

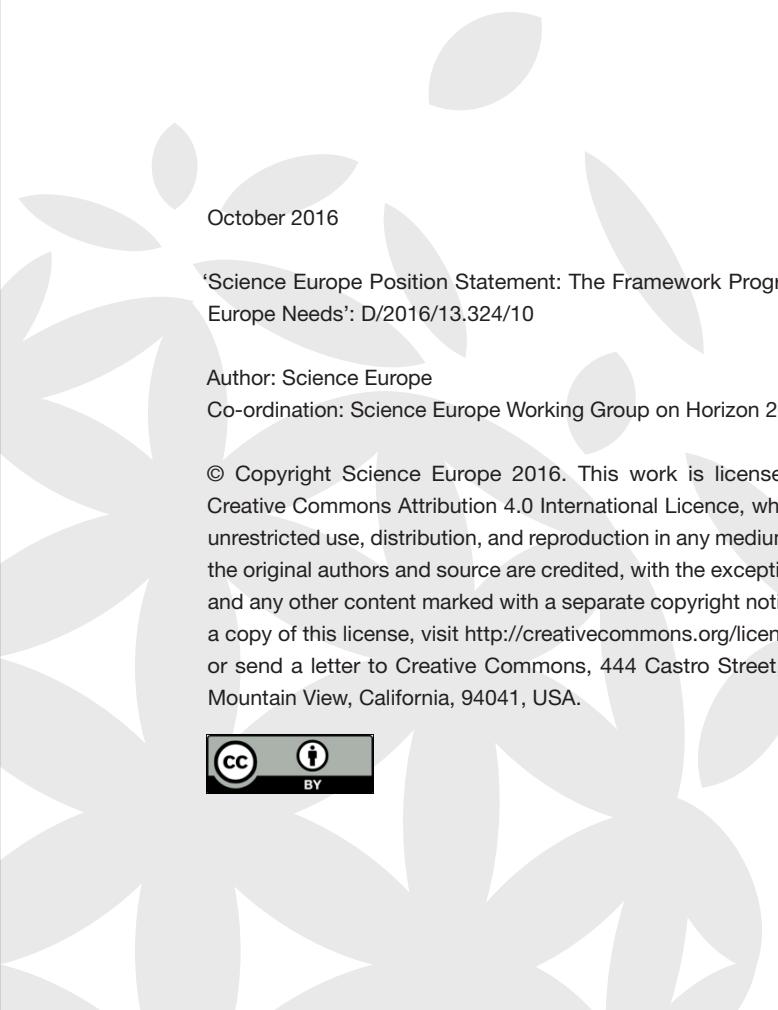
# Science Europe Position Statement



The Framework Programme that Europe Needs  
OCTOBER 2016

*Contribution to the Horizon 2020 Interim Evaluation:  
Lessons Learnt and the Way Forward*





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# The Framework Programme that Europe Needs

European co-operation in research contributes to knowledge building and to social and economic prosperity in a continent that needs it more than ever. Not only the European Union (EU), but the whole of Europe, currently faces multiple crises and challenges. Although they may be different in nature, several of them directly threaten European scientific co-operation: the migration and security crisis is putting increasing pressure on the EU budget; the United Kingdom's decision to leave the EU potentially hinders the participation of excellent researchers in future European Framework Programmes (FPs) whilst also putting additional pressure on the EU budget; and political developments in Turkey undermine the academic freedom and the autonomy of its universities.

Knowledge, co-operation and openness must be at the core of Europe's response to these challenging times. Science Europe calls for a strong European co-operation in research and innovation that stands aside from political turmoil, so that Europe's knowledge base can continue contributing to the well-being of society and the competitiveness of Europe in the world.

While it is crucial to give detailed feedback on the current FP, Horizon 2020, and on how European FPs can concretely be improved in the future, Science Europe wants to emphasise the essence of what European research co-operation should be: an arena where excellence is a path for all to follow, and where boundaries and barriers do not hamper the quest for knowledge and the creation of long-term cultural, social, environmental and economic value for society.

Furthermore, any European FP should embody core European values and integrate scientific independence, openness, diversity, high ethical standards, and gender equality so that it can meet the needs of its citizens.

Horizon 2020, the current EU Framework Programme for Research and Innovation, is undergoing its interim evaluation, which should “contribute to improving the implementation of Horizon 2020 and will provide a solid evidence base for designing future activities and initiatives”.<sup>1</sup>

As a key European Research Area (ERA) stakeholder, representing the collective interests of 47 European Research Funding Organisations (RFOs) and Research Performing Organisations (RPOs), Science Europe wishes to share the extensive experience and collective views of its members. In releasing this statement Science Europe wishes to launch and maintain an open dialogue throughout the interim evaluation process and the preparation of the next FP.

As an organisation of both public RPOs that are among the main beneficiaries of the FPs and RFOs who have decades of experience in setting up world-leading research programmes, Science Europe firmly believes Europe needs and deserves a research programme which:

#### ► **Is focused on excellence**

To achieve Horizon 2020’s expectations and to further strengthen Europe’s knowledge base, excellence should be the key principle of the FP. Excellent frontier and curiosity-driven research and innovation, promotion of internationally outstanding talents, and access to world-class research infrastructures must remain cornerstones of EU funding in the future.

#### ► **Demonstrates a clear added value**

In Horizon 2020 and its successor programmes, EU actions should play a role that cannot be played at national level. Examples of clear European added value include the European Research Council’s (ERC) role in fostering Europe-wide competition, the support of Research Infrastructures (RIs) as a fundamental part of the European research system, the support of collaborative research to solve societal challenges that cannot be addressed purely with national efforts, and the uncomplicated Marie Skłodowska-Curie Actions (MSCA) funding, fostering mobility for the benefits of researchers’ careers.

#### ► **Links excellent research with innovation and benefits society**

Science Europe welcomes the introduction of the ‘three priorities’ structure in Horizon 2020, ‘Excellent Science’, ‘Industrial Leadership’ and ‘Societal Challenges’. However there should be better complementarity and co-ordination between the three priorities and their funding instruments. The concept of ‘Technology Readiness Level’ (TRL), as currently used, fosters linear thinking about innovation, which fails to take into account the full extent of the contributions that science makes to society. This contribution should be appropriately considered, starting with a notion of impact that is broader than economic impact, and that fully and equally embraces the contributions that science makes to the environment, to public health, to societal well-being and to culture. There should be more room for bottom-up, collaborative research in the FP, in particular in the Societal Challenges priority.

#### ► **Is driven by a strategic approach to international co-operation**

Europe should be open, but strategically so. Horizon 2020 suffers from a significant reduction in collaborations with major international partners. Current and future FPs should have a strategic vision and structure to support Europe’s role as a major research and innovation

player in a highly competitive global environment, and use this as an opportunity to diffuse European values.

#### ► **Integrates Open Science**

Horizon 2020 and future FPs must support the researcher-driven transition to new ways of conducting science. Open Access and data re-use increase the circulation of knowledge, spark innovation and foster collaboration on a global scale. The Open Access Policy in Horizon 2020 is a success and should be continued.

#### ► **Has a sufficient budget to realise its ambitions**

Over the past few years the Horizon 2020 budget has been subject to cuts, while its objectives remain as ambitious as ever. Furthermore the success rate for Horizon 2020 has dropped to 13% from the 20–22% enjoyed by the predecessor programme (FP7). It is essential to protect, or even ring-fence, the grant-based budget dedicated to science for the remainder of Horizon 2020 so that Europe fully realises its research and innovation potential.

#### ► **Is clear, simple and transparent in its implementation**

Science Europe welcomes the simplification measures introduced in Horizon 2020. However, current and future FPs should aim to further clarify, simplify and increase transparency in areas such as strategic programming, the number of funding instruments, the use of external structures (such as Joint Technology Initiatives (JTIs) and Public-Private Partnerships (PPPs)), the evaluation of projects, and also the monitoring and evaluation of programmes. Further simplification and more clarity should also help address the key issue of the low success rates in Horizon 2020.

Horizon 2020 is a unique programme worldwide, widely appreciated and with an ambitious agenda. It can deliver what is expected from it as long as its nature as a programme capable of supporting excellent research is reinforced. It is important to recognise that the interim evaluation cannot and should not highlight only immediate wins – achieving European added value can be a long-term process.

There is no blueprint for tackling many of the challenges listed here, which is why Science Europe is ready to contribute to the discussions and provide its expertise as a key research stakeholder in the ERA. The next steps in the Horizon 2020 interim evaluation and the formulation of high-level recommendations, which will help prepare future FPs, is a golden opportunity for an open dialogue on the type of research programme that Europe deserves.

# Annex – Rationale and Examples

## I. A Programme Focused on Excellence

Horizon 2020 contributes to the knowledge economy by facilitating collaboration between the best researchers and by funding the best quality research with high potential for long-term, sustainable impact. It also provides opportunities to test ‘High-Risk High-Gain’ ideas that, over time, could lead to radical innovations. Excellence should be the key principle of FPs so that they can meet the expectation of strengthening Europe’s knowledge base.

Excellent frontier and curiosity-driven research and innovation, promotion of internationally outstanding talents, and access to world-class research infrastructures must remain cornerstones of EU funding in the future. All Horizon 2020 grant-funded projects and financial instruments should foster sustainable and desired innovations. Responsible Research and Innovation (RRI) needs to be considered throughout the FPs.

Science Europe strongly supports the ERC and its role in strengthening competition in research at European level while also helping to achieve and sustain research excellence. As shown by the analysis carried out by the ERC Executive Agency,<sup>2</sup> the funding of curiosity-driven ‘High-Risk High-Gain’ research delivers significantly above-average scientific impact. It also provides benefits to society, development of policies and the economy.

Instruments such as ERC grants and MSCA as well as the Future and Emerging Technologies (FET) programme contain key components that will build a strong science base which is ready to tackle current and future challenges, as well as contributing to future solutions, products and business models. These instruments must be strengthened in the last programming period of Horizon 2020, also in view of raising the success rates.

### **Excellence as a Means to Solve the Knowledge Divide**

Excellent research needs a robust basic infrastructure on which to grow. This includes a strong education system, physical and virtual facilities to perform research, career development possibilities for early-stage researchers, and a political and social culture that appreciates and supports the value of research and innovation. Building and sustaining this necessary underlying infrastructure is primarily the responsibility of each Member State. Assisting them is exactly what the European Structural and Investment Funds (ESIF) are for.

FP funding should be exclusively used for funding research and innovation. In addition, it should help avoid, rather than cause, negative effects such as ‘brain-drain’. To have an impact, initiatives such as the ‘Spreading Excellence and Widening Participation Programme’ and schemes such as ‘Teaming and Twinning’, need to be adequately funded and have better synergies with ESIF.

Evaluations and selection procedures should only find and select on the basis of the scientific value of proposals, regardless of factors such as the administrative capacity of an institution or its accounting system, which have little to do with the quality of the research proposed.

Although no blueprint is readily available, efforts must be made to reverse ‘brain-drain’ effects by either developing specific measures and incentives or supporting beneficiaries in developing their own measures and incentives. In addition to making efforts to reverse ‘brain-drain’, Horizon 2020 must also make sure that barriers for newcomers are lowered.

To reflect on appropriate solutions to the knowledge divide, the concentration of funding at institutional level should continue to be monitored, as per the methodology used in the Ex-Post Evaluation of FP7.

## **II. A Programme with Clear European Added Value**

EU actions should play a role that cannot be played at national level but also be designed to allow for a good interplay with national research and innovation systems, as well as structural funds. This would provide clear European added value and contribute to the realisation of the ERA. Horizon 2020 must not be considered in isolation, but rather as the largest research and innovation programme among many, which together contribute to strengthening the competitiveness and the well-being of society in Europe. Horizon 2020 must not and cannot relieve national systems of their responsibility to fund vital research and innovation ecosystem. Expenditures for research and innovation in Europe must increase to reach at least the 3% GDP target re-iterated in the Europe 2020 Strategy, the EU’s current growth strategy.

Science Europe Member Organisations believe that the added value of the FPs should be:

- ▶ The strengthening of the ERA.
- ▶ The creation of collaborative cross-border, cross-sector and cross-disciplinary projects within and beyond Europe, enabling networking, knowledge exchange, and mobility while adding a unique component to European research and innovation.
- ▶ The widening of the circles of competition, thus achieving European-level excellence.
- ▶ Collaboration on societal challenges and issues that cannot be addressed with purely national efforts. These are more efficiently addressed together because of their cross-border nature and their scale, building a sustainable society benefitting all citizens in the long term.
- ▶ Access to and development of RIs of pan-European importance enhancing excellent research.
- ▶ The participation of key European research teams and the opening up and linking of ‘siloed’ communities and schools of thought.
- ▶ The facilitation of cross-border mobility of researchers, which plays an important role in fostering new researchers and entrepreneurs/innovators.
- ▶ Enhancing Europe’s attractiveness as a ‘talent hub’.

#### **Strengthening the Level of Pan-European Competition, which in Turn Increases the Excellence of Research and Innovation in Europe**

The ERC is a good example of how European added value can be implemented by fostering Europe-wide competition. The ERC is the first pan-European funding body specifically designed to stimulate excellence, dynamism and creativity in the European research system by funding investigator-driven research projects of the highest quality on the basis of Europe-wide competition.

The success of the initiative and its excellent reputation demonstrates how strong the demand is for such an instrument at EU level. By providing a space for competition, the ERC has improved the quality of research in Europe and the attractiveness of the continent for top talent. If the costs of participating are higher for the competitors than the potential rewards, or if the chances of success fall below a certain threshold, competition loses its appeal. That is why simple rules and a low administrative burden for applicants and beneficiaries contribute to the success of the ERC. However, pressure on the ERC’s budget and thus decreasing levels of excellent proposals that get funding are a threat to the ERC success story.

### **The Importance of Collaborative Non-market-oriented Research to Tackle Societal Challenges**

Collaborative projects addressing societal challenges are at the heart of the definition of a European added value. These challenges know no borders and can only be solved by joining forces at European level. However, the solutions needed are not always of commercial short-term interest. Some of these solutions might not initially yield a return on the investment made, which makes the use of public grant-based funding crucial. Collaborative projects within the ‘Societal Challenges’ priority encourage involvement of researchers from different disciplines and have strengthened the active involvement of end users, the public sector and industry. This should continue in the next FP by giving more room to long-term collaborative research.

### **Access to and Development of World-Class Research Infrastructures in Europe: a Fundamental Aspect of the European Research and Innovation System**

RIs in Europe heavily contribute to the scientific excellence, added value and impact of the ERA. European RIs play a key role in addressing major societal challenges through synergies between developments at the regional, national and transnational levels. The role of Horizon 2020 in enabling these synergies should be strengthened in the remainder of the programme and the potential impact of RIs should be carefully reflected upon when developing subsequent FPs.

The European RI landscape has seen a vast evolution and now consists of a wide range of European RIs, from small- and medium-scale, to European Strategy Forum on Research Infrastructures (ESFRI) projects and other large-scale world-class RIs – all of which are at different stages of development within the RI lifecycle. In such context it is crucial for Horizon 2020 and its successor to promote transnational strategic co-ordination, to encourage strong national systems, to support a balance of national and European RI portfolios, and to foster a healthy competition.

The overall budget for RIs under Horizon 2020 is very limited and does not reflect the extensive demand for RI funds, the ecosystems of RIs and the necessity for long-term sustainability. RIs must consider various aspects including operation, access, human resources, training, education, data management and specialist expertise – all of which are expected to be covered through the allocated budget. Furthermore, RIs face high expectations to provide high-quality operation, management and services to a wide range of users and stakeholders. It is important to ensure that these demands are met in the future through appropriate calls with potential opportunities with other programmatic structures under Horizon 2020 and also through adequate design of future framework programmes.

### **Mobility and Strengthening the Attractiveness of Research Careers**

Attracting the best talents to Europe is crucial in contributing to the competitiveness of the ERA. The MSCA contribute significantly to this challenge by strengthening global research networks and attracting the most promising researchers, specifically those at an early stage in their career.

The transfer of knowledge between different scientific communities and sectors through both virtual and physical mobility is key to the development of dynamic research fields and, in turn, a prosperous innovation chain. The MSCA are highly attractive and the programme has developed into a respected global brand. Its bottom-up aspects are highly appreciated and should be continued.

The European added value can only persist if the MSCA continue to be uncomplicated funding schemes for the benefit of researchers' careers. Science Europe encourages the European Commission (EC) to analyse the effects of the different mobility instruments with regards to research careers and research quality in order to support the further development of these instruments. The funding for the early career stage of researchers should be given a boost in the form of the 'Innovative Training Networks' (ITN) which create a high impact for future research careers. In particular, the duration of the ITN should be extended to four years, to give sufficient time for early-stage researchers to obtain a doctoral degree.

### **III. A Programme that Links Excellent Research with Innovation and Benefits Society**

The introduction of the ‘three priorities’ structure in Horizon 2020 (‘Excellent Science’, ‘Industrial Leadership’ and ‘Societal Challenges’) brought a much needed clarification of the goals of the different parts of the Programme, in contrast to previous FPs. However, there should be better complementarity and co-ordination between these three priorities and their funding instruments in order to make the most of research results, speeding up the process of contributing to solutions that meet societal needs.

#### **Understanding the Impact of Science**

It will be important for the interim evaluation and the preparation of the next FP to appropriately consider the full extent of the contributions that science makes to society. The starting point for the evaluation should be a notion of impact that is broader than just economic impact, and that fully and equally embraces the contributions that science makes to the environment, to public health, to societal well-being, and to culture. This will require the employment of methodological variety in the evaluation.

Indicators used for assessments, either qualitative or quantitative, are mere analytical inputs. They do not substitute for analysis and cannot become goals in themselves even if they are contained in the legal basis of Horizon 2020.<sup>3</sup> Indicators must be integrated into narratives and/or models that attempt to show causal links between research and observable effects. Indicators are part of impact assessment, but should not be considered ‘impact indicators’.

A solid analytical basis along these lines will provide pointers to help correct the current biases that exist in Horizon 2020 in favour of research that is perceived to be of higher impact, simply because it sits at higher TRLs. If the impact of science is better reflected in the notions used for its assessment, the biases will be corrected over time and TRLs will not be seen as the sole driver for the impact of science.

### **Better Link Between Research and Innovation**

The support for non-market-oriented research should not be confined to the ‘Excellent Science’ priority alone, but should be present throughout Horizon 2020 because it is vital to all parts of the research and innovation cycle. Science Europe agrees with the note recently released by the League of European Research Universities (LERU) on the issue of TRLs,<sup>4</sup> stressing that there should be more room for bottom-up, collaborative research in EU FPs.

A strong research base is a crucial asset for innovation. The existing fragmentation of the type of research supported by the specific funding instruments, does not help to achieve the best results.

The concept of technology readiness is not well suited to correctly representing innovation processes. These processes are circular and iterative, and new ideas and solutions need to feed in during the entire cycle, potentially producing breakthroughs at any time. Truly disruptive innovation is frequently an unexpected outcome of frontier research where there is sufficient space for creativity and novel ideas.<sup>5</sup> The concept of technology readiness fosters linear thinking about innovation that can misdirect Horizon 2020 funding towards close-to-market activities, to the detriment of radical innovations capable of inducing systemic changes.

To a considerable extent, whole areas of research are being excluded from Horizon 2020<sup>6</sup> simply because the value they bring to society is not reflected well in the current impact and innovation definitions.

### **Better Integration of Social Sciences and Humanities**

The insufficient integration of the social sciences and humanities (SSH) in the ‘Societal Challenges’ priority exemplifies the rather limited notion of societal value adopted by Horizon 2020.

It is essential that the SSH contribution to a project is not limited to a token component. A strong science base is needed in all scientific fields, including SSH. It is important to acknowledge that SSH is a broad and multidisciplinary field in itself. The range of SSH disciplines invited to contribute to topic texts of future work programmes needs to be significantly broadened. So far, some disciplines are widely represented, while others, particularly within the arts and humanities, are almost absent.

For a better SSH integration, SSH must be involved throughout the whole process, including the problem formulation phase, the drafting phase of work programmes, the design of topics, and the final evaluation phase. The ultimate goal is for SSH to be an integral part of the development process for new research questions.

## **IV. A Programme with a Strategic Approach to International Co-operation**

While Horizon 2020 is open to the world and co-operation with international partners is strongly encouraged, some features of the programme can be seen to hinder such co-operation.

International co-operation decreased approximately from 5% in FP7 to 2.8% in the first years of Horizon 2020. This indicates that despite its openness the programme suffers from a significant reduction in collaborations with major international partners. This is caused by a number of factors, which include the lack of automatic funding for all developed and some developing economies (e.g. BRIC countries and Mexico), and legal constraints caused by certain provisions of the Horizon 2020 Grant Agreement.

It is important that the EC continues its efforts to create the so-called ‘co-funding mechanisms’ with major international partners, in order to facilitate the participation of foreign researchers in Horizon 2020 projects. It should also continue its dialogue with third countries, such as the United States, whose participation in the programme is hindered for legal reasons.

Horizon 2020 and its successor should contribute to maintaining the status of Europe as a key global player, in direct competition with the world’s top performing research regions. To achieve this, the programme should have a strategic vision and structure to support Europe in this. It should fulfil a strategic role when it comes to European co-ordination/prioritisation. In a nutshell, Horizon 2020 should be open, but strategically so.

The complementarity between European and national instruments for international co-operation is an important element to take into consideration. European instruments targeted at international research co-operation should take into account more systematically the existing (bi- and multilateral) arrangements carried out by stakeholders at national level.

## **V. A Programme that Integrates Open Science**

Horizon 2020 and future FPs must support the researcher-driven transition to a new way of performing science. Open Access (OA) and data re-use increase the circulation of knowledge, spark innovation and foster collaboration on a global scale.

Science Europe welcomes the Competitiveness Council Conclusions of 27 May 2016<sup>7</sup> on the transition towards an Open Science system, in particular, the strong political support provided by the Council for a swift transition to Open Access to research publications as the default publication mode. Science Europe also agrees with the Council on the need for concrete, concerted and synchronised efforts by all relevant partners.

Furthermore, it welcomes the Council terminology on research data policy, referred to as “optimal reuse of research data” and the principle “as open as possible, as closed as necessary”.<sup>8</sup>

### **Open Access to Research Publications**

Science Europe considers the OA policy of Horizon 2020 to be a success. Particularly appreciated are the mandatory character of the policy, and the provision of clear and well-articulated guidance on how to comply with the policy. It is recommended that together, Horizon 2020 and the Member States introduce long-term and sustainable funding mechanisms for OA publication models, infrastructures, and services, as is the case for other large-scale research infrastructures. Finally, a legal framework that establishes price transparency and avoids non-disclosure clauses enforced by publishers should be set up.

### **Research Data Sharing and Re-use**

Data stewardship, sharing and re-use are part and parcel of what can be defined as ‘quality research’, and policy most definitely has a role in fostering them. Unfortunately, the road to more data sharing and re-use is still long. Culture, rules, resources and infrastructures all play a role and appropriate data management solutions still need to be worked out. In addition, appropriate implementation of the approach requested by the Council “as open as possible, as closed as necessary” – an approach that Science Europe stands behind – is required, alongside specific infrastructural challenges related to the regulation of access.

Getting data policies right, including the new Horizon 2020 Open Data policy, therefore represents an important challenge for research funders, including the EC. Science Europe believes that it is extremely important that funders’ policies are embraced and driven by researchers, instead of simply being imposed on them.

Science Europe is working on supporting the development of data management policies that centre around the active involvement of the research communities and is ready to share its expertise with the EC.

## **VI. A Programme with the Budget to Realise Europe's Research and Innovation Potential**

During the negotiations establishing Horizon 2020, it was argued by the EC and the European Parliament (EP) that the final Horizon 2020 budget – €78.6 billion at current prices, but €70.2 at constant prices – was to be considered the strict minimum if the programme was to achieve its objectives. However, Science Europe notes that the budget of Horizon 2020 has been subject to cuts in the past while its objectives remain as ambitious as ever.

Science Europe supports the position of the EP on the mid-term review of the Multiannual Financial Framework (MFF),<sup>9</sup> which noted with great concern that the success rate for Horizon 2020 has dropped to 13% from the 20–22% enjoyed by the predecessor programme (FP7) and that fewer high-quality projects in the field of research and innovation were receiving EU funding. In its Resolution, the EP added that “the EU budget dedicated to research and innovation has often been the first to be affected by any cuts”,<sup>10</sup> which cannot be allowed to continue. The additional €400 million for Horizon 2020 announced by the EC in the context of its proposal for the MFF revision is a welcome step.

Knowledge is Europe's most valuable strategic resource. It is essential to protect, or even ring-fence, the grant-based budget dedicated to science for the remainder of Horizon 2020; otherwise Europe risks failing to fully realise its research and innovation potential, necessary to ensure its future growth and long-term prosperity.

In addition, Science Europe calls for the three following actions:

- 1. Reverse the cuts made to Horizon 2020 funding due to the European Fund for Strategic Investment (EFSI) in the final programming period.<sup>11</sup>** The funding model approved in June 2015 for EFSI, with €2.2 billion coming from the Horizon 2020 budget, is a loss to the ERA. Horizon 2020 suffers from a very high demand for funding that is not properly met; excellent research is therefore facing underfinancing, with decreasing success rates at EU level. Science Europe calls on EU budgetary decision-makers to reverse the cuts planned for Horizon 2020 in the next programming period (2018–2020) due to EFSI, and find alternative funding models for EFSI that do not include Horizon 2020 funds as a reduction of resources from research would undermine Europe's capacity to secure long-term investment in excellent research and to innovate.
- 2. Provide adequate funding to the ‘Excellent Science’ priority to meet the demand of the scientific community.** The low, and ever decreasing, success rates of funding schemes in the ‘Excellent Science’ priority (such as FET-Open, ERC grants, MSCA) suggest that the budget allocations do not meet the demands of the scientific community. This part of Horizon 2020 needs to be reinforced. In addition to strengthening the ERC, MSCA and FET-Open instruments, RIs funding should be increased during the remainder of Horizon 2020 in order to acknowledge the importance of RIs for European science.

### **3. Loans and risk-financing instruments should not be used for funding research.** If

Horizon 2020 is to achieve its objectives, different types of funding should be available that are both acceptable and suitable for as many different beneficiaries as possible, including universities and research institutes. Introducing loans rather than research grants can significantly limit the participation of many higher research institutions, which are precluded from accepting loans, thus threatening the effectiveness of Horizon 2020. The political temptation to finance research with loans should be avoided. Experience with the InnovFin instruments<sup>12</sup> and EFSI demonstrates that this type of funding is not suitable for breakthrough research and innovation projects, and only has limited potential for close-to-market activities. Grants must remain the main instrument to support research, and grant funding should not be reduced to the advantage of loan funding in either Horizon 2020 or any future FPs. Science Europe strongly supports the stand taken by the Competitiveness Council of the European Union in May 2016 that in Horizon 2020 “care should be taken that loan-based financing is not further expanded to the detriment of grant-based R&I funding.”<sup>13</sup>

## **VII. A Programme with Transparent, Clear and Simple Implementation**

Science Europe welcomes the two-year cycle of strategic programming and encourages the EC to continue with this in order to provide predictability for applicants, whilst keeping a certain degree of flexibility for fast-moving areas. When comparing Horizon 2020 with FP7, improvements are noticeable; however, a more systematic and transparent approach to include relevant stakeholder groups, especially researchers in the preparation of work programmes, would further benefit Horizon 2020. The role of the scientific community needs to be further strengthened with respect to setting research agendas within the FPs. More transparency, predictability, forward planning, and stability are needed in the drafting of the work programmes. These are necessary conditions for the proper involvement of Member States and stakeholders.

Science Europe acknowledges that a number of positive changes have been made in terms of simplification and welcomes the measures introduced in Horizon 2020, such as the launch of the Participant Portal, the paperless handling of requests from submission to final reporting, and the Simplification Survey launched in October 2015. However, a more trust-based, user-driven and risk-tolerant approach, alongside more flexibility in the application of the Rules for Participation in the grant agreement, are still necessary.

The EC should continue to strive for further simplification and avoid adding new instruments or funding models without proper justification. The efficiency and added value of existing funding instruments should be assessed and these instruments should be terminated if necessary.

Science Europe strongly opposes any move towards more output-based funding: this would be detrimental to research as it would discourage risk and long-term goals, and it is very difficult to know how such outputs would be measured.

There also needs to be better alignment with the Rules for Participation and their implementation in areas such as Joint Technology Initiatives (JTIs) and Public–Private Partnerships (PPPs). In particular, Science Europe observes a trend towards relocating topics to actors outside Horizon 2020 by an increased use of external structures such as JTIs and PPPs, which raises several concerns on a potential lack of transparency, an increased focus on higher TRLs, and complex access for research stakeholders.

### **Tackle Oversubscription**

Low success rates are a threat to the success of Horizon 2020. Especially in collaborative research, the top researchers' teams may hesitate to engage in future Horizon 2020 calls and instead focus their efforts on programmes with higher chances of success. There is an oversubscription of excellent proposals, rather than a long 'tail' of low-quality proposals. Indeed, the term 'oversubscription' would be better replaced by 'underfinancing'.

The following measures deserve in-depth discussion as they could help improve the situation: clearer call texts; better formulation, and the consequent alignment, of evaluation criteria; decreasing the number of calls within an instrument; a two-stage evaluation process, where appropriate; establishing further restrictions on re-submissions or engaging in more proactive actions with applicants and National Contact Points (NCPs); and, encouraging self-assessment before submission.

### **Evaluation of Projects**

In order to allow for unsuccessful applicants to improve, the EC should strive to maintain the quality of evaluation reports achieved in FP7. Sufficient feedback is necessary: final scores and comments should not be a mere compilation of the feedback of individual reviewers but should formulate a consensus, and strengths and weaknesses of the proposal should be provided.

Transparent selection and appropriate training of reviewers before evaluation is very important to ensuring the quality of the evaluation. Issues such as how to address cross-cutting issues like gender equality and the gender dimension in research, ethics, international co-operation, and the integration of SSH need to be included in the training of reviewers.

## **Monitoring and Evaluation of Programmes**

Science Europe supports the remarks by the High Level Expert Group that assessed FP7<sup>14</sup> in regard to data gathering, dataset use and data sharing in the context of the monitoring and evaluation of the FPs. Science Europe emphasises the importance of gathering gender-disaggregated data, properly categorising FP participations, and using ORCID unique researcher identifiers in order to allow powerful social network analysis, and data aggregation on research funding between the European and national levels.

The EC's monitoring and evaluation outputs should better comply with the Open Government Data principles. With the exception of confidential and sensitive personal data, all data on EU research funding and projects should be published in a timely manner, regularly, in machine-accessible and re-usable form, opening up the possibility for anyone to perform their own analyses. In addition, all EC studies should be published promptly and publicly. External parties should not have to send ad hoc requests to the EC in order to obtain datasets, studies or detailed information on national project participation.

Science Europe supports the initiative by the EC and the European Research Area Committee (ERAC) to encourage national authorities to use a European template when assessing the impacts of the FPs at national level. The current approach, which is based on a voluntary template revolving around evaluation questions, is well designed but needs to be widely applied. Harmonised questions across countries will greatly enhance the comparability of results, and also benefit national authorities.

## Notes and References

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12. More information on InnovFin can be found here: <http://www.eib.org/products/blending/innovfin/?lang=en>
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