

**INITIAL  
LESSONS LEARNED  
FROM THE  
FIRST CALLS OF HORIZON 2020**

**for the meeting of the  
Strategic Configuration of the Horizon 2020 Programme Committee  
16 October 2014**

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## Introduction

The EU's largest ever research and innovation framework programme, Horizon 2020, will lead to more breakthroughs and discoveries. With a seven-year budget of nearly €80 billion, Horizon 2020 was successfully launched in December 2013. This was immediately followed by the launch of the first Horizon 2020 Work Programme with a budget of €15 billion for 2014 and 2015 (consisting of 65 calls in 2014 alone), including 12 areas that were focus for action. The calls opened on time, and the new user-friendly Horizon 2020 IT systems were functional from the beginning. This was a tremendous achievement.

The simplified two-year Work Programme implementing the new challenge-based approach was designed so that it integrates EU policy objectives through a strategic programming process, that fosters integration, incorporates key features and novelties, and generates more impact and value creation. It also provides applicants with more time to plan. The successful launch of Horizon 2020 and subsequent extensive outreach meant that in the first six months more than 16.000 proposals were submitted (with around 30.000 by September) , 2.1 million visits were registered on the web-based Participants Portal in December 2013 alone with a steady increase since, and nearly 5.300 expert evaluators contracted.

The work on the following Work Programme for 2016 and 2017 makes the lessons learned from first Horizon 2020 calls essential for developing corrective measures which will feed into this next cycle of work. Given that learning lessons is an on-going process, the initial findings from this report will be reviewed later once a richer set of data is available, including feedback from a wider audience (e.g. applicants and experts).

The present report builds on the first paper 'Assessment of Key Features and Novelties', which focused on the key cross-cutting priorities embedded in the first Horizon 2020 Work Programme 2014 and 2015. That paper concluded that the Work Programme had delivered on embedding key features and novelties in Horizon 2020, reinforcing its integrated approach. Moreover, it provided recommendations, in particular:

- Address key novelties and other horizontal issues upstream in the Work Programme preparation cycle;
- Ensure systematic consultation and input from stakeholder communities;
- Continuously monitor and take stock;
- Provide systematic training and guidance, including for evaluators and NCPs.

The paper also stressed that a prerequisite to achieving quick results and sustained impact is timely budgetary availability. It concluded that the current shortage of payment appropriations was at risk of becoming a structural problem that would be damaging for the ability of Horizon 2020 to deliver on its ambitions.

This second report is composed of two sections. The first section will focus on initial results and feedback concerning the first Horizon 2020 calls in 2014:

- Work Programme and Information to Applicants
- Response to Calls
- Proposal Evaluations
- Feedback to Applicants and Implementation

The second part will look closely at how 'Key Features and Novelties' in these first calls were taken up by experts and applicants:

- Covering the full Research and Innovation Cycle
- Small and Medium-sized Enterprises (SMEs)
- Social Sciences and Humanities (SSH)
- Gender Equality and Dimension in Research
- International Cooperation

The report contains 30 recommendations for the next Work Programme cycle 2016-2017. While the scope of the present report is able to go further than the earlier analysis which was based only on the Work Programme (content), it is still constrained by the limited data available. The report is partly based on statistical analysis from 33 concluded calls (approximately half of the calls launched in 2014), together with qualitative feedback from the European Commission services and the Executive Agencies, Observers' reports, some stakeholders, some Member States, and certain National Contact Points (NCPs).

# 1. Implementation of First Horizon 2020 Calls

## 1.1 The Work Programme and Information to Applicants

The first calls under Horizon 2020 were launched with the adoption of the first Work Programme on 10 December 2013. A comprehensive information campaign aimed at informing and mobilising the various stakeholder communities involved launch events in 34 countries. The response was very positive. Approximately 10,000 participants attended these events, many of them multipliers that organised further national and regional information activities. In parallel the different networks of National Contact Points were briefed on the new Framework Programme and applicable rules.

According to a study<sup>1</sup> of the **Participant Portal's** online systems for proposal submission (SEP), registration of participant's organisation (URF) and expert registration and payment (EMPP), **the online user survey produced positive feedback**. Three quarters of users offered positive or neutral responses which were more in the context of fine-tuning the usability of the system. In terms of scope, coverage of business processes and ambition to become fully electronic, the European Commission system is unique among the range of systems analysed. The underlying technology has been enhanced and a number of new features, functions and integrated processes introduced. It is also clear that Horizon 2020 represents a major step forward in terms of user friendliness. In particular, the improvements to the Participants Portal have been appreciated by the research and innovation community.

While acknowledging the easy navigation on the Participant Portal, some feedback found that the presence of the Work Programme and calls on the Participants Portal could be further enhanced. As it currently stands, the search tool on the Participant Portal allows applicants direct access to relevant topics, but as a consequence the overview of all the topics included in a call is less visible. For example, the full Work Programme itself, and related documents such as the overall strategy, policy guidance, and information on budgets was not immediately obvious. All the information related to a specific call should be easily accessible by applicants.

### **Recommendations (for Work Programme 2016-17):**

1. Ensure that Horizon 2020's IT system is continuously improved in response to user-feedback;
2. Improve the presentation of Work Programme on the Participant Portal to allow applicants to easily have an overview and retrieve all relevant information related to calls for proposals.

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<sup>1</sup> Ecorys Study, 2014.

### *Handling of applicants questions*

Since the launch of Horizon 2020, the volume<sup>2</sup> of enquiries handled by the **Research Enquiry Service (RES)**<sup>3</sup> has increased by 45 % but the **performance in handling these enquiries in a timely manner remains excellent**. Initial figures show that all direct questions made through the RES were answered or forwarded within eight days, with an average of three working days, while 94% of all questions were answered within 15 working days.

As the Commission no longer offers pre-proposal checks on questions directly related to proposal ideas, this means that the role of National Contact Points (NCPs) is even more significant in providing applicants with first-hand information on EU research and innovation funding. Equally important is the role of the Commission support services in providing information, in particular, to NCPs.

To help NCPs carry out their tasks a system of ‘hotlines’ was established to enable a rapid response from the Commission to questions raised by NCPs. These were either lists of project officers, or functional mailboxes to allow a dispatch of questions to the most appropriate service, and these channels were generally for NCPs only. The Research Enquiry Service was also available and when a questioner identified themselves as an NCP, the enquiry would be given priority.

During the first months of implementation, some concerns were voiced about the speed with which some of the NCP enquiries were dealt with via the system of hotlines. This can be largely attributed to the novelty of the programme, new businesses procedures and management modes. However, it is worth mentioning that overall the concept of hotlines works well. Feedback provided by the NCPs has been taken on board and measures are already being taken to further improve the system where relevant.

#### **Recommendations (for Work Programme 2016-17):**

3. Reinforce Commission efforts to help NCPs do their job;
4. Update regularly Frequently Asked Questions (FAQs);
5. Ensure that NCPs properly target their questions; while the Commission services will seek to improve the internal ‘no wrong door’ approach.

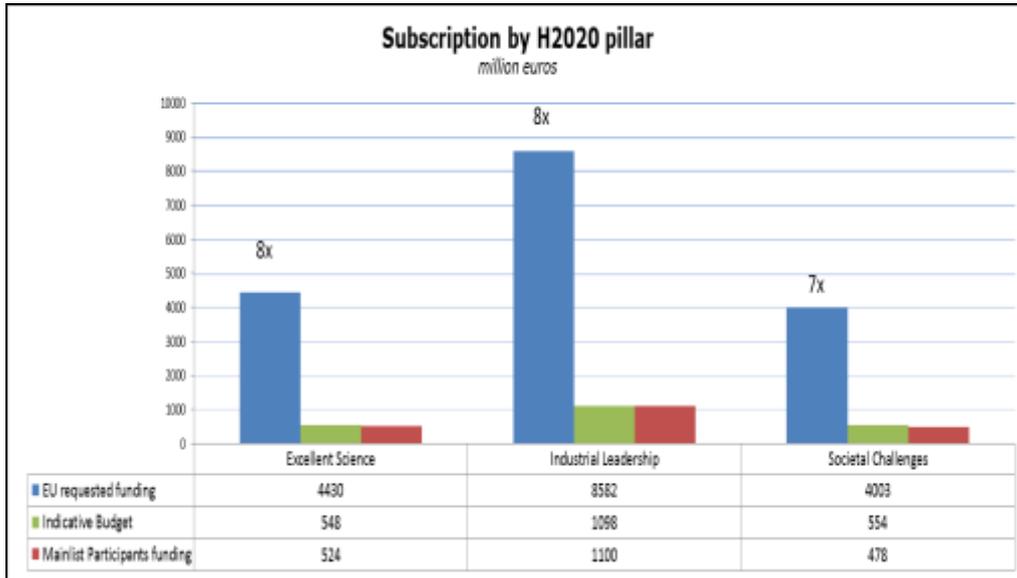
The Commission services would like to continue receiving feedback (both negative and positive) on NCP interactions. Such matters will continue to be addressed at the meetings of National Coordinators (the next one of which is currently planned for end October, 2014).

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<sup>2</sup> 1000 enquiries per month received in the first six months of Horizon 2020 against approximately 600 enquiries per month in the Seventh Framework Programme (FP7).

<sup>3</sup> The Horizon 2020 Research Enquiry Service (RES) managed by REA is the single entry point for questions received from applicants via the web or telephone.

## 1.2 Response to Calls



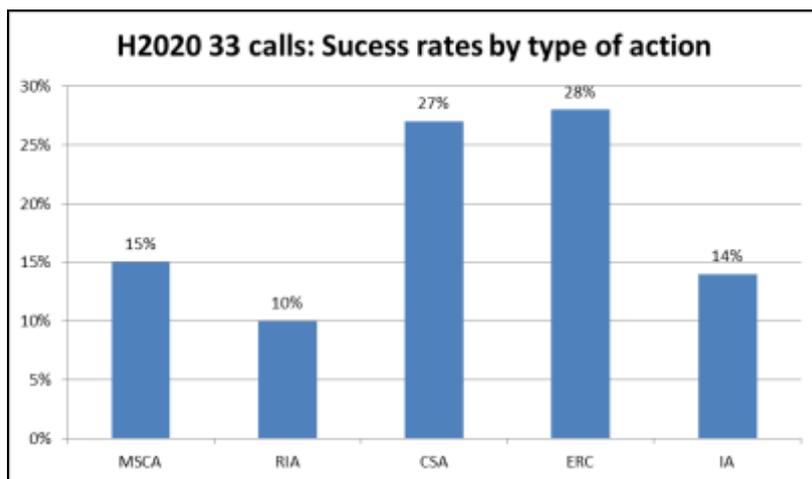
The large response to the first calls<sup>4</sup> confirms the attractiveness of the challenge-based approach and of the cross-border Research and Innovation collaboration and EU funding. In the first six months alone, more than 16,000 proposals were submitted. However, this means also tougher competition, high selectivity and a lower success rate (around 14%) than under the FP7 due to the significant over-subscription. The sample of 33 completed calls (comprising of 5,239 eligible proposals) which were single stage, shows an **oversubscription rate 8 times the available budget (compared to on average 5.5 times under FP7)**.

These early statistics indicate that a significant part of proposals above threshold could be funded. Roughly 27 % of applications above threshold were short-listed (i.e., proposed for funding).

The average number of applicants in eligible proposals was 8, and the average requested EU financial contribution requested by the applicants in eligible proposals was approximately € 3.25 million. It should be borne in mind that these figures give only a first general trend based on a limited sample, and the project size varies significantly. In the new SME instrument, for instance, the novel option for single participation has been very well received and massively chosen in phase 1 at the June 2014 cut-off date. 94% of all submitted proposals have been single company applications.

Looking at the type of actions with the lowest success rate, Research and Innovation (10%) actions had the highest subscription rates followed by Marie Skłodowska-Curie (15%), and Innovation Actions (14%).

<sup>4</sup> The data presented and conclusions drawn in this section of the report are preliminary and based on the limited amount of data available.



According to initial findings, the first-stage of two-stage calls<sup>5</sup> was a particular target for high oversubscription. For example Health calls had 626 proposals out of 1681 passing to stage 2. Energy received 391 proposals evaluated at first-stage, and 104 obtaining a score above threshold and passing to stage two.

The picture is, however, diverse. Some calls have recorded stable or even lower numbers of proposals submitted, for example in Leading and Enabling Industrial Technologies (LEITs) - Space. While not included in the sample, it is also worth noting that for the European Research Council (ERC) Starting Grants call there has been a flattening off in proposal numbers, suggesting that the extended 'demand management' measures (limit resubmissions by the same Principal Investigator for one or two years, depending on the outcome of the evaluation of the current proposal) are paying off.

Further data will be needed to analyse the extent of oversubscription and the reasons, which might vary according to programme part. Initial results may point to the pent-up demand following the end of FP7, and the research communities' keenness to benefit from the novel opportunities presented in Horizon 2020. Another probable reason could indicate the lack of Member State funding for certain types of research and innovation. It is also worth noting that in 2014, the EU budget for funding research and innovation is smaller compared to the last year of FP7 which means that certain call topics could only afford to fund a specific number of projects.

In designing the Work Programme 2014 and 2015, the objective was to reflect the strong challenge-based approach of Horizon 2020, allowing applicants to have considerable freedom to come up with innovative solutions. There are strong indications that this was liked by the research and innovation community. The impact on oversubscription will be further analysed to show whether certain aspects of the challenge-based approach should be adapted, for example by further clarifying impact statements of call topics (envisaged applications, end user involvement etc.), including exploitation and dissemination of results.

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<sup>5</sup> First-stage of two calls not included in the sample of 33 single-stage calls.

**Recommendations (for Work Programme 2016-17):**

6. Adapt call conditions for two-stage evaluations ensuring a 1:3 (budget-wise) success rate in the second phase;
7. Maintain the challenge-based, non-prescriptive approach, but improve the clarity of topic descriptions and, in particular, of the impact statements.

### 1.3 Proposal Evaluations

#### *Experts*

Early indications identified in various sources such as the Observers' reports, and reports from the individual services, show evaluation panels were composed of a **good mix of experts** from a wide range of disciplines, geographical background, and organisational typologies. Efforts were also made to ensure that representation of women experts in the evaluation panel corresponded to at least 40 % even in sectors where this would be difficult to achieve such as for Space. There was also a good representation of experts from non-academic organisations.

The expert database as it currently stands contains 60,000 validated expert profiles<sup>6</sup>. Around 30% of them are women. Even though these figures are high, there is a risk that women experts might be used more than their male counterparts. This relation between expert rotation and gender balance needs to be monitored. Either way, the representation of experts with a background in innovation including business planning also needs to be increased. It should also be mentioned that although observers noted a good mix of experts, they were not able to provide feedback on the quality of the expertise provided.

Based on the feedback received from Commission services and agencies there were some teething problems encountered concerning the management of experts' contracts. In particular, the time taken to validate experts was subject to delays which meant that in some cases expert contracts were signed a few days just before the start of the remote evaluation. However, these problems have been brought to the attention of the services concerned and are currently being reviewed with a view to improving the procedure.

**Recommendations (for Work Programme 2016-17):**

8. Reinforce efforts to attract more women experts, and experts specialising in innovation and business planning;
9. Develop a methodology to measure the quality of expertise provided in evaluations;
10. Review the process for contracting experts with a view to simplifying procedures.

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<sup>6</sup> Experts for ERC evaluations are invited by the ERC Scientific Council and not selected from the expert database.

## *Evaluations*

According to feedback from experts, the overall **evaluation process** for the first Horizon 2020 calls was excellent, with only minor considerations to be taken on-board. The EU evaluation procedure rates **continues to be rated as one of the best in the world**. Experts also concluded that the new system represented an improvement over previous Framework evaluation systems. The two-step approach to the evaluation procedure which includes a remote individual evaluation and a central consensus on-site meeting has been regarded for instance as a well-functioning system by many of the experts involved.

The standard briefing material<sup>7</sup> provided was found by experts to be of good quality, sufficiently detailed, and well-structured. However, some experts expressed concerns regarding the interpretation of the criteria and certain associated and new concepts (e.g. innovation management, business planning). When there are specific references in the Work Programme regarding synergies with the European Structural and Investment Fund (ESIF), these need to be explained to experts. In general, sufficient time should be given to explain criteria and new concepts to evaluators. The briefing material and information for applicants will continue to be further developed in response to feedback.

### **Recommendations (for Work Programme 2016-17):**

11. Update the evaluation standard briefings and guideline documents, including information for applicants; and review the evaluation process in response to the feedback received.

## **1.4 Feedback to Applicants and Implementation**

The **simplification measures** under Horizon 2020 are expected to contribute directly to a shorter time-to-grant (TTG), in particular through simpler legal validation of beneficiaries, a self-assessment tool to validate SME status, and fewer financial viability checks and simpler proposal submission forms. The **new generation of IT systems** for handling proposals and grants without lengthy paper circuits (electronic signatures) and the simplification of business processes will also contribute, to reduce red tape for applicants and to ensure compliance with the eight month time-to-grant obligation decided by the co-legislator.

Grant negotiations, a known bottleneck in FP7, are no longer applicable in Horizon 2020. Initial findings from the Observers' Report show that evaluators were well aware of what the no-negotiation methodology meant, that is, a different approach by them as well as increased responsibility. Even though experts are still able to identify shortcomings (and successful applicants still have the opportunity to incorporate these in their proposals), there were some concerns over the fact that experts no longer make recommendations. However, given that most of the calls are now in the grant preparation phase, the current data available is not robust enough to draw conclusions.

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<sup>7</sup> Standard briefing developed by EC services and consisting of a series of Power Point slides.

It is also too early to provide a quantitative report on the implementation of the new TTG rule, but, so far, deadlines have been respected. The Commission will closely monitor the statistics as they come in. One issue that has been raised by stakeholders is the consequence of the “5+3 months”, whereby applicants generally receive evaluation results much later than was the practice under FP7, namely after five months.

With regard to the Evaluation Summary Report (ESR) produced for each proposal, concern was raised regarding the different levels of feedback provided to applicants, in stage-one of two-stage calls. In one case<sup>8</sup> standardised phrases were used, in line with the Work Programme provisions, instead of tailored-made comments. This approach aimed to facilitate fast and efficient evaluations in the face of high volumes of proposals, bearing in mind also that first stage proposals under this challenge were only required to be seven pages long. However, concerns have been voiced over the brevity of the phrases used. At present there are no systematic complaints over the quality of first-stage ESRs arising from other parts of H2020. In any case, one of the lessons learned is that richer feedback to applicants will be provided in the future, including using a richer set of standardised phrases at stage one of two-stage calls. This is also applicable to the first phase of the SME instrument.

**Recommendations (for Work Programme 2016-17):**

12. Develop a set of minimum standards on ESR feedback (applicable immediately), and further alignment of practices, starting with the 2016-2017 Work Programme;
13. Carry out further monitoring of implementation processes, particularly when they affect applicants.

Regarding other issues, the handling of costs incurred in euro by beneficiaries in non-euro-zone countries has been a topic addressed in the initial feedback provided by applicants and one in which the Commission has already followed up on.

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<sup>8</sup> SC1 - Health Challenge.

## 2. Key Features and Novelties

### 2.1 Covering the full Research and Innovation Cycle

Horizon 2020 promotes a natural integration and continuum between research and innovation activities, in particular in the pillars Industrial Leadership and Societal Challenges. Innovation and activities close to the market are particularly promoted. The new dedicated funding opportunities for *Innovation Actions* have been very well taken up so that the success rate for this type of action is also rather low (14%) in the sample investigated. Overall around 100 topics in the Societal Challenges and the LEITs part of the Work Programme 2014-2015 are devoted to *Innovation Actions* corresponding to a budget of nearly €2 billion.

Another positive finding is the good participation of industry, including SMEs, in the first Horizon 2020 calls. The participation of the private sector is particularly high in both the Industrial Leadership and Societal Challenges pillars: 43% in terms of main-listed applicants and 41% in terms of share of requested funding. The overall share of private sector participation amounts to 37% in terms of main-listed applications and 35% in terms of requested EU funding. The corresponding FP7 rates are 29% and 32% respectively. Under the 2014-2015 Work Programme the engagement of industry is notably fostered by, among other things, around €800 million in funding for contractual Public Private Partnerships and € 513 million for the SME instrument.

In this context it is worth highlighting the introduction of Technology Readiness Levels (TRLs) in the Work Programme 2014-2015. Topics addressing higher TRLs usually require higher involvement of industry within projects. Mentioning the expected TRLs within the call/topic description has been welcomed as useful by applicants as well as evaluators. At the same time there were some demands to further fine-tune the definitions of the TRL levels and/or to provide specific interpretations for certain sectors or applications/technology fields.

In June 2014, a new generation of EU financial instruments and advisory services was launched, in cooperation with the European Investment Bank Group (EIB and EIF), to help innovative companies access finance more easily. The 'InnovFin – EU Finance for Innovators' products are expected to make available more than € 24 billion of financing for research and innovation by small, medium and large enterprises and the promoters of research infrastructures.

For an assessment of the new instruments supporting demand side approaches such as innovation procurement and inducement prizes, it is still too early. Data and first experiences are being gathered. The fact that no proposals have been submitted to three topics under the LEIT Information Communication Technologies (ICT) offering support to *pre-commercial procurement* is being analysed. The Fast Track to Innovation pilot is still to be launched as well as five *inducement prizes*<sup>9</sup> foreseen in the current Work Programme. They aim to solve

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<sup>9</sup> The five inducement prizes include one on design-driven innovative material solutions to reduce particulate matter air pollution in urban areas (prize money of EUR 3 million), an innovative test to reduce the use of antibiotics in the management of upper respiratory tract infection (EUR 1 million), a food scanner-eHealth (EUR 1 million), a solution enabling a significant efficiency improvement in the usage of scarce spectrum resources (EUR 500,000) and a major optical transmission breakthrough solution (EUR 500,000).

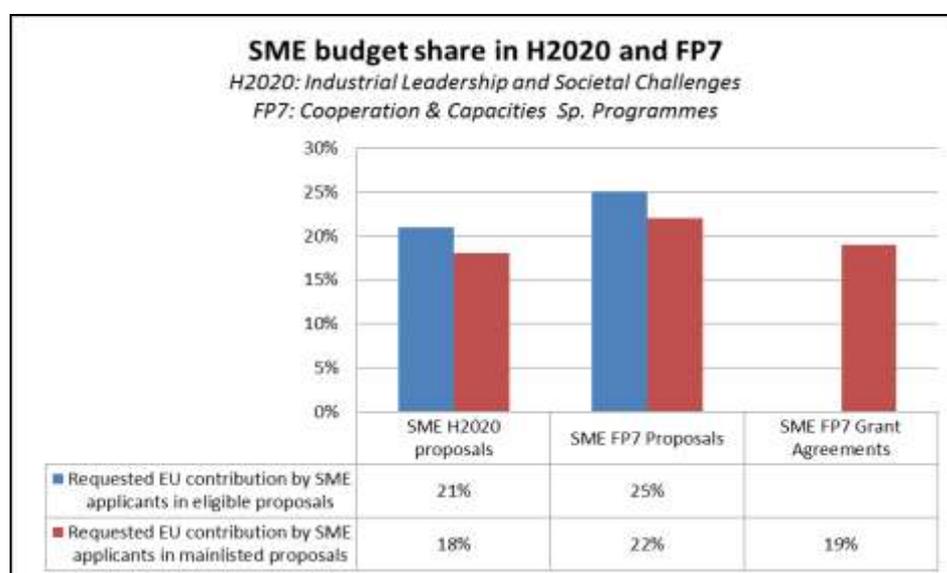
specific problems of societal interest without prescribing how the well-defined target may be achieved. Experience and research have shown that inducement prizes can be very effective in accelerating the advancement of technology, boosting R&I investment and finding novel solutions while also drawing the public interest to R&I achievements. The package of five inducement prizes in the Work Programme 2014-2015 is the first step in using this form of funding in Horizon 2020. More ambitious prizes with a longer duration are envisaged for the future.

**Recommendations (for Work Programme 2016-17):**

14. Make better use of the new instruments promoting innovation in the new Work Programme cycle and monitor the uptake as well as the implementation of these instruments;
15. In line with the specific challenge/priority being addressed, continue to use a tailored approach to priority setting, budget allocation and choice of best research and innovation instrument, especially with view to impact (including exploitation and dissemination);
16. Continue and, where appropriate, reinforce the broad approach to innovation extending beyond technological and research-based innovation. More emphasis in topic descriptions on issues like process, organisational and service innovation, social and public sector innovation, eco-innovation etc.

## 2.2 Small and Medium-sized Enterprises (SMEs)

Horizon 2020 is attractive for SMEs. According to the early call statistics SME participation in the LEITs and the Societal Challenges is estimated to be 24% in terms of applicants and 21% in terms of requested EU finding. In the first main-listed proposals the shares amount to 21% and 18% respectively. In FP7 grant agreements 22% of participants were SMEs receiving overall 19% of EU funding. These first figures indicate a similar level of SME participation as in FP7 while the full impact of the new SME instrument funding (€ 513 million in 2014/15) has not yet kicked in. Nevertheless, further efforts will be undertaken to include SMEs in collaborative projects more efficiently and to achieve the objectives of SME participation. The substantial budget increase for the SME instrument in the Work Programme 2016-2017 will contribute to reaching this goal.



The new SME Instrument was successfully launched in March as a continuously open call. It has immediately been taken up by the SME community attracting many small companies new to FP funding (around 70%). At the first cut-off date in June, a total of 2,602 eligible proposals had been submitted for phase 1 of the SME instrument, and a further 1,944 proposals by the second cut-off date in September. 155 proposals from the first cut-off date will receive funding. As expected, the success rate of this very competitive scheme is rather low (6%) in phase one. However, every other 'good' proposal will be supported, i.e. 49% of proposals over the threshold.

The majority of proposals did not meet the expected high standard (88 % of proposals below threshold of 13 points overall) mainly due to a lack of orientation towards business opportunities, unconvincing business case, not enough information on competing solutions, low-innovation level (just incremental improvement), and no or insufficient commercialisation concept. The companies selected for funding are mostly young, but a majority has business experience (around 40% between 4 and 10 years), and also well-established enterprises presented convincing radical innovation ideas (25% more than 11

years old). More than half of them have less than 11 employees, 35% between 11 and 50 employees and 11% more than 50 employees.

Applicants did not use the advantage of the continuous submission and evaluation and predominantly submitted very shortly before the cut-off date (85% arrived within 48 h before cut-off). Therefore, the evaluation and management of proposals was more demanding than anticipated. This might call for more cut-offs per year (e.g. every two months). Although the SME instrument attracted so many newcomers requiring validation, the time-to-contract of three months in phase 1 seems achievable.

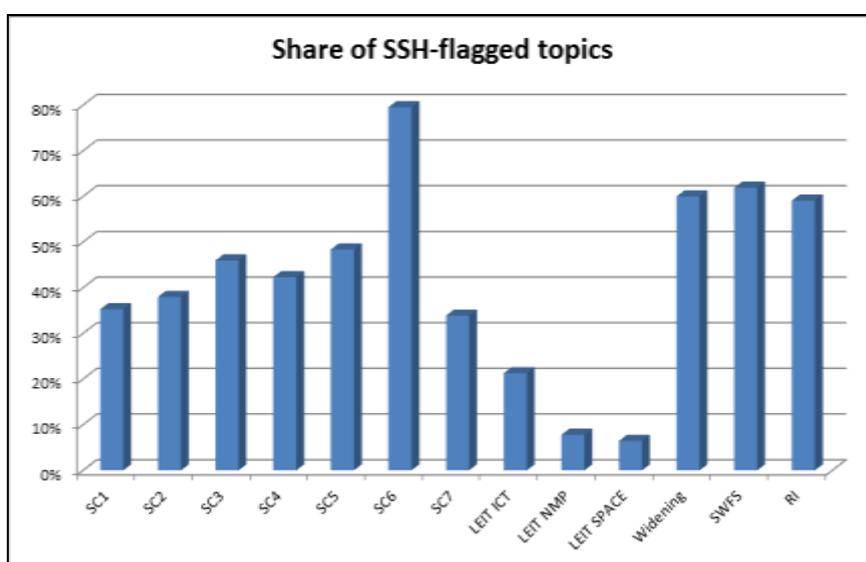
The SME instrument is applied in a bottom-up manner by all Societal Challenges and LEITs defining broad topics and providing the budget, whereas it is operated by a single agency, the Executive Agency for Small and Medium-sized Enterprises (EASME) ensuring a uniform and efficient implementation. Since the beginning of 2014, EASME has built up the capacity to manage this complex scheme. Despite the tight time schedule and high demand the launch has been smooth and received positive feed-back from stakeholders. Any teething problems will be tackled as quickly as possible, notably providing NCPs with timely and comprehensive information as well as a better level of feedback to applicants.

**Recommendations (for Work Programme 2016-2017):**

17. Continue monitoring of SME participation in response to the first calls for collaborative projects and other grant-based instruments;
18. For the SME instrument:
  - Improve the presentation of the SME instrument opportunities on the Participant Portal;
  - Ensure the possibility that successful Phase 1 projects may apply for phase 2 funding in 2016 and later;
  - Significantly increase financial allocation to the SME instrument to reach the 7% target.

## 2.3 Social Sciences and Humanities (SSH)

Social Science and Humanities (SSH) are set to receive a real boost under Horizon 2020 due to their importance for tackling the challenges faced by Europe. The number and range of topics with SSH relevance is considerably larger in Horizon 2020 than in the 7th Framework Programme. As outlined in the assessment of the Work Programme, on average 37% of the topics in the Societal Challenges, LEITs, Science with and for Society, Spreading Excellence and Widening Participation, and Research Infrastructures combined are flagged as SSH-relevant in the 2014 and 2015 calls. In addition, the SSH play a major role in the Societal Challenge,-Inclusive, innovative and reflective societies where 80% of topics are flagged for SSH.



Further quantitative and qualitative analysis based on 40 unevenly distributed SSH-flagged topics indicates that SSH expertise was well represented in the corresponding evaluation panels. Out of the 688 evaluators appointed, 10% had a background in one or more SSH disciplines while 42% had an interdisciplinary background in both SSH and non-SSH disciplines or in hybrid disciplines with an SSH component. Overall, 357 out of the 688 experts had some type of SSH expertise, which amounts to 52% of the experts.

The briefing package for experts contained specific guidance on the integration of embedded issues such as the SSH. At this stage, there is no solid evidence available on how this guidance has been applied in the evaluation process. However, preliminary feedback indicates that improvements are still needed and that SSH experts must be provided with better opportunities to voice their expertise in the evaluation process. A survey of the expert evaluators is envisaged and expected to provide further insights.

The first analysis also reveals that SSH aspects are not covered in a consistent manner in Evaluation Summary Reports (ESRs) and Observer Reports. To correct this situation, the ESR section on trans-disciplinarity assessment under the 'Excellence' criterion should be used to

accommodate evaluations of SSH contributions in proposals. Also, observers should be requested to specifically address cross-cutting issues in their report.

With regard to the content of the proposals retained for funding, the analysis has been confined to proposal abstracts and is, therefore, limited in scope. The results indicate that 60% of retained proposals for a sample of 20 SSH-flagged topics provide good or fair coverage of SSH in the abstract. This suggests room for improving the link between the disciplinary expertise required in the text of topics and the disciplinary makeup of retained proposals.

The Excellent Science pillar is another source of significant support for SSH research. Currently, 11% of the budget of the Marie Skłodowska-Curie actions and 17% of the European Research Council (ERC) budget is dedicated to SSH. From 2015 on, the ERC will no longer pre-define budget envelopes for its three main scientific domains (life sciences, physical sciences and engineering, and social sciences and humanities). Instead, the budget allocation to each panel will be determined by demand. Based on past trends, around 20% of the total budget could go to SSH, which would mean funding of around 2.6 billion euro in Horizon 2020. This constitutes around 1.3 billion euro more than in the FP7 programme.

**Recommendations (for WP 2016-2017):**

19. Pursue a proactive integration of SSH aspects during strategic programming and Work Programme development to ensure that contributions from a wider variety of SSH disciplines are fully integrated throughout the R&I cycle;
20. Improve the wording of topics that invite SSH contributions in collaboration with non-SSH disciplines such as the natural and physical sciences, medicine or technology;
21. Ensure consistent delivery of SSH-specific briefing to evaluators, especially when it comes to evaluators of SSH-flagged topics;
22. Continue the monitoring of SSH embedding in terms of composition of evaluation panels and presence of SSH content in retained projects for SSH-flagged topics.

## 2.4 Gender Equality and Dimension in Research

There are various provisions concerning gender equality in Horizon 2020. The ones considered for this preliminary assessment of the first calls concern gender balance among evaluators and the gender dimension in research content.

A balanced composition of evaluation panels is sought in terms of gender with neither sex representing less than about 40% of the total number of experts. The Observers' reports recorded a good representation of women experts in evaluation panels of the first Horizon calls. However, only 37% of the topics respected the target. In approximately 45 % of the topics, the share of women experts was equal or above 40 %, while in 7% of the topics, the share of men was below 40 %. Overall, women accounted for 35 % of the evaluators at topic level.

This also reinforces the requirement to increase the relatively low share (around 30%) of women in the expert database and, thereby, ensuring that a good gender balance can be achieved in future evaluations.

As regards the gender dimension in research content, it is explicitly integrated in more than 100 topics across almost all sections. These topics are flagged on the participant portal to ease access for applicants<sup>10</sup>. This should not, however, prevent applicants of non-flagged topic from including a gender dimension in their proposal if they find it is relevant.

A preliminary analysis of proposals submitted to six topics, three flagged ones and three non-flagged ones, was done in three different fields, namely Health, ICT and Transport. It shows that the mention of gender issues is more frequent in proposals responding to flagged topics.

### **Recommendations (for Work programme 2016-17):**

23. Continue to address the gender dimension upstream when preparing future Work Programmes and increase awareness among applicants, NCPs and evaluators on what the gender dimension in research content means and encompasses;
24. Identify new and more gender-related topics as well as specific studies in order to develop a better understanding of the role of gender in Horizon 2020 domains/challenges such as climate change, energy, cities, etc.;
25. Go beyond generic language and propose more meaningful wording in future Horizon 2020 topics; as part of this include the gender dimension under the “impact” part of topics;
26. Develop guidelines/methods for monitoring and assessing the inclusion of the gender dimension in the various domains of Horizon 2020.

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<sup>10</sup> Listed under

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/ftags/gender.html#c,topics=flags/s/Gender/1/1&+callDeadline/desc>

## 2.5 International Cooperation

Horizon 2020 is fully open to international participation and targets strategic areas of cooperation with key international partner countries and regions. 20% of all topics in Work Programme 2014-15 have been flagged as being specifically relevant for international cooperation, with the intensity of targeted actions varying across the different parts. However, with the move to broader and less-prescriptive topics, there has also been a shift towards encouragement rather than eligibility criteria for stimulating international cooperation.

The first batch of Horizon 2020 calls analysed covers only a minor part of Work Programme 2014-15 (mainly topics under ICT, Nanotechnology advanced materials, advanced manufacturing and processing – biotechnology (NMP-B), Energy and Health), and some areas with high levels of international participation under FP7 are not represented in the batch (e.g. Bio-economy/food and Climate change/environment). Nevertheless, some indications are worth noting.

Although comparison with FP7 figures shall be done with caution at this early stage of Horizon 2020 implementation, provisional results<sup>11</sup> indicate a significant drop in participation of international partner countries. This is true in terms of both numbers of participations (nearly 5% under the FP7 Cooperation and Capacities Programme) and budget allocations (around 2% under FP7).

It appears that a large part of the drop could be explained by the fact that five large emerging economies (Brazil, Russia, India, China and Mexico) are no-longer eligible for automatic funding, but a considerable decrease in participation is also observed for other international partner countries.

Among the main-listed actions in the calls concluded so far, support is proposed for international cooperation flagship initiatives such as the Global Research Collaboration for Infectious Disease Preparedness, the Global Alliance for Chronic Diseases, the International Rare Diseases Research Consortium<sup>12</sup>, and the EU-Japan cooperation in the area of critical networks and computing platforms<sup>13</sup>.

International cooperation is also essential to pursue the most promising avenues at the frontier of science. In FP7 around 3% of applications for ERC Starting and Consolidator Grants came from Principal Investigators based in third countries. In total, around 7% of the 4,500 ERC grantees and 17% of the ERC team members were nationals of third countries, with the largest groups from China, USA and India. Response to the 2014 ERC calls show similar levels of third country participation. Increases in participation are expected from the implementing arrangements with USA and Korea, and further arrangements with other countries such as China, Mexico and Japan are under discussion.

Promoting international research careers, networking and staff mobility is also crucial to enhance global cooperation. Nearly 24% of the 50,000 FP7 Marie Curie fellows were

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<sup>11</sup> Excluding Switzerland from the calculations.

<sup>12</sup> Cf. topics under the Health Coordination Activities call with an indicative budget of around € 17 million.

<sup>13</sup> Cf. EU-Japan R&D Cooperation in the Net Futures call with an indicative budget of € 6 million.

researchers from third countries. First results from the 2014 Marie Skłodowska-Curie calls indicate similar levels of attraction of international talent. The successful involvement of organisations from international partner countries continues in the first calls launched under the Marie Skłodowska-Curie actions. In the Research and Innovation Staff Exchange (RISE) scheme, which promotes international and inter-sector collaboration, for example, 28% of participations in main-listed actions are from international partner organisations.

On 11 September 2014, the Commission adopted a progress report on the implementation of the strategy for international cooperation in research and innovation<sup>14</sup>, including multi-annual roadmaps for international cooperation with key partner countries and regions. These roadmaps offer the general framework for strategic programming and future Work Programme development.

**Recommendations (for Work Programme 2016-2017):**

27. Support flagship initiatives (bilateral/multilateral) with sufficient budgets and adequate instruments within the framework provided by the multi-annual roadmaps for international cooperation;
28. Support horizontal actions that promote Europe as leader in R&I attract international partners to Horizon 2020, while reinforcing the European presence in targeted partner countries/regions, and boosting research and innovation cooperation with local partners;
29. Provide for direct funding of third country partners, in particular from the BRIC-M countries, in carefully selected cases where specific themes and topics are considered to be of strong EU (and mutual) benefit;
30. Develop adequate framework conditions for engaging in cooperation, including stimulating international partner countries to set up matching funds systems.

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14 <http://ec.europa.eu/research/iscp/index.cfm?lg=en&pg=strategy>

## Conclusions

Horizon 2020 has had a very promising start with a simplified two-year Work Programme implementing the new challenge-based approach and integrating EU policy objectives through a strategic programming process, with robust user-friendly and self-explanatory IT systems and with improved guidance and documentation for applicants (e.g. annotated model grant agreement). Some teething problems were fixed immediately; other issues identified in this report will be tackled in the short-term, others require a more in-depth analysis.

The large response to the first calls indicates that the right priorities have been set meeting the demand for cross-border Research and Innovation cooperation in strategic and forward-looking areas. It also implies that the efforts, including the opening of topic descriptions, have attracted a wider range of applicants, notably from industry. The potential drawback of this positive trend is, however, an increased oversubscription and lower success rate which means, on the one hand, higher selectivity fostering excellence, but, on the other hand, may render the programme less appealing in the long-term. Despite the resulting pressure on evaluation systems, the excellent standards in terms of expert selection and evaluation process were maintained. All aspects of the process will be continuously monitored and corrective measures taken when and as necessary.

Lessons learned from the first Horizon 2020 calls will feed into the preparation of the Work Programme 2016-2017. The 30 recommendations in the report can be summarised as follows:

- Continue the challenge-based approach in delivering topics while improving their clarity where needed for e.g. tightening the impact requirements so as to better focus applications;
- Address key features and novelties upstream in the Work Programme preparation cycle to ensure embedding in the priority setting as well as the implementation;
- 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;
- Make better use of the whole toolbox of funding instruments, including those promoting innovation like pre-commercial procurement (PCP) or public procurement of innovative solutions (PPI) co-fund actions;
- Improve the presentations of calls on the Participant Portal so that the structure reflects the Work Programme, allowing applicants to easily retrieve all relevant information related to calls;
- Conduct further analysis of the oversubscription of calls and devise concrete measures to effectively manage large demand, notably in two-stage calls;
- Strengthen efforts to attract expert evaluators, in particular more women, experts with a background in innovation and business planning, and further improve the expert briefing;
- Continue monitoring the implementation of calls and ensure an adequate level of feedback to applicants.

## **Next Steps**

The assessment of the first calls under Horizon 2020 will be complemented by further in-depth analysis and feedback from a wider audience (e.g. applicants and evaluators), including following planned meetings before the end of 2014 with Member States (October 16) National Contact Point Coordinators (October 22), Observers and umbrella stakeholder organisations.