

RSE RESPONSE TO THE EUROPEAN COMMISSION'S CONSULTATION ON FRAMEWORK PROGRAMME 9

Introduction

1 The Royal Society of Edinburgh (RSE), Scotland's National Academy, is pleased to respond to the European Commission's consultation on Framework Programme 9. The breadth of expertise in the RSE Fellowship spans the disciplines, encompassing science and technology, arts, humanities, business and public service. The RSE is therefore well placed to comment on the European Commission's plans for devising the next Framework Programme for research and innovation.

2 The RSE is clear that Horizon 2020 has been extremely valuable in strengthening EU research capacity, and that of the participating nations. The key features underpinning the success of the Framework Programme can be summarised as follows:

- Multi-centred research collaborations and networks underpinned by the mobility of researchers and students.
- Critical mass and strategic coordination of research endeavour, particularly in terms of funding and access to shared research infrastructure and facilities that could not otherwise be provided by a country working alone. This has increased efficiency and reduced unnecessary duplication.
- A long-term approach and funding environment for research.
- Common policy and regulatory frameworks.
- The range and scale of research programmes and funding available, supporting: disciplinary and interdisciplinary research, including that aimed at addressing major societal challenges; fundamental research and innovative developments; and researchers at various stages of their careers.

- Competition and a focus on excellence has driven-up research quality.
- 3** The RSE is firmly of the view that FP 9 should build upon these features, thereby complementing national research systems.

European Research Council

4 The European Research Council (ERC) is one of the world's leading funders of fundamental research. The level of competition for ERC grants has driven-up standards, making the ERC one of the most highly regarded funding schemes in the world. It must be retained and research funding should continue to be allocated on the basis of excellence. The RSE supports the Lamy Report recommendation that the budget for the next Framework Programme should be increased with a view to providing more resources for the ERC and the European Innovation Council (EIC). European Commission developments and the influential Lamy report make clear a move towards a mission-orientated, impact-focused agenda for research and innovation. This emphasises the importance of ensuring that increased investment is made in the ERC to ensure that support for fundamental research does not diminish in the context of a greater focus on missions. In line with the Commission's desire to continue to streamline processes, the RSE believes that the ERC, reporting to the Scientific Council, should have full decision-making autonomy. This would address the concern that decision making is unduly fettered or made more bureaucratic by the involvement of a Commission-led executive agency.

Marie Skłodowska-Curie Actions

- 5 The Marie Skłodowska-Curie Actions (MSCA), again awarded on the basis of excellence, have been very important, especially in terms of supporting mobility, collaboration and career development for early-stage career researchers. The RSE is strongly of the view that MSCA needs to be retained.

Interdisciplinarity

- 6 The RSE believes that FP 9 provides an excellent opportunity to increase the importance assigned to interdisciplinarity. Notably, 37% of Horizon 2020 funding has been directed to research aimed at addressing societal challenges, including health; demographic change and wellbeing; food and energy security; and action on climate change. We would envisage that a move towards a greater mission-orientated, impact-focused approach to addressing global challenges has the potential to generate greater public awareness of and engagement in FP 9, an outcome that we support. These global challenges cannot, however, be addressed by researchers and innovators working in isolation. The missions will need to be framed sufficiently broadly to support the interdisciplinary working that will be required to address major global challenges. The missions will also need to be cast in flexible terms so that they are adaptable to changing circumstances.

Social Sciences and Humanities

- 7 In this context, FP 9 will need to consider how the social sciences and humanities can be fully embedded in the research and innovation landscape. While a large proportion of agreed projects under Horizon 2020 are ‘tagged’ as involving social science and humanities, there is concern that their involvement is marginal. Whereas STEM disciplines will be at the centre of technological developments that replace or at least reshape many existing roles in society and the economy, the social sciences and humanities will be crucial to considering the impact of change from a wide-range of perspectives, including social, economic, ethical and legal. The humanities and social science have a fundamental role in helping prepare society for

a changing world, including supporting society’s adaptive capabilities and building people’s resilience.

Innovation Support

- 8 Horizon 2020 has combined research and innovation in a single source of funding. This was both a significant and necessary development in terms of increasing collaboration between business and industry, and researchers. The Commission’s decision to launch the European Innovation Council pilot, with funding of €2.7bn over three years, recognises the continuing requirement to improve the rate and quality of research commercialisation. In order to bridge the research and innovation gap, the Commission should consider whether there is greater scope to create synergies between the EIC and the ERC. There is, furthermore, a need to develop innovation talent in order to ensure the EIC is as effective as possible. The RSE Enterprise Fellowship scheme¹ has many years’ experience in doing just this, and could be used as a model.
- 9 It is important that innovation is considered in its broadest sense as it applies far more broadly than technology. By its nature, innovation is a social process, extending well beyond technological components.
- 10 We would like to see a weakening of the role of Technology Readiness Levels (TRLs) for a variety of reasons – in many situations of challenge-led innovation problems, parts of the challenge sit naturally at different TRLs and may not be fully technological in nature. It will be important that all stages of the research, innovation and commercialisation lifecycle are sufficiently funded in FP 9. In particular, there is concern that demonstrator projects have been under-resourced in Horizon 2020.

Impact

- 11 We welcome the recognition of the need to generate a better understanding of the impacts of EU research and innovation. This needs to be considered holistically, as it is important to ensure that impacts extend beyond economic and technological aspects. The impacts should be shared widely, particularly with a view to strengthening public awareness and engagement.

¹ More information on RSE Enterprise Fellowships is available from here: <https://www.rse.org.uk/awards/enterprise-fellowships/>

Possible Mission Areas

12 In light of the preceding comments, the RSE suggests that while not exhaustive, the following represent overarching topics that could be used for framing FP 9 missions:

‘Healthy Lives’

Under this overarching topic it would be possible to explore the following key issues:

Enabling Our Ageing Population – Developing new technologies, services and systems to support an ageing population is a current challenge that will take on further urgency as the proportion of older people increases globally. Themes would encompass advances in personalised medicine, medical diagnostics and assisted living technologies, as well as new models for social care and services tailored for an ageing population.

Addressing antimicrobial resistance – A mission that addresses the challenge of antimicrobial resistance using a one-health approach. Alongside the development of new drugs and types of therapeutics, streams under this mission could include understanding of mechanisms of resistance and understanding the spread of resistance, identifying ways to prevent the spread and transmission of infection, development and implementation of rapid and accurate diagnostics, and effective public health interventions, including public understanding of and attitudes to antimicrobial resistance.

Providing for safe, sustainable and sufficient food supplies – This mission would encompass innovative methods to improve food production, reduce food waste and ensure food safety and authenticity. Examining our social and cultural relationships with food, alongside research into public health interventions that encourage improvements in diet would also be part of this mission.

Addressing lifestyle diseases – led by sociological and psychological efforts to change behaviours that lead to diseases including obesity, diabetes, addictions and anorexia, this mission will draw upon food chemistry and formulation, as well as medical interventions to improve health, quality of life and life expectancy.

‘Sustainability’

Under this overarching topic it would be possible to explore the following key issues:

Sustainable Low Carbon Energy for All – A mission to deliver advances across energy efficiency, exploitation, storage and distribution to ensure adequate, equitable and sustainable energy for all. The mission will need to encompass research into materials and processes to deliver new and improved technologies, as well as routes to implementation on the scale needed for public and industrial use. Research into markets, consumer attitudes and preferences will be essential to understand how to undertake changes across the current system.

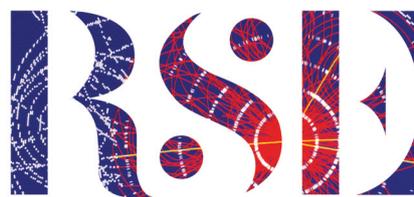
A Clean, Sustainable World – This mission strives to engender resource efficiency, the circular economy and the protection and replacement of critical elements. Urgent targets include reducing the use of, reusing and recycling plastics with an aim to have zero plastics being added to the environment by 2030; traceability and recycling of all elements in disposable electronic gadgets. There is a large social element in altering attitudes towards recycling, recycled goods and reduced packaging.

This Advice Paper has been signed off by the RSE General Secretary. Any enquiries about this Advice Paper should be addressed to Mr William Hardie (email: whardie@theRSE.org.uk)

Responses are published on the RSE website (www.rse.org.uk).

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KNOWLEDGE MADE USEFUL