

## Science Europe Response Paper

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### Response to the report ‘LAB–FAB–APP: Investing in the European future we want’

Brussels, 15 December 2017

Science Europe welcomed the LAB–FAB–APP report published in July and would like to congratulate the ‘High Level Group on maximising the impact of EU Research and Innovation Programmes’ (HLG) and the European Commission, who brought more attention to the importance of Research and Innovation for Europe. The timing is crucial as the report coincides with the start of the discussions on the next Multi-annual Financial Framework (MFF), which will quantify the European strategy for the post-2020 period.

Science Europe organised a debate on 19 October for a critical discussion of the recommendations and their possible implementations. The debate gathered Science Europe Member Organisations and representatives from its Scientific Advisory Committee, the HLG, and the European Commission, as well as Teresa Riera Madurell, a member of RISE group (Research, Innovation, and Science Policy Experts), and Christian Ehler, Member of the European Parliament. This paper is the result of the exchanges and integrates positions that Science Europe continues to defend through its publications and events.

#### HLG recommendation 1: Prioritise research and innovation in EU and national budgets

The HLG asserts that “doubling the overall budget of the post-2020 EU research and innovation programme is the best investment the EU can make.” Science Europe agrees that an increased budget for science is needed. However such an increase should be used to support more excellent projects and activities demonstrating a true European added-value and which could not be reached at national level only.

It is very important that an increase in investments for science at European level is matched with an increase of spending at the national level to reach the 3% of GDP target. Only well-financed and reliable national research systems will allow for a robust European Research Area that is complemented by the EU research programmes. FP9 should not be a substitute for national expenditures or allow for cuts at national and regional levels. Science Europe therefore supports the Tallinn Call for Action<sup>1</sup> to which it contributed. Only simultaneous budgetary increases can allow Europe to respond to global competition, narrow the excellence and innovation divide, and encourage the transfer of skills across all regions of Europe.

Reciprocally, the Seal of Excellence and its potential extension to more instruments is not a sustainable solution to address insufficient funding at EU level. The possibility for national or regional authorities to provide funding to projects not retained for EU funding should not justify a reduction of the EU budget.

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<sup>1</sup> [https://www.hm.ee/sites/default/files/tallinn\\_call\\_for\\_action\\_2017.pdf](https://www.hm.ee/sites/default/files/tallinn_call_for_action_2017.pdf)

Science Europe strongly emphasises that civilian research and innovation should not suffer from budget cuts caused by the recent developments on the European collaboration for Defence Research and the associated Fund. Science Europe therefore strongly urges the European Commission to protect the budget for civilian research and innovation.

## **HLG recommendation 2. Build a true EU innovation policy that creates future markets**

Science Europe fully supports the development of a strong science-led innovation policy that will boost Europe's growth and competitiveness.

To achieve that objective, it is necessary to recall the role of fundamental research for innovation. Most technologies used in our daily lives (electronic products, communication devices, healthcare machines, and so on) are based on results linked to discoveries primarily obtained in academic environments or research centres.

As a research-based and less linear approach contributes to enabling truly radical innovation, all innovation-driven parts of FP9 must support the development and integration of fundamental research results. A combination of intensified research in enterprises, collaboration with research organisations, and stronger support for knowledge and technology transfer will better enable European companies to deliver their full innovation potential.

The European Innovation Council (EIC) should be built taking this into account and should involve, from its design phase on, experts from research organisations. Science Europe therefore follows with concerns the current debates on the EIC in which it sees a risk to widen the gap between (support for) basic research and innovation instead of closing it.

## **HLG recommendation 3. Educate for the future and invest in people who will make the change**

“Excellent research needs a robust basic infrastructure on which to grow. This includes a strong education system, [...] career development possibilities for early-stage researchers, and a political and social culture that appreciates and supports the value of research and innovation.”<sup>2</sup>

Building and sustaining such a vital underlying system is, to a large extent, a national or regional responsibility. The spreading and implementation of best practices– using the European Social Fund for instance – could, therefore, be encouraged in order to reach the objectives of the ‘Agenda for the modernisation of higher education’<sup>3</sup>

Support from EU programmes such as Erasmus+ or the Framework Programme is also a necessity. The various schemes that support individual researchers within the Marie Skłodowska-Curie Actions and the European Research Council (ERC) are exemplary. These instruments enhance the career possibilities offered at national level and contribute to the development of world class researchers and innovators. They should be supported to ensure that Europe continues to be the best option for scientific career opportunities.

The ERC in particular must be guaranteed proper funding and scientific freedom as its high quality standards and its reputation support the development of excellence across Europe, but also influences national research systems towards higher-quality output.

In collaborative research projects, FP funding should mostly be used for funding research and innovation. However, the development of skills should not be neglected. Training activities should be encouraged on the condition that they bring added value to projects and do not hinder the completion of research activities.

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<sup>2</sup> Science Europe Position Statement ‘[The Framework Programme that Europe Needs](#)’ (October 2016)

<sup>3</sup> [https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-1062784\\_en](https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-1062784_en)

Training activities should have a broad definition and allow knowledge and technology transfer and/or collaboration initiatives between academia and industry. Actions contributing to the achievement of Open Science objectives should also be encouraged. Funding of training activities, education and staff mobility schemes should also be encouraged in other areas, such as in research infrastructures.

#### **HLG recommendation 4. Design the EU R&I programme for greater impact**

A definition of impact that embodies more than an economic or immediately visible outcome is indispensable. It should be a definition that includes societal value, knowledge recognition, long-term thinking, unexpected outcomes, and (temporarily) unmeasurable results as scientific impact. It is also important to recall the diversity of the contributions to society from research across a variety of scientific disciplines. Science Europe has elaborated on these principles through various means (Position Paper<sup>4</sup>, Symposium<sup>5</sup>, Discussion with the High Level Group and the European Commission<sup>6</sup>, Estonian Presidency Conference<sup>7</sup>) and will continue to do so.

Although both the HLG and the European Commission seem to agree that a wider notion of impact is needed, it is important to take that into account during the entire design process of FP9. The use of concrete illustrations will help to keep the discussion from becoming theoretical. The example of how 3D audio systems were derived from a mathematical curiosity in the 1980s is particularly revealing; it helped develop and bring new applications into the arts and creative industries (music, multimedia, and sound design)<sup>8</sup>.

Focusing on excellent research is the best way to achieve the highest impact and secure yet undefined impact for generations to come. Excellent frontier and curiosity-driven research and innovation, promotion of internationally outstanding talents, and access to world-class research infrastructures must, therefore, remain cornerstones of EU funding in the future.

Science Europe is in favour of the three-pillar structure in the FP, as it has brought clarity to the goals of the programme. It also supports the proposal of the HLG to bring more complementarity and coordinated actions between the three pillars and their funding instruments as previously suggested in its Position Statement<sup>9</sup>. Science Europe will continue to push for a stronger role for excellent research, particularly fundamental research, in all three pillars. It also strongly supports the proposal to have more interdisciplinary research and less-prescriptive calls (currently based on Technology Readiness Levels (TRLs) and on a too simplistic linear notion of innovation).

As part of a reinforced open science policy, Open Access to research outputs must be a core element of the programme and a principle for all projects and instruments. Open Access requirements must be re-asserted and compliance with the regulation better monitored. Science Europe continuously works on better and even more ambitious and comprehensive Open Access policies and supports the transition to immediate Open Access as the default by 2020. It will contribute to the discussion that will lead to the finalisation of the policy to be adopted for FP9.

Finally, Science Europe is pleased to see that the HLG shares its concern regarding the quality of proposal evaluations. Evaluations must be more detailed, more transparent, and allow applicants, especially when rejected, to understand the decision. This will also improve the quality of potential subsequent applications.

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<sup>4</sup> Science Europe Position Statement on [a New Vision for More Meaningful Research Impact Assessment](#) (July 2017)

<sup>5</sup> Science Europe symposium report '[Building a Scientific Narrative on Impact and Societal Value of Science](#)' (November 2016)

<sup>6</sup> Science Europe Debate on Guiding Principles for FP9 : The Framework Programme that Europe Needs (March 2017)

<sup>7</sup> Conference 'European Research Excellence - Impact and Value for Society' (October 2017)

<sup>8</sup> Cf footnote 5

<sup>9</sup> Science Europe Position Statement '[The Framework Programme that Europe Needs](#)' (October 2016)

## **HLG recommendation 5. Adopt a mission-oriented, impact-focused approach to address global challenges**

Collaborative projects addressing grand challenges are undoubtedly at the heart of the definition of European added value. These projects should tackle societal problems (for example the Societal Development Goals) but also more technical or pure scientific challenges. They could also be the beacon for international collaboration within specific areas. However, the proposed concept of ‘missions’ remains unclear and raises questions and concerns among the research community.

In particular, concerns focus on the process to identify these missions, their scope and expected objectives and the way to find the best balance with regards to the involvement of citizens, national authorities and scientists. Additional concerns have also been expressed with regard to the modalities of the future calls for proposals (including the funding schemes) and the selection of projects.

Science Europe calls for the scientific community to have a central role in the process of the identification of individual missions.

As proposed in the LAB–FAB–APP report, missions should be interdisciplinary and include a strong social science and humanities component. The missions should also fully include fundamental research to allow for breakthrough results. They must be formulated broadly enough to allow researchers room for creativity in project proposals and provide sufficient flexibility to explore promising turning points in the course of research. Coordination mechanisms should be put in place to support any synergies between the projects contributing to the same mission.

The interplay with the other parts of the FP also necessitates a thorough study. Redundancy with existing thematic instruments should be avoided and other instruments, especially the bottom-up instruments currently included in the ‘Excellent Science’ pillar, should not be affected.

Finally, based on the experience of its Member Organisations, Science Europe warns against limiting the support to research and innovation on societal challenges to a few specific missions only.

## **HLG recommendation 6. Rationalise the EU funding landscape and achieve synergy with structural funds**

Science Europe shares the opinion of the HLG that the multiplication of European funding schemes and instruments has created an unnecessarily complex landscape that should be reassessed. This exercise should focus on the funding rules, the governance and the creation and termination of initiatives. Although this opinion concerns a broad range of instruments including some outside of the Horizon 2020 budget, Science Europe focused its analysis on the Public-Public Partnerships (P2Ps).

Science Europe argues that, for areas already covered by more than one existing partnership, “the suggested strategic process should start with a thorough effort to rationalise each area, leading to the informed continuation, merging, or termination of initiatives”<sup>10</sup>. For future initiatives, a dual approach is proposed, which combines:

- ▶ Large-scale P2Ps in a few prioritised areas, which would benefit from a critical-mass, a long-term political and financial commitment and a stable and structural co-funding between FP and national funding.
- ▶ Bottom-up initiatives of smaller scale, driven by EU Member States and not limited to priorities earmarked in FP9 work programmes. The underlying principles would be variable geometry,

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<sup>10</sup> Science Europe Policy Brief On [Public to Public Partnerships and the Next Framework Programme for Research and Innovation](#) (November 2017)

flexibility, and competition. FP9 funds would primarily be used to cover administrative/operational costs.

As mentioned in the LAB–FAB–APP report, the use of Structural Funds could encourage some Member States to join co-funded initiatives on the condition that the funding rules allow for it in a simple way. More generally, the regulation on European Structural and Investment Funds (ESIF) should be adapted (simplified, harmonised with some FP9 rules) to better support Member States in investing in research and innovation.

The objective should be to narrow the excellence and innovation divide and encourage the transfer of knowledge across all regions in Europe. To achieve this, a larger role can be given to education and skills development on one side, and research and innovation activities and support services on the other. This approach can be applied to all national Operational Programmes for the European Social Fund and the European Regional Development Fund. Funding of Research Infrastructures using ESIF should also be facilitated. A possibility could be to tighten the conditionality rules governing the ESIF implementation in order to increase the share of R&I in the supported projects.

FP9 must also encourage the capacity building for excellence-oriented, science-driven research. The outcome of the dedicated widening instruments (Teaming, ERA Chairs and Twinning) and other instruments supporting widening (ERC Visiting Research Fellowship) should be assessed and, provided sufficient funds are allocated overall, should be reinforced or completed by additional measures. Widening networks for education should also be considered. National initiatives such as those developed by some Science Europe Member Organisations (such as the Max Planck Dioscuri Programme<sup>11</sup>, the PROMYS scheme<sup>12</sup> of the Swiss National Science Foundation, or the EEA Grants and Norway Grants<sup>13</sup> among others) could serve as examples for inspiration.

## **HLG recommendation 7. Simplify further**

Science Europe appreciates the simplification efforts carried out by the European Commission. While simplification is necessary, Science Europe would also like to stress the importance of continuity. The current cost reimbursement (100% for direct costs + 25% for indirect costs) works well and grants have to remain at the core of the programme for research organisations to work effectively with the Framework Programme. Science Europe welcomes the lump sum funding pilot but believes this needs to be evaluated carefully before discussing its potential broader.

Organisations have made significant efforts and adjusted their systems to work in line with Horizon 2020 rules. Therefore, any changes to the system need to be considered very carefully, in particular with a view to additional administrative burden for the users of the programme. Specific concerns related to the lump sum funding pilot are for example: the definition of deliverables to better anticipate the release of payments (such as the case of a partner blocking the completion of a work package), the specific needs of fundamental research, the quality of the evaluation including the proposed budget and efforts, the need to maintain a specific accountability for these projects, and so on.

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<sup>11</sup> Jointly funded by Germany and Poland, this programme aims to create centres of scientific excellence at Polish host institutions. A first call for applications is currently open and up to three centres could be funded, each with approximately €300,000 p.a. for five years. In case of positive mid-term evaluation and sufficient budget, it could be extended to five more years and to other EU13 countries.

<sup>12</sup> The programme PROMYS - Promotion of Young Scientists in Eastern Europe - of the Swiss National Science Foundation, which is aimed at young researchers in Eastern Europe who have studied or worked in Switzerland for at least two years and would like to continue their careers in a EU13 Member State.

<sup>13</sup> Through these grants Norway, Iceland and Liechtenstein support programmes in seven beneficiary countries to increase research capacity and the application of research results. Horizon 2020 rules are used as much as possible for calls and selection procedures, programme management, financial management and reporting. In the funded projects, bilateral teams composed of partners from the donor countries and the beneficiary countries do research together. The EEA funded research projects give international experience for research institutions and SMEs from the EU13 countries and support establishment of solid international networks that later can be utilised in applications to H2020/FP9.

Science Europe welcomes the way in which the Commission is involving stakeholders in the simplification process and is interested in participating in discussions related to ideas or plans for more drastic changes to the system with regard to FP9.

The notion of aligning national procedures with each other and the EU programmes is one that raises concern for Science Europe. Best practices regarding the organisation of calls, evaluation procedures, and cost reporting must be exchanged, but national systems cannot be fully harmonised as their strategies and associated rules are linked with national specificities and usual practices.

### HLG recommendation 8. Mobilise and involve citizens

Societal participation in research can be an opportunity to strengthen the quality of research, its impact and the empowerment of citizens. Policy-makers, funders, citizens and scientists should all be part of the same ecosystem in order to increase public trust and help reverse the current erosion of public support (including funding). Doing more to involve citizens could also bring increased visibility to research.

Participation of citizens in the research process can be categorized according to the following models<sup>14</sup>:

- ▶ **Cooperation:** citizens participate passively by providing access to scientists of certain content for analysis.
- ▶ **Collaboration:** citizens contribute to specific tasks such as monitoring environmental pollution, observing flora and fauna, identifying images, or collecting different forms of data.
- ▶ **Co-production:** citizens participate not only in the collection, but also in the analysis of data
- ▶ **Co-design:** citizens are involved on an equal footing with professional scientists, for example in the development of research policies and questions or in the co-design of research programmes or projects, in the funding of research projects (through crowdsourcing) and possibly also in the evaluation of research projects. The Dutch National Research Agenda as presented in the LAB–FAB–APP report provides an example of how society can be involved in research agenda setting. Without being simply replicated, lessons learned from it can help inform future discussions that the European Commission may have on the topic.

When reflecting on the best way to involve citizens, the specificities and objectives of each FP9 instrument must be considered so that citizens are better involved when a clear added-value is demonstrated.

Care must also be taken not to endanger the freedom and the independence and quality of science and the scientific method. Therefore, the inclusion of citizens should be achieved while respecting and protecting scientific ethics and integrity.

### HLG recommendation 9. Better align EU and national R&I investment

National funding systems must remain independent and adapted to the national specificities. Science Europe therefore agrees with the proposed vision of alignment as presented in the LAB–FAB–APP report: not necessarily an alignment towards similar research agendas, but towards stronger research and innovation ecosystems, with better conditions for researchers. To this end, each country must aim to consistently increase its research performing capacities. More exchange and cooperation will benefit efforts towards greater enhancement of the European Research Area.

However, the proposal of having national strategies subject to EU-supported international peer-review raises questions. If the HLG proposes that the national strategies must be validated in a process led or

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<sup>14</sup> Preparation booklet of Science Europe High Level Workshop on [the 'Rationales of Open Science: Digitalisation and Democratisation in Research'](#) (September 2017)

guided by the EU, this cannot be accepted and contradicts the subsidiarity principle. Clarification of this idea is needed.

The added value of some duplication and redundant funding options should be acknowledged. It not only allows for a larger scientific basis in Europe, but also preserves the competition and replicability vital to scientific endeavours. Competition and comparison of results on similar or close subjects are intrinsic parts of the scientific process and contribute to the quality of research and outcomes. This function should therefore not be threatened.

### **HLG recommendation 10. Make international R&I cooperation a trademark of EU research and innovation**

International co-operation noticeably decreased in Horizon 2020 when compared to FP7. It is important that the EC continues its efforts to achieve so-called 'co-funding mechanisms' with major scientific and technological international partners (notably the BRIC countries), in order to facilitate the participation of researchers around the globe in future FP9 projects. New flexible association or partnership models could also be considered with countries with high research and innovation performance. Furthermore, the EC should continue its ongoing dialogue regarding the Model Grant Agreement with third countries.

The attractiveness of the programme must also be studied in order to increase possible future collaborations. For obvious reasons linked with industrial competition, a programme focused on technology and product innovation lends itself less to international cooperation than a programme with numerous opportunities for collaborative research at lower TRLs. The openness of the programme must, therefore, take this into consideration. It should also be thought through strategically, so that it contributes to maintaining the status of Europe as a key global player.

Brexit is an important issue on both sides of the Channel and Science Europe supports the HLG's view that a positive cooperation model should be established between the UK and the rest of Europe.

### **HLG recommendation 11. Better capture and communicate impact**

A better capture and communication of research impact necessitates a better definition and understanding of impact as mentioned in the response to recommendation 4.

A strong, solid, and more accessible communication of research results and impact can only be supported. Making research results more visible for other scientists but also for a larger audience – including citizens, is key to give research the place and credibility it should have in society.

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