

Position paper on Framework Programme 9

Introduction

The Royal Society is the national academy of science for the UK and the Commonwealth. It is a self-governing Fellowship of many of the world's most distinguished scientists working across a broad range of disciplines in academia and industry. The Society draws on the expertise of its Fellowship to provide independent and authoritative scientific advice to UK, European and international decision makers.

This statement sets out the Society's view on the optimal design of the ninth Framework Programme for Research and Technological Development, FP9, to ensure the health of the global research system for the mutual benefit of the UK and our global partners. FP9 presents the opportunity to build on the successes of European science in fostering a healthy, global research endeavour and maximising its contribution to improving the lives of people in Europe and around the world.

European Union (EU) funding, including past Framework Programmes, have played a fundamental role in UK research and innovation and the Society has called for the UK to seek the closest possible association to FP9, as a key part of the UK's future relationship with the EU. Both the UK government and European counterparts have made positive statements about their aspiration for future engagement between the UK and the EU on research and innovation. The UK's [Collaboration on science and innovation - a future partnership paper](#) stated that "the UK will seek to agree a far-reaching science and innovation agreement with the EU that establishes a framework for future collaboration." In 2017, the independent High Level Group on maximising the impact of EU research & innovation programme published the [LAB-FAB-APP](#) report, chaired by Pascal Lamy. We welcome the recommendations of this report, which highlighted that "full and continued engagement with the UK within the post-2020 EU R&I programme remains an obvious win-win for the UK and the EU"¹.

¹ High Level Group on maximising the impact of EU Research & Innovation Programmes (2017) *LAB-FAB-APP: Investing in the European future we want*.

1. Inclusive participation to enable truly global engagement

We hope FP9 will enable the EU to engage with the rest of the world by working with global partners, including the UK, to shape its development and ensure that it represents the best possible offer for European science. The UK's close association to this process and the resulting Framework Programme would support the continued success of EU science

The major value of EU Framework Programmes is in the activities that they uniquely support. They enable researchers in academia and industry to help shape and participate in large and small collaborations, playing a central role in European science. They also provide personal grants for blue-skies research, such as those from the European Research Council (ERC), which have no parallel in the UK, and support for travel and exchanges, such as the Marie Skłodowska-Curie Actions (MSCA).

Access to these schemes undoubtedly brings broad benefits, but the UK's participation also means that we contribute to, and shape the direction of, major projects and the European scientific endeavour in its broadest sense. Participation in Framework Programmes has been, and should remain, central to the UK's global scientific effort, benefiting both the UK as well as European and global science. There are no alternative opportunities of equivalent scale and impact anywhere else in the world. We hope that FP9 will support the UK's close association, seeking an ambitious, bespoke model for both shaping its development and participation, for the continued success of EU science and to reflect the global nature of science and the Framework Programmes.

There are several examples of non-Member States developing deep and rewarding Association Agreements with Framework Programmes, from Norway to Switzerland and Israel. Each agreement is different and related to the individual country's broader relationship with the EU. The UK's excellence in research makes a strong contribution to European science and we and our partners across Europe are keen to continue to work together for the benefit of the global research endeavour. This echoes the [joint statement](#) made by national academies across Europe, in July 2016, about the value of the international nature of research. Engaging globally will enable FP9 to truly reflect the global nature of research and innovation.

2. Excellence as a fundamental criterion for funding decisions

In the way that it allocates funding, FP9 should prioritise and promote excellence throughout Europe to maximise impact and enhance the competitiveness of European research and innovation.

Excellence in research and innovation brings major economic, social and health benefits both to Europe and the wider world. Dynamic and interdisciplinary research landscapes are important components for fostering excellence.

Prioritising and promoting excellence should be the central principle guiding the assessment of project proposals under FP9. This should recognise that different places may offer different opportunities. Regional strategies should foster local strengths in research, innovation and businesses, taking opportunities to better integrate and grow these, as well as boosting existing centres of excellence. Support may be allocated to build and create the conditions for excellence across Europe. This should not be at the expense of funding for excellent science where it occurs today. Mechanisms such as the European Research Council (ERC) should not be reduced.

Excellence and impact are directly related – they are interdependent and vital for the development of new ideas. FP9 should strengthen excellence to support development and enhance the EU’s competitiveness, for the benefit of European innovation and the global research endeavour. This notion should be incorporated as part of a coherent and overarching policy putting knowledge first and seeking excellence-driven impact.

3. A forward-looking programme with support for mission-oriented, creative, and basic science

FP9 should adopt a forward-looking, mission-oriented programme prioritising cross-state cooperation and collective benefit.

We welcome the European Commission’s focus on impact and the proposed mission-oriented approach for FP9, whereby a research project’s ‘mission’ determines the outcome that must be achieved within a certain timeframe and budget, prioritising the goal rather than the means. This approach could encourage international collaboration and could potentially add further value by aligning to wider national and EU investments, thereby multiplying impact.

FP9 should ensure that the research that it funds broadens and deepens our understanding of the future so we can embrace the future society, economy, culture and technology. This research would be at the heart of a mission-oriented programme, as proposed in the Lamy Report. However FP9 should retain flexibility and continue to encourage creativity. It should continue to support the advancement of basic science, to increase the store of human knowledge and encourage excellence, knowledge transfer, and entrepreneurship in all areas of science.

Measures should also be put in place to avoid uncoordinated and unnecessary duplicate funding, with enhanced measures to discontinue inadequate or unproductive research, in order to redirect funding towards new, more effective projects.

4. Refreshed approach to innovation

FP9 should implement a refreshed, non-linear approach to innovation encompassing a broader definition and wider measures of success to demonstrate the importance of science to everyone.

The Society supports the proposal from ALLEA that the linear approach of Horizon 2020 to measuring innovation can be overly prescriptive². A broader definition of innovation should be applied that involves all forms of knowledge, with innovation considered as part of a holistic approach encompassing societal challenges and impact. FP9 should also include impact beyond GDP to capture, as the Lamy report suggest, “impact on science, skills and competences, competitiveness of European industry, innovation practices, performance of Member States, and on policy-making”.

² ALLEA Working Group Framework (2017) *Developing a Vision for Framework Programme 9*. ALLEA is the European Federation of Academies of Sciences and Humanities which brings together 59 Academies in over 40 countries from the Council of Europe region. Member Academies operate as learned societies, think tanks and research performing organisations.

FP9 should incorporate more nuanced measurement, beyond the number of projects linked to a company in a consortium. The Society supports the Lamy report's recommendation that EU innovation policy should be based on "a definition of innovation that acknowledges and values all forms of new knowledge – technological, but also business model financing, governance, regulatory and social – which help generate value for the economy and society and drive systemic transformation".

5. Maximise collaboration through (and throughout) the value of national research infrastructures

FP9 should enable all parts of the research landscape to access national research infrastructures to maximise value and facilitate and enhance cooperation.

Key to the success of international research projects and collaborations is access in large-scale infrastructures. Continuing access to existing international infrastructures is also vital for future research and prosperity. Although most pan-European research infrastructures operate independently of Framework Programmes, FP9 could play a role in ensuring that they deliver maximum value and coordinating access to national infrastructures.

Cooperation between national research infrastructures, both across and beyond the EU, is crucial to ensure the continued efficiency and productivity of European research. FP9 should ensure that the best researchers can access the best research infrastructures.

As the Society's *A Snapshot of UK Research Infrastructures* report³ highlights, recognising and supporting the rich diversity of research infrastructures is crucial to ensuring that they can, in turn, continue to support excellent research.

6. Support for talent mobility

FP9 should provide support for mobility programmes to facilitate exchange of talent and expertise within the EU.

International mobility ensures a circulation of skills and ideas around the world, and 'brain circulation' in the global research system sees scientists follow the best science and the best resources.

Both destination and source countries benefit from having a strong supply of well-qualified workers⁴. Destination countries attract talent with relevant skills and expertise but these mobile researchers "tend to retain productive links with their home countries and may also return home, bringing additional skills and expertise"⁵. The results of a survey of academics by Opinion Leader, *The role of international collaboration and mobility in research*, published in March 2017, found that "91% of National Academy Fellows and grant recipients surveyed reported that mobility was very important to their careers and 86% said that international travel was essential"⁶.

³ The Royal Society (2018) *A Snapshot of UK Research Infrastructures*.

⁴ RAND Europe (2017) *International mobility of researchers: A review of the literature*.

⁵ RAND Europe (2017) *International mobility of researchers: A review of the literature*.

⁶ Opinion Leader (2017) *The role of international collaboration and mobility in research*.

7. A wider range of funding mechanisms to support projects of different scope and duration

FP9 should provide a wide range of funding mechanisms of different monetary values and timescale to effectively support projects of different scope and duration and encourage flexibility, creativity, and originality.

In striving to be a world-leader, the EU research endeavour must not be restricted by offering a small range of size and duration of funding awards. As ALLEA highlights, in order to foster creativity and originality FP9 must provide a range of grant sizes and allow flexibility for shorter timeframes by implementing a streamlined application process.

Horizon 2020 requires the establishment of large consortia, which is “largely due to the executive agencies of the Commission responsible for the assessment of proposals insisting they can only manage a certain number and type of applications”⁷. Large consortia can be difficult to establish and are often not inclusive to early career researchers. The Society supports the proposal from ALLEA that a range of smaller grant sizes, in addition to the grants currently provided to large consortia, would help to support early career researchers, bringing fresh perspectives to research projects and enabling researchers at all stages in their career to progress. This would in turn result in a wider range of participants, providing a broader scope for building excellence and raising success rates.

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⁷ ALLEA Working Group Framework (2017) *Developing a Vision for Framework Programme 9*.