in 2014 is highly uneven across projects. 40% of projects funded under topics flagged for SSH show good integration of SSH in terms of share of partners, budget allocated to them, inclusion of explicit and purposeful contributions, and variety of disciplines involved. However, at the other end of the spectrum, 28% of the projects

funded under topics flagged for SSH do not integrate any contributions from the SSH. When excluding Societal Challenge 6, the share of projects that fail to integrate contributions from the SSH increases from 28% to 32% while the share of projects with good SSH integration decreases from 40% to 32%.

Conclusions

The data available indicates that the first year (2014) of the implementation of Horizon 2020 was overall successful in paving the way for a true integration of the SSH. Projects selected for funding under SSH-flagged topics show a fair integration of SSH in terms of participation and budget. However, there is still room for improvement, notably when it comes to the qualitative integration of the SSH. To address this issue, the topic texts of future Work Programmes need to explicitly call for SSH contributions and be framed with the SSH as an integral part of the research topic. In addition, the range of SSH disciplines invited to contribute needs to be significantly broadened. This is particularly important for the humanities. Last but not least, stronger efforts need to be undertaken in the EU-13 Member States to promote further interdisciplinary research.

IV.5. Science and Society: Responsible Research and Innovation (RRI)

Intervention Logic (Rationale)

Responsible Research and Innovation (RRI) is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society.

In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI may be implemented in a project as a package that:

- engages society more broadly in its research and innovation activities,
- increase access to scientific results,
- ensure gender equality, in both the research process and research content,
- take into account the ethical dimension, and
- promote formal and informal science education.

It is expected that most, if not all, of Horizon 2020 parts would mention RRI and would show a good understanding of it. For the activities developed across Horizon 2020 lines, this entails inviting more young people to embrace scientific studies and careers, giving more educated and engaged citizens the opportunity to enhance their participation in R&I activities, supporting a more proactive civil society and more creative innovators, fostering an open science respectful of research integrity and of the highest ethical values, and valuing equally women and men.

In the 2014-2015 Work Programme, RRI was only explicitly addressed under six Programme's parts and the translation of RRI into the topics could have been better. Nevertheless, some parts of Horizon 2020 showed already a good level of appropriation (i.e. LEIT-ICT). Progress is expected in the next Work Programme 2016-2017. Indeed, there is a great margin for improvement, in particular, developing narratives linking Horizon 2020 to society through RRI and translating these narratives into topics. For the time being it is virtually impossible to assess the amounts dedicated to RRI across Horizon 2020. Efforts should be made during the next period towards a better monitoring of this cross-cutting issue.

Implementation

In Horizon 2020, RRI is measured through the following cross-cutting issue indicator:

- Share of projects where citizens, Civil Society Organisations and other societal actors contribute to the co-creation of scientific agenda and scientific content

Information regarding this indicator is currently not available. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report. However, estimates based on the experience acquired by the Commission's services suggest that the situation is very uneven across Horizon 2020 lines and the overall result is lower than expected (3.3%). The exception is of course the cross-theme 'Science with and for Society' where RRI constitutes the spine of the Work Programme (e.g. a topic invited citizens to contribute to research agenda in three domains of Horizon 2020, on the model of the project VOICES FOR INNOVATION funded in 2013: http://www.voicesforinnovation.eu/). Other examples can be found under LEIT-ICT (e.g. ICT 10 – 2015: Collective Awareness Platforms for Sustainability and Social Innovation or ICT 31 – 2014: Human-centric Digital Age).

Conclusions

As a conclusion, most of the Horizon 2020 lines are still at the bottom of the learning curve regarding Responsible Research and Innovation, an institutional innovation aiming to better handle the science and society interplay through a systemic approach. Nonetheless, the work undertaken in 2014 to mainstreaming and fully embedding this concept in the Commission R&I policy gives sign of potential progress in the years to come.

IV.6. Gender

Intervention Logic (Rationale)

Three main objectives underpin the strategy on gender equality as a cross-cutting issue in Horizon 2020:

4. Fostering equal opportunities and gender balance in projects teams, in order to close the gaps in the participation of women.
5. Ensuring gender balance in decision-making, in order to reach the target of 40% of the under-represented sex in panels and groups and of 50% in advisory groups.
6. Integrating the gender dimension in research and innovation (R&I) content, taking into account as relevant biological characteristics as well as social and cultural features of both women and men in research (sex and gender analysis).

These objectives are implemented through a series of Commission provisions which are integrated as relevant at various stages of the Research and Innovation cycle.

In the WP 2014-2015 applicants were encouraged to promote equal opportunities in the implementation of the action and to ensure a balanced participation of women and men at all levels in research and innovation teams and in management structures. Furthermore by signing the grant agreement, the beneficiaries commit themselves to "*take all measures to promote equal opportunities between men and women in the implementation of the action*" and "*must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level*".[143]

The gender dimension in research content was explicitly mentioned in several topics across the Parts of the Work Programme. This entails inviting applicants to respond to a specific

[143] Annotated Model Grant Agreement in Horizon 2020, p.234.

question of the application form and describe as relevant how sex and/ or gender analysis is taken into account in their project's content. The ERC and MSCA Parts have a bottom-up approach and applicants are invited to consider the gender dimension in research content in the general introduction of their WP.

Gender equality in R&I is also a key priority in the European Research Area (ERA). The same objectives as above are pursued in collaboration with Member States and research institutions. The focus is put on institutional change at the level of research performing organisations (RPOs) and research funding organisations (RFOs), including universities to:

a) Remove cultural and institutional barriers that generate direct or indirect discrimination in scientific careers;
b) Ensure gender balance in decision-making and;
c) Integrate the gender dimension in research content.

Implementation

The main indicators to be used for monitoring Gender equality as a cross-cutting issue in Horizon 2020 are the following ones:

- Percentage of women participants in Horizon 2020 projects;
- Percentage of women project coordinators in Horizon 2020;
- Percentage of women in EC advisory groups[144], expert groups, evaluation panels, individual experts, etc.;
- Percentage of projects taking into account the gender dimension in research and innovation content.

The first two indicators are based on input coming from Horizon 2020 beneficiaries at the level of project reporting and will be available only after the critical mass of finished projects has been reached as from mid-2016. Their current value is therefore not available in this Annual Monitoring Report.

Within the total of 19 336 experts registered in the expert database for evaluation panels and expert groups, the proportion of women experts is 35.56%. In terms of actual expert contracts signed, the proportion of women experts participating in evaluation panels and expert groups is 36.27%. Regarding gender balance in Horizon 2020 advisory groups in 2014, women participation is 52%.
Information regarding the last indicator is currently not available. Data are collected at the level of project reporting and will be available only after a critical mass of projects has been reached. Preliminary results show that, in the 2014 Work Programme, gender was explicitly addressed under 12 Horizon 2020 WP parts. The gender dimension was explicitly mentioned in 63 topics to inform the potential applicants about the importance of taking into account the biological characteristics and/or the social / cultural features of both women and men in their proposals. The mention of the gender dimension was particularly raised under the following WP Parts: Science with and for Society, Societal Challenge 1- Health; Societal Challenge 6- Europe in a changing world-inclusive, innovative and reflective Societies, Societal Challenge 4- Transport. There were much less frequent under LEIT although some topics relating to LEIT – NMPB, relating to biotechnology took the gender into account.

[144] Advisory group provide high quality advice to the Commission services during the preparation of the Horizon 2020 work programmes.

Conclusions

As a conclusion, most of the Horizon 2020 Work-Programmes are gradually getting on a learning curve regarding a more systemic approach in the integration of the gender dimension in research and innovation content with a view to improving the quality of research and its relevance to society.

IV.7. International Cooperation

Intervention Logic (Rationale)

Global challenges call for global responses and are drivers for international cooperation in research and innovation. Engaging in international cooperation is also essential to attract talent, access knowledge and markets, thus increasing the EU's competitiveness. Strengthened cooperation of the EU with its international partners is therefore needed to build critical mass, pool knowledge and identify innovative solutions.

The Horizon 2020 Regulation states that international cooperation shall be promoted and integrated into the programme to achieve, in particular, the objectives of: strengthening the Union's excellence and attractiveness in research and innovation as well as its economic and industrial competitiveness; effectively tackling common societal challenges; and supporting the Union's external and development policy objectives.

Targeted international cooperation actions shall be implemented on the basis of common priorities and mutual benefits, taking account of scientific and technological capabilities, market opportunities and expected impact.

International cooperation is an important cross-cutting priority. It enables access to talent and resources (know-how, infrastructures, data, etc.) wherever they are located. It allows tackling global societal challenges in partnership. It facilitates the participation of EU companies in global value chains and access to new and emerging markets; and it helps strengthen the EU's position as a major global player.

The political ambition in Horizon 2020 is to maintain international cooperation activities at least at the level of FP7.

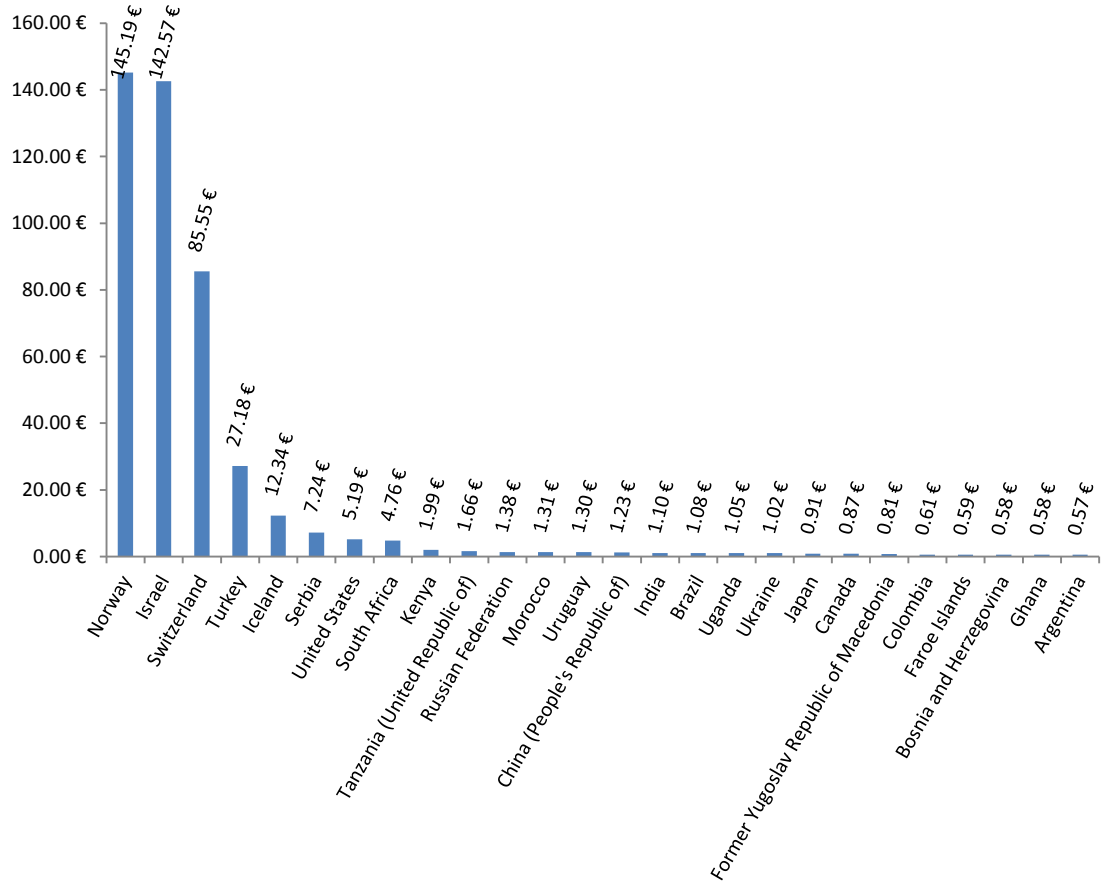
Participation

The EU contribution for grants signed (all instruments included) before 1 December 2015 to non-EU-28 countries participating in Horizon 2020 is EUR 453,97 million, which represents 5.43% of the EU financial contribution allocated to signed grants. This represent a significantly lower figure compared to the 10.39% funding allocated to organisations outside the EU in FP7.[145]

Almost two thirds of this EU contribution to non-EU-28 countries went to the associated countries Norway and Israel (one third each). The Horizon 2020 funding to Switzerland, which is only partially associated to Horizon, represents less than one fifth. Among the non-associated third countries, the United States have the highest share (1.14% of the EU contribution to non-EU countries), immediately followed by South Africa (1.04%).

[145] 7th FP7 Annual Monitoring Report 2013: data from Table B9, p. 101.

Chart 5: EU Funding to non-EU-28 countries for signed projects in 2014 calls (in EUR million)



Implementation

The following specific indicators measure achievements towards International Cooperation. Since the rules for participation are different for Third Countries that are either Associated or Non-Associated to Horizon 2020, different figures are provided for each of these cases. Furthermore, following the International Agreement associating Switzerland to parts of Horizon 2020 signed on 5th December 2014, Switzerland has an Associated Third-Country status for actions under these parts, while it remains a Non-Associated Third Country for the rest. For this reason, the indicators below are presented both with and without the inclusion of Switzerland.

- **Share of third-country participations in Horizon 2020**

  This indicator is calculated by dividing the number of participations from Non-Associated (excluding Switzerland, including international organisations), Associated (including Switzerland) and Associated (excluding Switzerland) third countries for signed contracts in collaborative projects only (i.e. excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls) by the total number of participations for signed contracts in collaborative projects only (i.e. excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls). It corresponds to three different figures, one for each case:

Participations from:	Value (Oct. 2015)	FP7 Baseline[146]	Target
Non-Associated third countries (excluding Switzerland)	2.0%	4.7%	4.7%
Associated third countries (including Switzerland)	6.2%	-	-
Associated third countries (excluding Switzerland)	4.2%	-	-

- **Percentage of EU financial contribution attributed to third country participants**

  This indicator is calculated by dividing the EU financial contribution attributed to Non-Associated (excluding Switzerland, including international organisations), Associated (including Switzerland) and Associated (excluding Switzerland) third countries for signed contracts in collaborative projects only (excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls) by the EU financial contribution for signed contracts in collaborative projects only (excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls). As above, it corresponds to three different figures, one for each case. There is no target value for this indicator.

EU financial contribution to:	Value (Oct. 2015)	FP7 Baseline
Non-Associated third countries (excluding Switzerland)	0.5%	1.9%
Associated third countries (including Switzerland)	4.1%	-
Associated third countries (excluding Switzerland)	3.6%	-

- **Share of budget of topics in the Work Programme mentioning at least one third-country or region**

  This indicator is calculated by dividing the sum of the allocated budget for topics, where international cooperation, or an action of an international organisation/grouping (e.g. Global Alliance for Chronic Diseases, Belmont Forum, OECD, UN etc.) or a non-associated third country or region is specifically mentioned in the call text (in collaborative projects only, i.e. excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls) by the allocated budget in all Horizon 2020 topics (excluding SME instrument, ERC, MSCA, JRC, "Access to Risk Finance" and EIT calls). There is no target value for this indicator.

	Value (Oct. 2015)	FP7 Baseline
Share of budget of topics (International Cooperation):	22%	12%

[146] The FP7 baseline is calculated over the 7 years of the 7th Framework programme.

Conclusions

Identifying suitable themes and partners for targeted international cooperation activities was an important part of the preparation of the first Horizon 2020 work programmes. The impact of this approach is reflected in the increase from 12% to 22% in the indicator on the budget share of work programme topics mentioning international cooperation or a specific third-country or region.

However, results from the first Horizon 2020 calls show a significant drop in participation of international partner countries, from 4.7% in FP7 to 2.0% in Horizon 2020 in terms of participations, or from 1.9% to 0.5% in terms of budget.

To a large extent, this decline in direct participation in grant agreements is due to the change in eligibility for automatic funding for several international partner countries (Brazil, Russia, India, China, Mexico) that are no longer automatically funded. Other reasons include lower levels of international participation traditionally observed at the start of a new Framework Programme, as well as non-optimal framework conditions for international cooperation.

A key recommendation for the preparation of Work Programme 2016-2017 was set to increase international cooperation activities through support to flagship initiatives of sufficient scale and scope, together with accompanying actions to strengthen cooperation with key partner countries.

As a result, the number and the combined budget of specifically targeted international cooperation topics has increased by around 25% from Work Programme 2014-15 to the Work Programme 2016-17.

Furthermore, commitments to programmatic cooperation have been strengthened with agreements on a number of joint and twinning calls with international partner countries, as well as a wide range of topics contributing to global multilateral initiatives.

A focus of political dialogues under international S&T agreements has been the joint agreement with several third countries (including South Korea, Mexico, Russia, Australia, Japan, China, Canada) on mechanisms for matching funding for their participants in Horizon 2020 actions.

IV.8. Sustainable Development, Climate Change and Biodiversity related expenditure

Intervention Logic (Rationale)

This cross-cutting issue aims at fulfilling the obligation of the Commission established in the Regulation 1291/2013 establishing Horizon 2020, about the tracking and information on sustainability and climate-related expenditure. That regulation specifies that:

> *(…) it is expected that at least 60 % of the overall Horizon 2020 budget should be related to sustainable development. It is also expected that climate-related expenditure should exceed 35 % of the overall Horizon 2020 budget, including mutually compatible measures improving resource efficiency. The Commission should provide information on the scale and results of support to climate change objectives. Climate-related expenditure under Horizon 2020 should be tracked in accordance with the methodology stated in that Communication.*[147]

[147] Regulation (EU) No 1291/2013 of the European Parliament and the Council establishing Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020), whereas n.10.

Such obligation is linked with the Communication of 29 June 2011 entitled 'A Budget for Europe 2020',[148] where the Commission committed to mainstream climate change into Union spending programmes and to direct at least 20 % of the general budget of the Union to climate-related objectives.

In addition, the Biodiversity tracking results from the Aichi Biodiversity Target 20, as adopted at the 12th meeting of the Conference of the Parties to the Convention on Biological Diversity, held on 6-17 October 2014 in the Republic of Korea.[149]

The policy expectations of the co-legislator were to mainstream sustainability and climate change into the EU's spending programmes, and more specifically within Horizon 2020. For Biodiversity, no target was established in the Horizon 2020 legislation as the action is expected to focus on awareness-raising and assessment of the relevance of bio-diversity in spending programmes.

Implementation

The contribution of Horizon 2020 to Sustainable Development, Climate Change and Biodiversity is assessed:

– For programmable actions, at the level of the Work Programme's topics.

– For bottom-up actions (e.g. ERC, MSCA), at the level of individual projects.

– For some parts of the programme (e.g. Financial Instruments, EIT), on an ad-hoc basis.

In absolute terms, programmable actions and bottom-up actions have been the main contributors to each of the three issues. This is not surprising, since together they represented 88% of the total Horizon 2020 funding in 2014.

For 2014, both programmable and bottom-up actions have been analysed based on the so-called "Rio Markers" methodology in order to calculate the contribution of Horizon 2020 to the objectives of Sustainable Development, Climate Change and Biodiversity. For programmable actions, each call and their topics have been assigned a 0%, 40% or 100% value to the budget, which is then allocated to single projects that derive from such topics. For bottom-up projects, the "scores" were assigned individually to each project.

The following indicators measure progress towards Sustainable Development, Climate Change and Biodiversity related expenditure:

- Share of EU financial contribution that is climate-related in Horizon 2020 (EUR) (target: 35%):
  For Horizon 2020 calls closed in 2014, the EU financial contribution for climate amounted to EUR 1 995 million, corresponding to 24% of the tracked budget.

- Share of EU financial contribution that is sustainability-related in Horizon 2020 (EUR) (target: 60%):
  For Horizon 2020 calls closed in 2014, the financial contribution to Sustainable Development was EUR 3 493 million corresponding to 46% of the tracked budget.

[148] COM(2011) 500 final – Not published in the Official Journal.

[149] https://www.cbd.int/doc/decisions/cop-12/full/cop-12-dec-en.pdf

- Share of EU financial contribution that is biodiversity-related in Horizon 2020 (EUR) (no target):
  For Horizon 2020 calls closed in 2014, the financial contribution to Biodiversity was EUR 317 million corresponding to 4% of the tracked budget.

In order to ensure the quality of data collected, the Commission organises trainings for Project Officers and has drafted guidelines to facilitate the assessment, of both bottom-up projects and Work Programme's topics.

Conclusions

In 2014, the targets were not reached, even if programmable actions were very close to the climate target (32% instead of 35%) and relatively close for sustainable development (50% instead of 60%). The Commission has developed a comprehensive and detailed approach to improve these figures, in particular for tracking the contribution of non-thematic buttom-up actions, and will align the tracking methodology to the UN's newly adopted Sustainable Development Goals.[150]

IV.9. Bridging from discovery to market application

Intervention Logic (Rationale)

Horizon 2020 supports innovation to help bridging from discovery to market application. The term "innovation" is used in the EU policy context and more widely to mean the introduction in the market of new or improved products, services, processes, and solutions. These activities are closer to the market than R&D and will allow market uptake of an innovative product, process, service, or solution leading to increased sales/market share, job creation and social benefits; and fast deployment of the innovation resulting from greater user acceptance, visibility of the innovation and creation of scalable markets.

Horizon 2020 provides special emphasis to innovation under the second and third pillars (Industrial Leadership and Societal Challenges), which involve broad use of the new instruments that are available under Horizon 2020, namely innovation actions/projects, innovation procurement and inducement prizes. This will support bridging from discovery to market application, helping to deliver growth and jobs and kick start the economy in Europe.

According to the Horizon 2020 Rules for Participation, innovation action/innovation projects means an action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. First calls of Horizon 2020 provide substantial supports for innovation action/projects. Work Programme 2014-2015 allocates almost 26% of the budget for LEIT and Societal Challenges to 111 topics implemented through this instrument and some of the parts (such us Energy, Secure Societies and NMP-B) are allocating around 40-45% of the total Work Programme budget to Innovation Actions.

Implementation

The contribution of Horizon 2020 to Bridging from Discovery to Market Application is measured through the following indicators:

- Share of projects and EU financial contribution allocated to innovation actions in H2020

[150] http://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf

Overall, 202 projects allocated to innovation actions have been signed in 2014, with a requested EC contribution of EUR 1 071 million. This represents 4.20% of the total number of successful projects signed related to calls closed in 2014 (4 809) and 12.65% of the total EC contribution allocated to these successful projects (EUR 8 467,83 million).

In addition to this, 12 more Innovation Actions projects have been signed under some of the Joint undertaking calls launched in 2014: 3 projects under FCH2[151] (overall requested contribution of EUR 39,4 million), 6 under ECSEL[152] (overall requested contribution of EUR 106,7 million) and 3 under the BBI JU[153] (overall requested contribution of EUR 36,7 million). Altogether these Innovation Actions projects represent around 4.33% of the total EU contribution allocated to successful projects in 2014.

No projects implemented through Innovation Procurement (PCP/PPI)[154] have been signed.

No projects implemented through inducement prizes[155] signed.

- Within the innovation actions, share of EU financial contribution focussed on demonstration and first-of-a-kind activities

Information regarding the last indicator is currently not available. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report.

Other relevant aspects regarding this CCI for the first year of H2020 include the progress towards higher TRLs[156] in innovation actions, the involvement of industrial partners, and the number of pilot lines and technologies demonstrated.

Conclusions

Although the overall number of signed Innovation Action projects is relatively small (4.20% of the total number of projects signed) the share of requested EC contribution to this instrument represents more than 12.65% of the total EC contribution allocated to successful projects.

IV.10. Digital Agenda

Intervention Logic (Rationale)

The Digital Agenda for Europe, one of seven EU2020 flagship initiatives, has established 'digital' as a policy brand in its own right, by aspiring to make every European digital. The EU's Digital Single Market Strategy, launched in May 2015, builds on these foundations, aiming to remove regulatory barriers and move from 28 national markets to a single one, to unlock online opportunities and make the EU's single market fit for the digital age.

ICT R&I is key to the realisation of the Digital Single Market. ICT R&I has dedicated topics in all Horizon 2020 pillars:

- Excellent Science: advanced research to uncover radically new technological possibilities and ICT contributions to support research and innovation are addressed

[151] Fuel Cells and Hydrogen 2.

[152] Electronic Components and Systems for European Leadership.

[153] Bio-based Industries.

[154] There were no eligible proposals.

[155] Under 2014-2015 Work Programme, all the inducement prizes contests opened in 2015.

[156] Technology Readiness Level

respectively under the parts "Future and Emerging Technologies" and "Research Infrastructures" (eInfrastructures);

- Leadership in Enabling and Industrial Technologies (LEIT): research and innovation of activities on generic ICT technologies either driven by industrial roadmaps or through a bottom-up approach are addressed under the part "Information and Communication Technologies";

- Societal challenges: multi-disciplinary application-driven research and innovation leveraging ICT are addressed in the different "Societal Challenges".

ICTs have an enabling and pervasive nature, which permeates countless aspects of the economy and personal lives, impacting areas as varied as banking, retail, energy, transportation, education, publishing, media, health or social interactions. Given its enabling and pervasive nature, the presence of ICT goes beyond the above dedicated topics, and is expected to span into the activities of the ERC, MSCA grant-holders and JTIs.

The Digital Agenda cross-cutting indicator aims precisely at tracking these activities and the related spending at the EU level. This will provide a more accurate estimate of how the EU contributes to the realisation of a Digital Europe.

EU investments in ICT R&I are expected to contribute to the Digital Single Market in various aspects, addressed in 2014 calls:

- A multidisciplinary approach to lay the foundations for radically new technological possibilities. EU support allows exploring novel and visionary ideas (FET Open), fostering transformative research in most promising thematic domains (FET Proactive) and tackling grand scientific and technological challenges by large-scale, science driven research initiatives (FET Flagships).

- e-Infrastructures to make every European researcher digital, increasing creativity and efficiency of research and bridging the divide between developed and less developed regions.

- Investments in several domains to support the digital transformation of industry and enable progress and growth of many other sectors. These include for example Photonics, Robotics, Internet of Things (IoT), Future Internet, micro- and nano-electronic technologies, electronic components and systems, Big Data, 5G, HPC technologies. Actions in these areas also support Public Private Partnerships which link up European industry (large players and SMEs), researchers, academia and the European Commission to cooperate in research and innovation and define strategic roadmaps in key sectors.

- Investments in investigating ICT contribution to the industrial-scale roll-out of multi-disciplinary solutions to address societal challenges. For example ICT Research and innovation helps build a digital society caring about individuals by supporting active and healthy ageing, assistive robotics, eHealth for personalised care, security and privacy, and services for inclusiveness.

Implementation

The following specific indicator measures achievements towards the Digital Single Market in terms of Horizon 2020 expenditure in ICT related research and innovation activities, meaning ICT and ICT-enabled new products, services or processes (within and outside the ICT sector):

- Share of EU financial contribution that is ICT Research & Innovation related in Horizon 2020 *(EUR)*, based on the "RIO markers" methodology developed by OECD[157], as follows:
    - Projects for which ICT R&I is the principal (primary) objective are marked with 100%, indicating that 100% of the project budget contributes to ICT R&I;
    - Projects for which ICT R&I is a significant, but not predominant objective are marked with 40%, indicating that 40% of the project budget contributes to ICT R&I;
    - Projects for which ICT R&I is not the targeted objective should be marked with 0%, indicating that 0% of the project budget contributes to ICT R&I.

Information regarding the EU financial contribution to ICT R&I outside specific topics is currently missing. The completion of data sets will occur in the first half of 2016 and updated data will be published in the next edition of the Annual Monitoring Report.

Conclusions

The Digital Agenda indicator will allow tracking spending related to digital R&I throughout the Programme and will be an important input to the assessment of progress made towards the Digital Single Market objectives.

[157] Originally developed to calculate the contribution of development co-operation activities to the environment and the Rio Conventions, it uses a scoring system of three values, in which activities are "marked" as targeting the environment or the Rio conventions as the "*principal*" objective or a "*significant*" objective, or as not targeting the objective. The methodology is applied here for ICT R&I related expenditure.

IV.11. Private Sector Participation

Intervention Logic (Rationale)

Private Sector Participation is strongly present in all Programme's parts, in particular in relation to public-private partnerships, SMEs participation (most notably through the SME instrument), the Access to Risk Finance and the Societal Challenges.

Through all its actions, Horizon 2020 is contributing significantly to increase Private Sector Participation in research and innovation.

Implementation

The following indicators have been identified for measuring achievements towards Private Sector Participation.

- **Percentage of H2020 beneficiaries from the private for profit sector**

  Private-for-Profit entities (PRC) represent more than 60% of the applicants in retained proposals accounting for 6 130 participations or 31% of the total number of participations in signed grants. Private sector participation in the EIT actions is 64%.

- **Share of EU financial contribution going to private for profit entities (LEIT and Societal Challenges)**

  Private-for-Profit entities (PRC) received EUR 2 193 million or 26.22% of the total EU contribution to signed grants. Within the LEIT and Societal Challenges cumulative budgets, the share of the EU financial contribution going to private entities is 43.66% (EUR 2 019 million). The EU financial contribution going to private entities participants represents 35% of the reported EIT funding.

Conclusions

Private Sector Participation continues to be important in Horizon 2020. The trend established under FP7, where private for profit organisations accounted for a quarter of the total number of applicants and a third of the total amount of requested EU contribution in retained proposals[158], is confirmed.

[158] 7th FP7 Annual Monitoring Report 2013.

IV.12. Funding for PPPs and P2Ps

Intervention Logic (Rationale)

In certain strategic areas, formal partnerships with the private sector and/or Member States are the most effective way to meet the objectives of Horizon 2020 in terms of major societal challenges and industrial leadership. That is why a series of Public-Private Partnerships (PPPs) and Public-Public Partnerships (P2P) under Horizon 2020 with industry and with Member States have being established.

- **"Institutionalised" Public-Private Partnerships (PPPs)**

The institutionalised public-private partnerships (PPPs) are addressed in Article 25 of the Regulation establishing Horizon 2020. PPPs take the form of Joint Technology Initiatives (JTIs), have their own legal basis under Article 187 of the Treaty on the Functioning of the European Union (TFEU) and are managed by dedicated entities called Joint Undertakings (JUs). They represent the joining of forces between different actors such as the EU and industry and provide vital funding for large-scale, longer-term and high risk/reward research. They set out commitments, including financial commitments, over a seven year period from both the EU and from the industry partners. They establish their own strategic research and innovation agendas and fund projects selected through open and competitive calls for project proposals.

Seven institutionalised PPPs were launched in 2014: Clean Sky 2, Fuel Cells and Hydrogen 2 (FCH 2), Innovative Medicines Initiative 2 (IMI 2), Electronic Components and Systems for European Leadership (ECSEL replacing ARTEMIS and ENIAC), Bio-based Industries (BBI), Single European Sky Air Traffic Management Research (SESAR) and Shift2Rail.

The Council regulations establishing Joint Undertakings were adopted in May – June 2014. The late adoption of the legal acts had a significant impact on the Horizon 2020 calls calendar in 2014 and only 6 calls from 4 JUs were concluded in the last months of 2014.

JTI JU Title of the Call Estimated Budget	Eligible Proposals	EU contribution to eligible proposals (€ million)	Proposals above threshold	Retained proposals	Success rate[159] (retained /eligible proposals)
FCH 2 H2020-JTI-FCH-2014-1 **Budget: EUR 93 million**	57	93	23	15	26.32%
BBI H2020-BBI-PPP-2014-1 **Budget: EUR 50 million**	38	50	18	10	26.32%
IMI2 H2020-JTI-IMI-2014-1 **Budget: EUR 49,26 million**	9	49,26	5	2	22.22%
IMI2 H2020-JTI-IMI-2014-2 **Budget: EUR 280 million**	14	280	8	8	57.14%
ECSEL ECSEL-2014-1 **Budget: EUR 80 million**	34	80 (40 from EU)	27	6	17.65%

[159] There is no information currently available regarding the EU contribution to the retained proposals, therefore it is not possible to calculate the Budget Success Rate (EU contribution for retained proposals/EU contribution for eligible proposals).

(40 from EU)					
ECSEL ECSEL-2014-2 **Budget: EUR 190 million (95 from EU)**	14	190 (95 from EU)	12	6	42.86%
TOTALS	**166**	**742,26**	**93**	**47**	**28.31%**

- **"Contractual" Public-Private Partnerships (cPPPs)**

In addition to the institutionalised PPPs, the contractual Public-Private Partnerships (cPPPs) also have a legal basis in Article 25 of the regulation establishing Horizon 2020. However, in contrast to the institutionalised PPPs, the cPPPs are implemented through a contractual arrangement between the European Commission and representative associations for key sectors of Europe's economy. The contractual arrangements for the cPPPs were signed on 17 December 2013 (except for the Big Data Value cPPP which was signed on 13 October 2014).

Of the nine cPPPs, eight cPPPs were already fully operational in Horizon 2020 in 2014, while Big Data Value cPPP only started fully in 2015. DG Research and Innovation is the main supporter for four of them, which are Factories of the Future (FoF), Energy-efficient Buildings (EeB), European Green Vehicles Initiative (EGVI) and, Sustainable Process Industry (SPIRE). The first three are in fact building on the success of the corresponding research PPPs under the 7th Framework Programme (FP7). The other five cPPPs which are supported by DG CONNECT are Advanced 5G Network Infrastructure (5G), Robotics, Photonics, High Performance Computing (HPC) and Big Data Value.

These nine partnerships between the European Commission and an association of key stakeholders on the private side are funded by more than EUR 6 billion of investments allocated through calls for proposals under Horizon 2020. Each euro of public funding is expected to trigger additional investments of between EUR 3 and EUR 10 to develop new technologies, products and services which will give European industry a leading position on world markets.

The cPPPs are of strategic importance for the competitiveness and sustainability of European industry. They are based on multi-annual roadmaps for research and innovation activities which were prepared by the private partners through a widely open consultation process. These roadmaps are used by the Commission as the basis to develop the successive Work Programmes and, specifically, the content of the calls for proposals. The cPPPs are implemented through normal calls for proposals under Horizon 2020 with the standard rules and procedures, which simplify their implementation and the involvement of all stakeholders. Crucially, the involvement of industry ensures that the research and innovation planned meet industry's needs. The table below presents the outcome of the 2014 call for all nine cPPP.

cPPP calls for proposals in Horizon 2020 closed in 2014

cPPP Title of the call Estimated Budget	Eligible Proposals	Proposals above threshold	Retained proposals	Success rate[160] (retained /eligible proposals)	EU contribution to retained proposals (€ million)	Private/cPPP contribution to retained proposals (€ million)
FoF H2020-FoF-2014 **EUR 33,8 million**	236	54	29	12.29%	117,2	10,2
EeB H2020-EeB-2014 **EUR 49,5 million**	90	22	13	14.44%	49	7
EeB H2020-EE-2014-1-PPP **EUR 13 million**	53	17	4	7.55%	18,1	3,9
EGVI H2020-GV-2014 **EUR 129 million**	76	31	15	19.74%	133,6	15
EGVI H2020-NMP-GV-2014 **EUR 16 million**	22	4	2	9.09%	14,9	0
SPIRE H2020-SPIRE-2014 **EUR 60,3 million**	68	17	12	17.65%	63,6	8,8
SPIRE H2020-EE-2014-1-PPP **EUR 8 million**	7	1	1	14.29%	4	0
SPIRE H2020-LCE-2014-1 **EUR ≈4 million**	18	4	0	0.00%	0	0
SPIRE H2020-WASTE-2014-two-stage **EUR 44 million**	55	14	5	9.09%	42,6	9,3
5G H2020-ICT-14-2014 **EUR 125 million**	80	42	19	23.75%	130	6,5
Robotics H2020-ICT-23-2014 **EUR 74 million**	155	57	17	10.97%	74,6	9,8
Photonics H2020-26-2014 **EUR 47million**	107	64	18	16.82%	55,4	0
HPC H2020-FETHPC-1-2014 H2020-FETHPC-2-2014 **EUR 97.4 million**	81	56	21	25.93%	98,6	0,2

[160] There is no information currently available regarding the EU contribution to the retained proposals, therefore it is not possible to calculate the Budget Success Rate (EU contribution for retained proposals/EU contribution for eligible proposals).

H2020 – EINFRA-4-2014 H2020-EINFRA-6-2014 **EUR 17 million**	3	3	2	66.67%	17	1.5
TOTAL	1 051	386	158	15.03%	818,6	72,2

- **Public-Public Partnerships (P2P)**

Finally, Public-Public Partnerships (P2P) under Horizon 2020 are implemented as Art.185 initiatives or supported with ERA-NET Cofund actions. Article 185 of the Treaty on the Functioning of the European Union (TFEU) enables the EU to participate in research programmes undertaken jointly by several Member States, including participation in the structures created for the execution of national programmes. The resulting programmes are implemented by the participating states and managed by dedicated implementation structures they designated. They set out commitments, including financial commitments, over a seven year period from both the EU and from the participating states. They fund projects selected through open and competitive calls for proposals.

The four Art.185 initiatives launched in 2014 are the Active and Assisted Living R&D Programme (AAL 2), the European and Developing Countries Clinical Trials Partnership 2 (EDCTP 2), the European Metrology Programme for Innovation and Research (EMPIR) and Eurostars 2 (for SMEs). The following table shows data on calls that closed on 2014. [161]

Art. 185 initiative	Estimated Budget (€ million)	Eligible Proposals	Proposals above threshold	Retained proposals	Success rate (retained /eligible proposals)	Public funding allocated to selected projects (€ million)	Of which, Union contribution allocated to selected projects (€ million)
AAL2	33,8	96	56	20	20.83%	19,1	9,8
EMPIR	50,0	50	40	27	54.00%	53,0	25,0
Eurostars2	143,6	541	195	160	29.57%	106,0	23,7
TOTAL (excl. EDCTP2)	**227,4**	**687**	**291**	**207**	**30.13%**	**178,1**	**58,5**

In addition to the Art.185 initiatives, 11 ERA-NET Cofund actions supporting Public-Public Partnerships were submitted to the different Horizon 2020 calls in 2014 and selected for funding with a total requested Union contribution of Euro 92,4 million.

Implementation

According to the Commission Communication "*Public-Private Partnerships in Horizon 2020: a powerful tool to deliver on innovation and growth in Europe*",[162] the cumulative investment package deriving from Art.185 and Art.187 initiatives is expected to mobilise over a seven years period a total of EUR 22 billion, whereby EUR 8 billion from Horizon 2020 will leverage EUR 10 billion from industry, and close to EUR 4 billion from Member States.

[161] The EDCTP call was launched in 2014 but closed in 2015. It is therefore excluded from the scope of this report.

[162] COM(2013) 494 final: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0494&from=EN

For calls closed in 2014, the EU financial contribution to retained proposals for Public-Private Partnerships (PPPs) under Article 187 of the Treaty on the Functioning of the European Union (TFEU) amounted to EUR 286,22 million[163] for 47 retained proposals. The EU financial contribution to retained proposals for contractual PPPs was EUR 818,6 million for 158 retained proposals. The EU financial contribution to the 207 successful projects in Art. 185 initiatives is EUR 58,5 million while the full public funding to these retained proposals amounted to EUR 178,1 million.

Conclusions

2015 will be the first year of actual implementation of the calls launched under Article 187 (PPPs) in Horizon 2020. As there were no grants signed in 2014 it is not possible to report on the actual EU financial contribution to the research projects as well as investments from industry partners and other sources (e.g. Member States contributions). The first results on the funds leveraged through Article 187 initiatives will be published in the next Annual Monitoring Report.

Regarding the contractual PPPs, the first annual cPPP monitoring reports show that the participation of industry in the first Horizon 2020 cPPPs calls has reached more than 50% of all participations in the cPPP; the participation of SMEs is also satisfactory, as it has reached a share going from 34 % for Factories of the Future to 8% for Robotics in 2014 calls. The cPPP calls have been successful in staying open to all stakeholders, with typically more than 70% of the EU funding going to participants outside of the private side associations.

The leverage effect resulting from the Article 185 initiatives (P2P) and ERA-NET Cofund actions for 2014 can be estimated as follows:

- The investment (public funding only) from participating states for successful projects resulting from P2P calls closed in 2014 is estimated in EUR 178,1 million, of which the Union contribution is EUR 58,5 million. This corresponds to a leverage effect of 2:1: each euro of EU contribution resulted in the allocation of 2 additional euros from participating states.
- The investment (public funding only) from the participating states in the 11 ERA-NET Cofund actions of 2014 is estimated at EUR 250 million, of which the Union contribution is up to EUR 92,4 million. This corresponds to a leverage effect of 1.7:1. In addition, it is expected that the participating states will mobilise additional funds of at least EUR 200 million in additional calls they organise without Union co-funding, increasing the expected leverage to 3.9:1.

IV.13. Communication and Dissemination

Intervention Logic (Rationale)

The Regulation establishing Horizon 2020 requires that the Commission implements information and communication actions in support of the programme and identifies a number of specific classes of actions that are to be supported to: raise awareness of funding opportunities; increase participation; provide assistance; promote the dissemination of results: and inter alia raise public awareness of the benefits of research and innovation.

[163] This contribution derives from 4 calls launched by Fuel Cells and Hydrogen 2 (FCH 2), Bio-based Industries (BBI) and Electronic Components and Systems for European Leadership (ECSEL replacing ARTEMIS and ENIAC). Calls under Innovative Medicines Initiative 2 (IMI 2) are excluded given that IMI2 integration with the CORDA database is currently incomplete.

Dissemination and exploitation of research results are strongly encouraged in Horizon 2020. Dissemination is making the new knowledge available for others, while exploitation is making use of it – i.e. by the private sector (for commercial exploitation) and the public sector (for policies, regulation and the like).

Implementation

a. Communication

During the course of 2014 (and in the build-up to the launch of the programme) the relevant Commission services implemented many hundreds of communication actions of varying scope and scale involving stakeholders and multipliers in support of the above objectives. In addition to information-day events, the network of National Contact Points and the European Commission Representations were also mobilised to support the new calls.

Specifically, since the model grant agreement now requires that Horizon 2020 beneficiaries promote their work (including to the media and the public), a programme of targeted assistance was launched to provide information, guidance and support material.

2014 also saw the culmination of a major Horizon 2020 media promotion campaign which ran from May 2013 till May 2014. The campaign resulted in over 4.000 clippings, almost 4.5 million views in social media, with more than 50.000 citizens engaged, raising awareness how R&I contributes to growth and jobs creation and overcoming the existing economic crisis as well as to show how research can tackle societal challenges and improve citizens' lives. Within the campaign, nine pan-European and 28 local-oriented stories were developed. Moreover, six Newsletters and six Infokits focusing on Societal Challenges were prepared.

In 2014, Horizon 2020 contributed to a corporate communication pilot campaign, led by DG COMM, with a view to properly highlight, among other EU policies, the role of research, development and innovation in people's everyday life as well as its contribution to growth and jobs. The campaign was launched in 2014 ("EU Working for you") and continued until mid-2015. Through mainstream media it showed the EU's added value in a tangible and lively way, reaching citizens directly. The campaign is part of a general effort to deliver a clearer message about how the EU, through its programmes and policies, helps to achieve economic growth and create jobs. The campaign was measured through output (115 million people reached during the campaign) and short-term result (28 million people aged 15+ recall seeing at least one ad) indicators.[164]

As well as making more targeted use of traditional communication actions (51 press releases, 24 memoranda, 31 major speeches), increase use was made of social media (Facebook and Twitter) to convey key messages and signpost successful R&I projects. Social media actions were also launched to support big-ticket gatherings such as the Innovation Union Convention which took place in March 2014.

Access to concrete examples of R&I project outcomes and news items were posted on the Horizon 2020 website and followed-up in the Horizon Magazine on-line newsletter. These actions complement the information available through CORDIS.

On a broader level the Commission continued its collaboration with Euronews on the co-production of episodes of Futuris programmes that broadcast R&I news stories via television and the web to 25 million homes across Europe and beyond.

b. Dissemination

The first round of Horizon 2020 calls in 2014 contained a multitude of incentives for more dissemination and exploitation. Examples are requests to involve potential end users in

[164] European Union, Working for you campaign.

proposals, to work towards standards, to support the collection and dissemination of results in specific fields, to require demonstrations and participation in fairs and events. The proposals responded well to these incentives. When the projects selected for funding progress in the years to come, results will become apparent. In Horizon 2020, the participants are obliged to ensure open access to all peer-reviewed scientific publications on the project results and aim to deposit the research data at the same time. This, too, will help the dissemination of the results.

Dissemination activities are measured through the following indicator:

13.1 Dissemination and outreach activities other than peer-reviewed publications

This is an output indicator, which is based on information reported by Horizon 2020 beneficiaries after the end of a project. Their current value under Horizon 2020 projects is therefore not available in this Annual Monitoring Report. However, the following results from FP7 finalised projects can give an indication of the dissemination activities carried on in 2014.

Finalised projects in FP7 regularly report on their dissemination activities. Currently, about 190,000 activities are reported (25/11/2015, RESPIR, so excluding ERC, CNECT and other non-RESPIR parts of FP7) for cooperative research. They range from presentations and posters at scientific events, exhibitions and workshops, to websites and texts for specialist journals and the general media. The audiences included scientists, industry, policy makers and the civil society.

The main actor for dissemination and exploitation is the project consortium itself that imbeds these activities in its project. The Commission helps through the CORDIS service, a central carrier of results information, operated by the Publications Office. In 2014 CORDIS had published 9 700 FP7 project results based on their intermediate and final reports and 1 400 rewritten results for the public at large (Results in Brief), available in six languages (EN, FR, DE, IT, ES, PL). Every month in 2014, 200,000 visitors visited the CORDIS website, viewing 1 million pages (2014 in total: 2.451.406 visitors; 12.694.610 pages consulted). Along with these massively used digital media, print remains in demand, too. 20,000 recipients requested the magazine 'research*eu results' (14 % more than in 2013). 85 % of the CORDIS users were satisfied with these services.

Conclusions

It will take time for the results of funded Horizon 2020 activities to demonstrate their potential and impact given the nature of R&I. This is why currently the examples of project successes are drawn selectively from FP7 where clear links exists with the objectives of Horizon 2020. Nevertheless, actions to support effective communication and dissemination will become more focussed around the major policy objectives of Horizon 2020 as the number of concrete examples of good quality R&I emerging from funded activities increases.

IV.14. Participation patterns of independent experts

Intervention Logic (Rationale)

In line with the Horizon 2020 Rules for Participation, independent experts are selected for the evaluation of proposals following an open call for applicants, to individuals, and to organisations. Individuals are selected from the database on a call-by-call basis.

When appointing independent experts, the Commission or the relevant funding body seeks a balanced composition within the expert groups and evaluation panels in terms of various skills, experience, knowledge, geographical diversity and gender, and taking into account the situation in the field of the action. Where appropriate, private- public sector balance is sought. Measures are also in place to ensure a healthy turnover of experts.

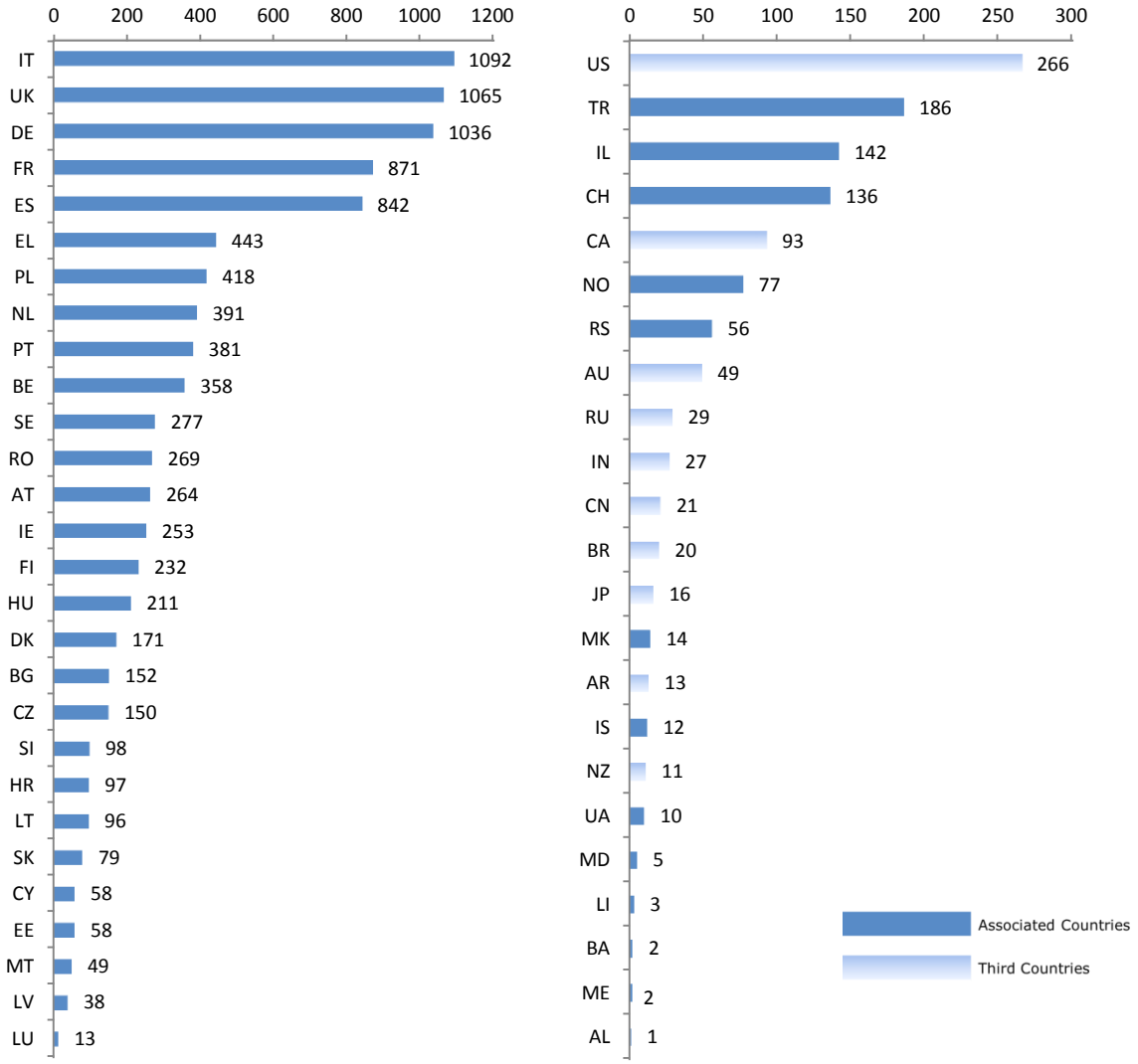
Implementation

The Participation patterns of Independent Experts is measured through the following indicators:

- Proposal evaluators by country

Just above 11 000 evaluators have been implicated in the evaluation of proposals. The graphs below show their distribution both in the EU and in third countries (chart 6).

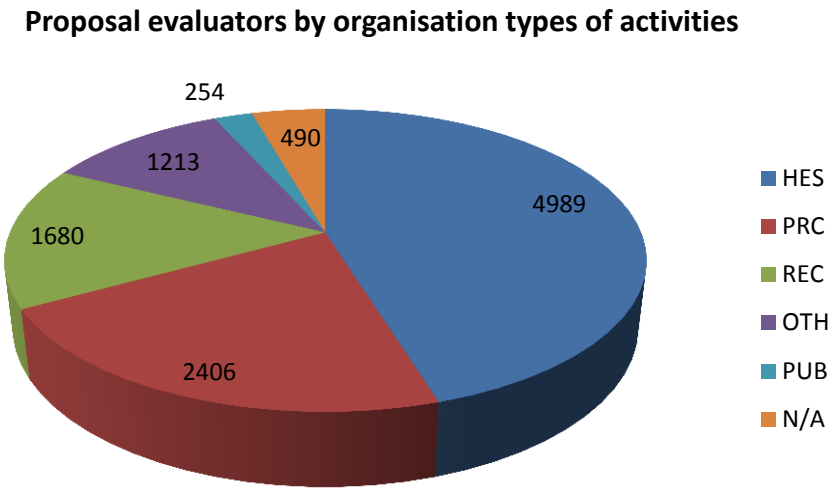
Chart 6: Proposals' evaluators per country (grand total: 11 032) from the EU-28 (left) and third countries (right)



- Proposal evaluators by organisations' type of activity

Evaluators with an academic background (HES) represents the relative majority (45.22%) of the 11 032 evaluators, with more than one fifth of the evaluators (21.81%) coming from the private sector (PRC). 15.23% are from research centres (REC) and almost 11% from other entities (OTH), while only 2.30% are from public entities (PUB).

Chart 7: Proposals' evaluators by organisations' type of activities (grand total: 11 032)



Conclusions

The Commission and Agencies will continue to strive for a healthy diversity in the various panels of experts is creates, while maintaining the highest possible level of expertise, appropriate for the different calls. As part of this, new experts are continuously encouraged to respond to eh open call and to register in the database.

ANNEX V: TOP-50 ORGANISATIONS IN TERMS OF EC FINANCIAL CONTRIBUTION ALLOCATED IN SIGNED GRANTS (1ST DECEMBER 2015)

Top-50 HES organisations

	Participant Legal Name	[PJ] Country Name	Number of Participations	EC Financial Contribution Allocated (for signed grants)
1	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	United Kingdom	132	82.300.736,88
2	IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE	United Kingdom	122	76.800.745,60
3	UNIVERSITY COLLEGE LONDON	United Kingdom	133	74.921.500,44
4	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	United Kingdom	135	67.238.593,61
5	KOBENHAVNS UNIVERSITET	Denmark	117	57.390.653,34
6	THE UNIVERSITY OF EDINBURGH	United Kingdom	85	55.427.692,20
7	KATHOLIEKE UNIVERSITEIT LEUVEN	Belgium	84	46.648.974,73
8	KARLSRUHER INSTITUT FUER TECHNOLOGIE	Germany	58	45.949.938,46
9	TECHNISCHE UNIVERSITEIT DELFT	Netherlands	73	44.346.056,27
10	TECHNISCHE UNIVERSITAET MUENCHEN	Germany	60	37.711.036,21
11	UNIVERSITEIT VAN AMSTERDAM	Netherlands	61	37.694.280,38
12	STICHTING VU-VUMC	Netherlands	64	35.513.025,62
13	POLITECNICO DI MILANO	Italy	76	35.276.068,69
14	UNIVERSITEIT GENT	Belgium	62	33.584.293,25
15	UNIVERSITY OF BRISTOL	United Kingdom	53	32.175.595,47
16	DANMARKS TEKNISKE UNIVERSITET	Denmark	65	31.893.213,65
17	UNIVERSITY OF GLASGOW	United Kingdom	50	31.727.285,93
18	UNIVERSITY OF SOUTHAMPTON	United Kingdom	44	30.951.943,47
19	KUNGLIGA TEKNISKA HOEGSKOLAN	Sweden	63	30.501.531,25
20	THE UNIVERSITY OF MANCHESTER	United Kingdom	66	30.423.997,70
21	LUNDS UNIVERSITET	Sweden	47	29.990.539,33
22	THE UNIVERSITY OF WARWICK	United Kingdom	48	29.655.723,67
23	THE UNIVERSITY OF SHEFFIELD	United Kingdom	56	29.549.950,17
24	UNIVERSITEIT UTRECHT	Netherlands	60	29.509.464,25
25	STICHTING KATHOLIEKE UNIVERSITEIT	Netherlands	46	28.882.390,64
26	TECHNISCHE UNIVERSITEIT EINDHOVEN	Netherlands	57	28.833.231,17
27	AARHUS UNIVERSITET	Denmark	48	28.687.576,37
28	LUDWIG-MAXIMILIANS-UNIVERSITAET MUENCHEN	Germany	48	28.420.783,75
29	WEIZMANN INSTITUTE OF SCIENCE	Israel	33	27.325.500,34
30	KAROLINSKA INSTITUTET	Sweden	48	26.766.822,86
31	UNIVERSITY OF LEEDS	United Kingdom	47	26.389.037,70
32	TECHNISCHE UNIVERSITAET DRESDEN	Germany	48	26.141.732,09
33	THE UNIVERSITY OF BIRMINGHAM	United Kingdom	62	25.994.188,13
34	THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN	Ireland	37	25.912.119,87
35	RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN	Germany	47	25.441.752,09
36	TEL AVIV UNIVERSITY	Israel	28	24.308.858,46
37	CHALMERS TEKNISKA HOEGSKOLA AB	Sweden	48	23.707.327,79
38	UNIVERSITEIT TWENTE	Netherlands	39	23.412.938,01
39	RIJKSUNIVERSITEIT GRONINGEN	Netherlands	32	23.353.814,11
40	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	Switzerland	50	23.289.072,28
41	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	Switzerland	73	22.762.310,43
42	NATIONAL UNIVERSITY OF IRELAND, GALWAY	Ireland	43	22.111.854,50
43	UNIVERSITE PIERRE ET MARIE CURIE - PARIS 6	France	38	21.963.224,14
44	UNIVERSITEIT LEIDEN	Netherlands	28	21.870.121,59
45	UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK	Ireland	43	21.283.893,18
46	UNIVERSITY COLLEGE DUBLIN, NATIONAL UNIVERSITY OF IRELAND, DUBLIN	Ireland	38	21.266.524,58
47	TECHNISCHE UNIVERSITAET BERLIN	Germany	33	20.242.708,06
48	AALTO-KORKEAKOULUSAATIO	Finland	28	19.999.988,21
49	ERASMUS UNIVERSITAIR MEDISCH CENTRUM ROTTERDAM	Netherlands	29	19.865.527,73
50	UNIVERSITY OF NEWCASTLE UPON TYNE	United Kingdom	39	19.754.678,26

Top-50 OTH organisations

	Participant Legal Name	[PJ] Country Name	Number of Participations	EC Financial Contribution Allocated (for signed grants)
1	COST ASSOCIATION	Belgium	1	48.659.171,00
2	CSC-TIETEEN TIETOTEKNIIKAN KESKUS OY	Finland	10	6.431.356,25
3	Stichting EGI	Netherlands	7	4.360.990,00
4	BIO BASE EUROPE PILOT PLANT VZW	Belgium	4	3.498.552,50
5	ASSOCIATION EUROPEENNE DES EXPOSITIONS SCIENTIFIQUES TECHNIQUES ET INDUSTRIELLES	Belgium	8	3.151.900,25
6	ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH)*	Germany	9	3.129.542,35
7	UNION INTERNATIONALE DES TRANSPORTS PUBLICS	Belgium	4	3.048.283,70
8	PARTNERSHIP FOR ADVANCED COMPUTINGIN EUROPE AISBL	Belgium	3	2.995.181,00
9	ASSOCIATION INTERNATIONALE EXTREME-LIGHT-INFRASTRUCTURE DELIVERY CONSORTIUM	Belgium	3	2.732.325,00
10	YOURIS.COM	Belgium	8	2.571.696,62
11	STICHTING OPEN TICKETING	Netherlands	1	2.567.500,00
12	STICHTING TUBERCULOSIS VACCINE INITIATIVE	Netherlands	1	2.473.986,45
13	SYNESIS SOCIETA' CONSORTILE A RESPONSABILITA' LIMITATA	Italy	6	2.370.414,00
14	IMP'ROVE - EUROPEAN INNOVATION MANAGEMENT ACADEMY EWIV	Germany	1	2.330.022,00
15	UMWELTBUNDESAMT GMBH	Austria	6	2.231.934,00
16	EIT ICT LABS IVZW	Belgium	1	2.217.750,00
17	ASSOCIACAO UNIVERSIDADE EMPRESA PARA DESENVOLVIMENTO TECMINHO	Portugal	3	2.081.962,25
18	GRAND EQUIPEMENT NATIONAL DE CALCUL INTENSIF	France	1	2.060.600,00
19	FORUM VIRIUM HELSINKI OY	Finland	4	1.999.579,81
20	STICHTING WOONBEDRIJF SWS HHVL	Netherlands	1	1.941.975,00
21	ISTITUTO DI STUDI PER L'INTEGRAZIONE DEI SISTEMI SC	Italy	6	1.828.137,50
22	UNION INTERNATIONALE DES CHEMINS DE FER	France	4	1.704.835,00
23	LE STUDIUM, AGENCE REGIONALE DE RECHERCHE ET D'ACCEUIL INTERNATIONAL DE CHERCHEURS ASSOCIES	France	1	1.699.200,00
24	POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES, ASSOCIATION INTERNATIONALE	Belgium	10	1.689.758,00
25	NANOTECHNOLOGY INDUSTRIES ASSOCIATION	Belgium	6	1.668.853,50
26	NORDUNET A/S	Denmark	1	1.610.198,00
27	THE CONNECTED DIGITAL ECONOMY CATAPULT LIMITED	United Kingdom	3	1.552.031,25
28	GESELLSCHAFT FUR ANGEWANDTE MIKRO UND OPTOELEKTRONIK MIT BESCHRANKTERHAFTUNG AMO GMBH	Germany	4	1.526.269,98
29	OSTERREICHISCHE ENERGIEAGENTUR AUSTRIAN ENERGY AGENCY	Austria	7	1.487.268,75
30	ASSOCIATION 2 INVESTING INITIATIVE	France	2	1.459.316,25
31	STICHTING PROSAFE (THE PRODUCT SAFETY ENFORCEMENT FORUM OF EUROPE)	Netherlands	1	1.459.010,00
32	IDRYMA PROOTHISIS EREVNAS	Cyprus	15	1.422.738,68
33	Elektroinstitut Milan Vidmar	Slovenia	2	1.334.987,50
34	DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH	Germany	3	1.279.598,75
35	OPEN DATA INSTITUTE LBG	United Kingdom	3	1.262.269,26
36	AquaTT UETP Ltd	Ireland	4	1.203.929,90
37	Fachagentur Nachwachsende Rohstoffe e.V.	Germany	6	1.170.221,00
38	FUNDACIO PRIVADA PARC DE RECERCA UAB	Spain	1	1.153.784,03
39	European Business and Innovation Centre Network	Belgium	5	1.149.726,25
40	FEDERATION EUROPEENNE DES GEOLOGUES	France	5	1.142.466,00
41	SIHTASUTUS EESTI TEADUSAGENTUUR	Estonia	17	1.122.306,19
42	Greenovate! Europe	Belgium	4	1.102.227,50
43	THE WASTE AND RESOURCES ACTION PROGRAMME	United Kingdom	2	1.102.070,34
44	FONDATION EUROPEENNE DE LA SCIENCE	France	6	1.065.037,50
45	UNION DES INDUSTRIES FERROVIAIRES EUROPEENNES - UNIFE	Belgium	5	1.042.624,51
46	INFRAFRONTIER GMBH	Germany	3	996.533,75
47	STICHTING ISALA KLINIEKEN	Netherlands	1	968.795,00
48	EUROCITIES ASBL	Belgium	3	962.610,00
49	PLACES FOR PEOPLE GROUP LIMITED	United Kingdom	1	950.000,00
50	LUXINNOVATION GIE	Luxembourg	6	920.083,75

Top-50 PRC organisations

	Participant Legal Name	[PJ] Country Name	Number of Participations	EC Financial Contribution Allocated (for signed grants)
1	SIEMENS AKTIENGESELLSCHAFT	Germany	24	20.453.249,10
2	ATOS SPAIN SA	Spain	40	17.789.172,18
3	COMPAGNIE INDUSTRIELLE DE LA MATIERE VEGETAL CIM V	France	2	16.570.000,00
4	GEANT LIMITED	United Kingdom	3	16.392.098,49
5	GlaxoSmithKline Biologicals	Belgium	1	14.103.135,00
6	ROBERT BOSCH GMBH	Germany	19	13.910.903,27
7	AVL LIST GMBH	Austria	17	10.653.614,95
8	MATRICA SPA	Italy	1	9.335.187,00
9	ESTEYCO SAP	Spain	3	8.937.737,50
10	WELLO OY	Finland	1	8.720.250,00
11	DAIMLER AG	Germany	9	8.346.166,38
12	ASML NETHERLANDS B.V.	Netherlands	1	8.338.908,00
13	IBM ISRAEL - SCIENCE AND TECHNOLOGY LTD	Israel	10	8.205.055,25
14	RENAULT SAS	France	8	7.667.942,51
15	PHILIPS ELECTRONICS NEDERLAND B.V.	Netherlands	12	7.651.522,41
16	THALES COMMUNICATIONS & SECURITY SAS	France	15	7.616.824,13
17	AMEC FOSTER WHEELER ENERGY LIMITED	United Kingdom	1	7.445.643,00
18	BASF SE	Germany	12	7.301.606,29
19	NEC EUROPE LTD	United Kingdom	13	7.262.586,03
20	TATA STEEL NEDERLAND TECHNOLOGY BV	Netherlands	2	6.907.591,88
21	VOLKSWAGEN AG	Germany	8	6.866.470,22
22	ACCIONA INFRAESTRUCTURAS S.A.	Spain	18	6.842.045,40
23	TELEFONICA INVESTIGACION Y DESARROLLO SA	Spain	21	6.669.137,25
24	MAN DIESEL & TURBO SE	Germany	2	6.660.499,63
25	ARCELORMITTAL BELGIUM NV	Belgium	2	6.635.625,00
26	NOVAMONT SPA	Italy	1	6.427.169,00
27	AIR LIQUIDE ADVANCED TECHNOLOGIES SA	France	2	6.269.928,00
28	D'APPOLONIA SPA	Italy	21	6.225.359,38
29	ENGINEERING - INGEGNERIA INFORMATICA SPA	Italy	13	6.103.062,50
30	LINDE AG	Germany	4	5.951.997,50
31	PHILIPS MEDICAL SYSTEMS NEDERLAND BV	Netherlands	10	5.929.964,72
32	SOBY VAERFT AS	Denmark	1	5.859.630,00
33	BULL SAS	France	7	5.755.064,75
34	SIEMENS AS	Norway	1	5.464.725,00
35	IBM IRELAND LIMITED	Ireland	8	5.420.609,75
36	UPM-KYMMENE OYJ	Finland	3	5.365.062,50
37	H2 MOBILITY DEUTSCHLAND GMBH & CO KG	Germany	1	5.256.264,00
38	STMICROELECTRONICS SRL	Italy	12	5.252.927,24
39	INFINEON TECHNOLOGIES AG	Germany	5	5.236.242,54
40	ORANGE SA	France	13	5.208.020,00
41	SEKAB E-TECHNOLOGY AB	Sweden	2	5.114.570,65
42	Huawei Technologies Duesseldorf GmbH	Germany	8	5.088.025,00
43	INFINEON TECHNOLOGIES AUSTRIA AG	Austria	7	5.073.081,69
44	AMONETA DIAGNOSTICS	France	1	4.998.625,00
45	TC LAND EXPRESSION SA	France	1	4.995.250,00
46	Agendia NV	Netherlands	2	4.985.157,00
47	THALES ALENIA SPACE FRANCE	France	16	4.980.125,88
48	ARTTIC	France	10	4.953.112,38
49	MAN TRUCK & BUS AG	Germany	3	4.940.848,88
50	ARKEMA FRANCE SA	France	11	4.898.209,25

Top-50 PUB organisations

	Participant Legal Name	[PJ] Country Name	Number of Participations	EC Financial Contribution Allocated (for signed grants)
1	BUNDESAMT FUER STRAHLENSCHUTZ	Germany	1	14.758.187,00
2	REGION HOVEDSTADEN	Denmark	14	10.627.600,56
3	WELSH ASSEMBLY GOVERNMENT	United Kingdom	1	9.558.000,00
4	BUNDESMINISTERIUM FUER BILDUNG UND FORSCHUNG	Germany	9	8.481.802,28
5	NORGES FORSKNINGSRAD	Norway	19	7.365.661,43
6	AGENCE NATIONALE DE LA RECHERCHE	France	12	6.920.900,26
7	OESTERREICHISCHE FORSCHUNGSFOERDERUNGSGESELLSCHAFT MBH	Austria	16	6.682.101,82
8	NARODOWE CENTRUM NAUKI	Poland	5	6.623.337,14
9	MET OFFICE	United Kingdom	10	6.565.219,59
10	FUNDACAO PARA A CIENCIA E A TECNOLOGIA	Portugal	36	6.356.317,76
11	VETENSKAPSRADET - SWEDISH RESEARCH COUNCIL	Sweden	5	5.595.346,67
12	THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS	United Kingdom	13	4.682.865,35
13	Nottingham City Council	United Kingdom	2	4.539.601,25
14	CENTRO PARA EL DESARROLLO TECNOLOGICO INDUSTRIAL.	Spain	12	4.356.462,20
15	AYUNTAMIENTO DE VALLADOLID	Spain	1	3.972.798,56
16	MINISTERIE VAN ECONOMISCHE ZAKEN	Netherlands	12	3.937.773,50
17	MINISTERO DELLA SALUTE	Italy	7	3.907.777,96
18	ENERGISTYRELSEN	Denmark	3	3.780.301,00
19	TEPEBASI MUNICIPALITY	Turkey	1	3.776.214,45
20	SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT	Sweden	8	3.559.752,82
21	The Department Of Energy and Climate Change	United Kingdom	1	3.546.268,00
22	STOCKHOLMS STAD	Sweden	2	3.544.348,27
23	MINISTERIE VAN INFRASTRUCTUUR EN MILIEU	Netherlands	9	3.436.959,57
24	BRITISH BROADCASTING CORPORATION	United Kingdom	4	3.428.031,25
25	Stavanger kommune	Norway	1	3.343.702,50
26	SERVICIO ANDALUZ DE SALUD	Spain	8	3.308.000,31
27	REGIONAL BUSINESS SERVICES ORGANISATION	United Kingdom	1	2.982.009,98
28	FORSKNINGSRÅDET FÖR MILJÖ, AREELLA NÄRINGAR OCH SAMHÄLLSBYGGANDE	Sweden	4	2.978.794,48
29	STATENS ENERGIMYNDIGHET	Sweden	3	2.955.857,87
30	BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES	France	10	2.913.541,81
31	MINISTERIO DE ECONOMIA Y COMPETITIVIDAD	Spain	7	2.877.772,05
32	AERO KOMMUNE	Denmark	1	2.777.334,00
33	MINISTERO DELL'ISTRUZIONE, DELL'UNIVERSITA' E DELLA RICERCA	Italy	8	2.775.903,96
34	SOCIETE NATIONALE DES CHEMINS DE FER FRANCAIS	France	4	2.769.658,13
35	ETABLISSEMENT FRANCAIS DU SANG	France	4	2.559.683,05
36	NARODOWE CENTRUM BADAN I ROZWOJU	Poland	11	2.488.024,48
37	SERVICIO MADRILENO DE SALUD	Spain	10	2.411.354,31
38	MATIMOP, ISRAELI INDUSTRY CENTER FOR RESEARCH & DEVELOPMENT	Israel	12	2.318.833,29
39	COMUNE DI PRATO	Italy	3	2.267.375,00
40	FONDS ZUR FÖRDERUNG DER WISSENSCHAFTLICHEN FORSCHUNG	Austria	7	2.071.863,68
41	EUROPEAN UNION SATELLITE CENTRE	Spain	4	1.998.025,75
42	INNOVATIONSFONDEN	Denmark	7	1.979.782,58
43	AGENCE DE L'ENVIRONNEMENT ET DE LA MAITRISE DE L'ENERGIE	France	5	1.836.118,30
44	Region of South Moravia	Czech Republic	1	1.829.000,00
45	SERVIZO GALEGO DE SAUDE	Spain	4	1.774.411,00
46	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS FAO	Italy	7	1.758.632,83
47	NATURAL HISTORY MUSEUM	United Kingdom	6	1.736.040,99
48	THE EUROPEAN ORGANISATION FOR THE EXPLOITATION OF METEOROLOGICAL SATELLITES	Germany	2	1.719.152,50
49	SØFARTSSTYRELSEN	Denmark	2	1.657.250,00
50	STIFTUNG PREUSSISCHER KULTURBESITZ	Germany	2	1.615.433,00

Top-50 REC organisations

	Participant Legal Name	[PJ] Country Name	Number of Participations	EC Financial Contribution Allocated (for signed grants)
1	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	Germany	118	358.534.920,80
2	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	France	289	194.036.434,63
3	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	France	149	138.925.988,24
4	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV	Germany	243	136.237.108,15
5	CONSIGLIO NAZIONALE DELLE RICERCHE	Italy	121	59.189.026,56
6	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain	130	58.465.454,61
7	EUROPEAN MOLECULAR BIOLOGY LABORATORY	Germany	45	44.687.670,86
8	AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE	Italy	27	44.286.381,77
9	DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	Germany	76	42.300.561,50
10	Teknologian tutkimuskeskus VTT Oy	Finland	77	39.135.897,81
11	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	France	64	38.073.448,55
12	INTERUNIVERSITAIR MICRO-ELECTRONICACENTRUM IMEC VZW	Belgium	33	37.947.125,90
13	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO	Netherlands	62	32.564.292,71
14	FUNDACION TECNALIA RESEARCH & INNOVATION	Spain	67	28.731.866,30
15	FORSCHUNGSZENTRUM JULICH GMBH	Germany	43	28.618.608,95
16	UNITED KINGDOM ATOMIC ENERGY AUTHORITY	United Kingdom	2	27.728.695,00
17	FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	Greece	65	25.541.383,57
18	EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH	Switzerland	31	25.160.437,14
19	NATURAL ENVIRONMENT RESEARCH COUNCIL	United Kingdom	31	22.183.915,14
20	STIFTELSEN SINTEF	Norway	28	21.952.200,23
21	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	Greece	47	21.806.051,99
22	INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN AUTOMATIQUE	France	34	19.955.273,89
23	STICHTING DIENST LANDBOUWKUNDIG ONDERZOEK	Netherlands	36	19.525.417,19
24	KONINKLIJKE NEDERLANDSE AKADEMIE VAN WETENSCHAPPEN - KNAW	Netherlands	23	17.658.533,85
25	AIT Austrian Institute of Technology GmbH	Austria	30	16.532.873,10
26	FUNDACIO CENTRE DE REGULACIO GENOMICA	Spain	21	16.222.249,95
27	INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE	France	41	15.926.700,81
28	BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION	Spain	33	14.436.475,37
29	FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA	Italy	22	14.210.873,48
30	SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	United Kingdom	34	14.205.397,75
31	CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT	Spain	18	13.935.240,51
32	HELMHOLTZ ZENTRUM POTSDAM DEUTSCHES GEOFORSCHUNGSZENTRUM	Germany	14	13.725.016,91
33	FUNDACIO INSTITUT DE CIENCIES FOTONIQUES	Spain	26	13.669.208,44
34	INSTITUTO DE MEDICINA MOLECULAR	Portugal	11	13.306.576,56
35	FORSCHUNGSVERBUND BERLIN E.V.	Germany	20	13.231.600,87
36	EUROPEAN SPALLATION SOURCE ESS AB	Sweden	5	12.159.172,75
37	ISTITUTO NAZIONALE DI FISICA NUCLEARE	Italy	21	11.988.490,52
38	IMINDS	Belgium	19	11.757.689,70
39	INSTITUT CURIE	France	18	11.672.284,65
40	DEUTSCHES FORSCHUNGSZENTRUM FUER KUENSTLICHE INTELLIGENZ GMBH	Germany	17	11.472.916,05
41	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	Belgium	25	11.470.319,50
42	NATIONAL CENTER FOR SCIENTIFIC RESEARCH "DEMOKRITOS"	Greece	27	11.264.320,60
43	VIB	Belgium	19	11.124.702,75
44	INSTITUT JOZEF STEFAN	Slovenia	32	11.087.465,31
45	STIFTUNG DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY	Germany	15	11.018.358,11
46	THE FRANCIS CRICK INSTITUTE LIMITED	United Kingdom	10	10.966.584,55
47	INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	Greece	25	10.296.887,75
48	INSTITUT PASTEUR	France	20	10.119.651,35
49	CENTRO RICERCHE FIAT SCPA	Italy	15	10.053.000,00
50	ATHENA RESEARCH AND INNOVATION CENTER IN INFORMATION COMMUNICATION & KNOWLEDGE TECHNOLOGIES	Greece	15	9.868.721,34

Top-50 SMEs organisations

	Participant Legal Name	[PJ] Country Name	Participations	Allocated
1	COMPAGNIE INDUSTRIELLE DE LA MATIERE VEGETAL CIM V	France	2	16.570.000,00
2	GEANT LIMITED	United Kingdom	3	16.392.098,49
3	ESTEYCO SAP	Spain	3	8.937.737,50
4	WELLO OY	Finland	1	8.720.250,00
5	SWEREA MEFOS AB	Sweden	3	8.117.525,00
6	SIEMENS AS	Norway	1	5.464.725,00
7	AMONETA DIAGNOSTICS	France	1	4.998.625,00
8	TC LAND EXPRESSION SA	France	1	4.995.250,00
9	Agendia NV	Netherlands	2	4.985.157,00
10	ARTTIC	France	10	4.953.112,38
11	Forschungsgesellschaft mbH	Austria	11	4.752.375,66
12	GREEN MARINE(UK)LTD	United Kingdom	1	4.645.206,00
13	RADISENS DIAGNOSTICS LIMITED	Ireland	1	4.487.525,00
14	IMMUNOVIA AB	Sweden	1	4.244.969,00
15	SPACE APPLICATIONS SERVICES NV	Belgium	3	4.125.687,50
16	TRUST-IT SERVICES LIMITED	United Kingdom	12	3.937.736,75
17	INNOVACIO I RECERCA INDUSTRIAL I SOSTENIBLE SL	Spain	5	3.903.520,00
18	CONVION OY	Finland	3	3.882.912,50
19	LABORATORIOS ALPHA SAN IGNACIO PHARMA S.L. - ALPHASIP	Spain	3	3.754.715,95
20	MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM	United Kingdom	5	3.716.836,75
21	MENSIA TECHNOLOGIES	France	1	3.600.632,50
22	BIO BASE EUROPE PILOT PLANT VZW	Belgium	4	3.498.552,50
23	METABOLIC EXPLORER SA	France	1	3.493.097,00
24	GMBH	Austria	1	3.449.000,00
25	Centre for Process Innovation Limited	United Kingdom	3	3.446.749,25
26	FUNDACION CENER-CIEMAT	Spain	6	3.444.073,75
27	XLAB RAZVOJ PROGRAMSKE OPREME IN SVETOVANJE DOO	Slovenia	11	3.384.574,50
28	SIGMA ORIONIS SA	France	10	3.378.735,41
29	PROTEINLOGIC LIMITED	United Kingdom	2	3.337.037,50
30	EURICE EUROPEAN RESEARCH AND PROJECT OFFICE GMBH	Germany	9	3.269.463,20
31	SELF-SCREEN BV	Netherlands	1	3.264.375,00
32	SELFDIAGNOSTICS DEUTSCHLAND GMBH	Germany	1	3.260.899,03
33	STAM SRL	Italy	8	3.201.663,00
34	CONSULTECH TECHNOLOGIEBERATUNG GMBH	Germany	1	3.167.094,00
35	CYTOSYSTEMS LIMITED	United Kingdom	1	3.135.925,00
36	EUROPASEKRETARIAT GMBH)*	Germany	9	3.129.542,35
37	UNION INTERNATIONALE DES TRANSPORTS PUBLICS	Belgium	4	3.048.283,70
38	MAXELER TECHNOLOGIES LIMITED	United Kingdom	5	2.987.312,50
39	MEMED DIAGNOSTICS LTD	Israel	1	2.935.000,00
40	H2 Logic A/S	Denmark	3	2.887.425,25
41	SIME DIAGNOSTICS LIMITED	United Kingdom	1	2.864.455,50
42	MIDATECH PHARMA ESPANA SL	Spain	2	2.862.466,71
43	THE MANUFACTURING TECHNOLOGY CENTRE LIMITED LBG	United Kingdom	4	2.809.045,00
44	EPIGENOMICS AG	Germany	1	2.772.527,50
45	AMPYX POWER BV	Netherlands	2	2.755.374,28
46	TECHNOLOGIES EPE	Greece	7	2.694.228,75
47	AvantiCell Science Ltd	United Kingdom	4	2.687.545,76
48	CALCIVIS LIMITED	United Kingdom	1	2.615.000,00
49	DRAXIS ENVIRONMENTAL S.A.	Greece	7	2.614.944,50
50	KIRUNA WAGON AB	Sweden	1	2.600.452,00

ANNEX VI: GLOSSARY

Term	Definition and Scope
Call	All Horizon 2020 calls (1-stage calls and 2nd stage of 2-stage calls) excluding the following: • Coal RFCS-2014-1 • Research-Fund-for-Coal-and-Steel-2014-2020 • EIT-KICS-2014 • H2020-Prize-Innovation-SOFT-2014 • H2020-WIPRIZE-2015
Call deadline	Deadline for submitting proposals to a given call. Calls may have more call deadlines in a given year.
Eligible proposal	A submitted proposal that after evaluation is not considered "ineligible", "inadmissible", "cancelled" or "duplicate".
High-quality proposal	A proposal that after evaluation scores above threshold. Thresholds may vary between different programme parts.
Retained proposal	A proposal that after evaluation is retained for funding. This category does not include proposals retrieved from the reserve list at later stage.
Rejected proposal	A proposal that after evaluation is considered "rejected" or "withdrawn".
Successful proposal	A proposal that after final evaluation has been selected. This category includes proposals retrieved from the reserve list at later stage. Successful proposals correspond to the successful projects.
Success rate in terms of proposals	It is calculated according to the following formula: (number of retained proposals) / (number of eligible proposals)*100
Adjusted success rate in terms of proposals	It is calculated according to the following formula: (number of retained proposals) / (number of high-quality proposals)*100
Success rate in terms of EU contribution	It is calculated according to the following formula: (Sum of the EU Requested contribution for all retained proposals) / (Sum of the EC Requested contribution for all eligible proposals)*100
Adjusted success rate in terms of EU contribution	It is calculated according to the following formula: (Sum of the EU Requested contribution for all retained proposals) / (Sum of the EC Requested contribution for all high-quality proposals)*100

Project	Successful proposals for which a Grant Agreement is either "signed" or "under signature".
Signed Project	A Signed Grant Agreement deriving from a successful proposal.
Applicant	Legal Entity involved in a Proposal.
Success rate in terms of applicants	It is calculated according to the following formula: (number of applicants in retained proposals) / (number of applicants in eligible proposals)*100
Adjusted success rate in terms of applicants	It is calculated according to the following formula: (number of applicants in retained proposals) / (number of applicants in high-quality proposals)*100
Application	The act of involvement of a Legal Entity in a Proposal. A single Applicant can apply in different proposals.
Success rate in terms of applications	It is calculated according to the following formula: (number of applications in retained proposals) / (number of applications in eligible proposals) *100
Adjusted success rate in terms of applications	It is calculated according to the following formula: (number of applications in retained proposals) / (number of applications in high-quality proposals) *100
Participation	The act of involvement of a Legal Entity in a Project. A single Participant can be involved in multiple Projects.
Beneficiary	A Participant signing the Grant Agreement and thus eligible to receive EC Contribution.
Newcomer	A Horizon 2020 Participant who was not involved in a FP7 Project (not a FP7 participant).
Third countries	These are countries other than EU Member States, Overseas Countries and Territiories, Associated Countries, and Members of the European Free Trade Association (EFTA).
Overseas, EFTA, Associated and Candidate counties	These are countries other than EU Member States that are declared as either "Associated Country", of Members of the European Free Trade Association, or Overseas Countries and Territories
EU-28 Countries	All EU Member states

EU-13 countries	These following countries: • BG : Bulgaria • CZ: Czech Republic • EE Estonia • HR: Croatia • HU: Hungary • MT: Malta • PL: Poland • RO: Romania • SI: Slovenia • SK: Slovakia • LT: Lithuania • LV: Latvia • CY: Cyprus
Acronyms	**Definition and Scope**
DG RTD	European Commission's Directorate-General for Research and Innovation
DG CONNECT	European Commission's Directorate-General for Communication Networks, Content and Technology
DG GROW	European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs.
DG MOVE	European Commission's Directorate-General for Transport
DG HOME	European Commission's Directorate-General for Migration and Home Affairs
DG EAC	European Commission's Directorate-General for Education and Culture
DG COMM	European Commission's Directorate-General for Communication
ERCEA	European Research Council Executive Agency
REA	Research Executive Agency
GSA	European Global Navigation Satellite System (GNSS) Agency
ESA	European Space Agency
EASME	Executive Agency for Small and Medium-sized Enterprises
INEA	Innovation and Network Executive Agency

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For Horizon 2020, the Commission has a legal obligation to monitor continually and systematically its implementation, to report annually and to disseminate the results of this monitoring.

The first Annual Monitoring Report under Horizon 2020 is a comprehensive publication encompassing the analysis of Horizon 2020 through its calls closed in 2014. It helps identifying the most important issues related to performance as measured by the Key Performance Indicators, implementation aspects and participation trends, providing data for all priorities and specific objectives of Horizon 2020. The Report pays special attention to monitor progress with respect to the cross-cutting issues. It provides information also on the activities of the European Institute of Innovation and Technology (EIT) as well as of the Euratom Research and Training Programme. Moreover, given the significant results and impacts that FP7 projects can still produce, the Annual Monitoring Report includes a section dedicated to results of ongoing FP7 projects.

Evidence provided in the successive Annual Monitoring Reports will generate factual data that will feed into the Interim and Ex-post evaluations of Horizon 2020.

Studies and reports

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