



## Framework Programme 10

### Russell Group suggestions for Horizon Europe's successor programme

The European Union's Framework Programmes have provided an enormous boost to science, research and innovation across Europe and the world. As a group of UK research-intensive universities, securing association to Horizon Europe was a top priority for us, so we were delighted that the UK Government and European Commission were able to finalise association terms for the full duration of the programme. We greatly appreciate the efforts made on both sides to reach agreement and believe this represents the best outcome for UK and EU science.

The strength and value of ties between our universities and other European partners cannot be underestimated, and we hope they will grow, through Horizon Europe and successor programmes. With this in mind, we offer some observations relating to the future of these programmes, which we believe will build on their success:

- The Russell Group hopes Framework Programme 10 (FP10) will protect and boost the role of fundamental research within the programmes: around a third of proposals deemed 'excellent' by the European Research Council (ERC) are not able to be funded at present, while the Excellent Science (Pillar I) share of Horizon Europe's budget is lower than that of Horizon 2020. The Framework Programme has a key role to play in helping shape the future as, together, we seek to advance knowledge and tackle key challenges facing the UK, Europe and the world: excellent fundamental research needs to be at the heart of this effort.
- People are central to research and we hope FP10 will support and boost the role of MSCAs, increasing opportunities for individuals to develop successful research careers and enhance their networks, encouraging mobility between countries and between academia and industry, and supporting resilience and sustainability in research across our continent.
- The Russell Group hopes to see more calls for lower technology readiness level (TRL), more innovative projects within the Global Challenges pillar (Pillar II), and that approaches to impact within that pillar will take account of the longer-term impacts of such projects.
- Before any further roll out, we would also like to see a full evaluation of the impact of the lump-sum model, where payment is only approved for completed work packages. We – and all of our research partners – want to realise maximum value from the Framework Programme. Part of this is ensuring appropriate levels of governance, that bureaucracy is not simply transferred rather than reduced, and that funding mechanisms avoid unintended consequences for more innovative, higher-risk projects.

## Introduction

The European Union's Framework Programmes have provided an enormous boost to science, research and innovation across Europe and the world. As a group of UK research-intensive universities, full association to Horizon Europe was our top international research partnerships priority for several years. This reflects its world-leading strengths:

- **Ready-made routes to collaboration on a global scale:** Horizon Europe provides unrivalled access to ready-made routes for collaboration, making it easier to work with multiple countries. Common rules and funding cycles, access to talent, infrastructure, networks, collections and data allow member states and associated countries to operate on the same scale as countries such as the US and China. No one country could replicate this scale.
- **The European Research Council (ERC), the jewel in the crown of EU programmes:** ERC grants bring enormous prestige with them, based on peer review across the EU and eligible associated countries. Our members were grateful for and benefited from the ERC's continued willingness to evaluate UK-based applicants during the period of uncertainty around UK association. ERC participation is one of the most valued aspects of the programme, focusing as it does on research excellence.
- **At a time of increasing strategic competition and geopolitical tensions, research cooperation with trusted partners with shared values is more important than ever.** Most of the UK's largest-scale research partners are in the rest of Europe. A number of the other countries we have strong links with, such as Canada, New Zealand and South Korea have either signed up to Horizon Europe or may seek to do so in future.

Collaboration with other European countries is crucial to and cherished by our members, and EU Framework Programmes have done a huge amount to make that possible over the years. For example:

- At **Imperial College London**, EDEN2020 explored new methods of creating brain images and devising brain treatments using flexible and robotically controlled needles. This research revolutionised the accuracy of brain imaging. **Professor Ferdinando Rodriguez Y Baena received ERC funding**, which enabled him to overcome the technological barriers to patient applications. **The subsequent Pillar II grant for EDEN2020 allowed Imperial to coordinate a network** of the very best academics, clinicians and businesses from across Europe to deliver the technology which is now helping to extend and enhance the quality of life of cancer patients.
- Scientists and engineers at **Cardiff University** are creating a highly realistic virtual environment where surgeons can train to carry out vital medical procedures, reducing the risk to patients in operating theatres. Surgeons undergo extensive training, but because some health conditions are rare, having the opportunity to practice some techniques can be difficult. For the first time, working with academics from the **University of Luxembourg** in computational mechanics, and expertise from the **French Institute for Research in Computer Science and Automation**, researchers hope to address the problems of accurately recreating the sense and feel of live surgery. This could help reduce the risk to patients during complicated surgery.

Russell Group universities are delighted to be fully back in the wider European research community through UK association to Horizon Europe and Copernicus. In that spirit, and in the hope of continuing in that family for many years to come, we offer some observations relating to the future of EU Framework Programmes.

## Protecting and boosting fundamental research

Fundamental, discovery research is vital to developing the core technologies and responding to the grand challenges of the future, with initial discovery research producing wider impact later on. We rely on fundamental research to deliver innovations and discoveries as wide-ranging as graphene, genomics, optoelectronics, cosmology research, and new tests and treatments for everything from bowel disease to diabetes, dementia and cancer. Graphene is a case in point, both in itself and for the role of EU research programmes in developing and building on fundamental research:

- The **University of Manchester's isolation of graphene**, which drew on core research funding for UK universities, has led to an array of products incorporating graphene – including some of the world's bestselling cars, running shoes and smartphones. Graphene has been fundamental in the development and performance of numerous products that have dominated their individual markets. Building on this discovery, the **EU-funded GrapheneCore3 project, coordinated by Chalmers in Sweden, aims to secure a major role for Europe** in the ongoing technological revolution. Imperial College London, Manchester, Cambridge, UCL, Sheffield, QMUL and Warwick were part of GrapheneCore3, which had over 160 partner organisations across 24 countries and had a budget of €150m. It gave academics access to a huge network of research and expertise they would not otherwise have had. Graphene Flagship partners created over a dozen new companies in photonics, medical technologies, materials production and other areas.

The independent and autonomous **European Research Council** is crucial to supporting excellent science and is a magnet for attracting research talent to the whole of Europe. However, its very popularity means it is attracting excellent proposals, deemed worthy of funding, which it cannot support. In both Horizon 2020 and (so far) Horizon Europe, the oversubscription rate has been 34% - meaning that **over a third of excellent science proposals have not been able to be supported**. This is a missed opportunity for European research.

- Rainfall systems are complex and variable, and have an enormous impact on food security. With ERC funding, researchers at the **University of Cambridge** investigated the resilience and sustainability of the Indus Civilisation (c.2500-1900 BC) in an era of climate change, when an abrupt weakening of the Indian Summer Monsoon coincided with the start of the decline of Indus cities. Drawing on archaeology, earth sciences and geography, the researchers worked to reconstruct climate, model rain patterns, and explore how societies adapted and responded to change. Taken together on the basis of modelling, the information allowed researchers to understand the impact of climate change and offer hypotheses for why communities responded in particular ways. The research led to independent funding for systematic heritage mapping in India and Pakistan.

The EU recently agreed to implement a series of new measures to attract and retain research talent and to foster better working conditions for researchers.<sup>1</sup> This is a challenge European countries share, and we know from the importance our researchers attach to it that **the prestige of an ERC grant is a powerful incentive for attracting and retaining talented academics**. Similarly, MSCAs are greatly valued for researchers' career development, network building and training, along with supporting mobility. The 14.4% success rate for Horizon 2020 applications indicates they are substantially oversubscribed:<sup>2</sup> we understand this is also true for Horizon Europe. From experience with MSCA and similar schemes, further benefits can often be achieved when a number of fellowships are awarded to an institution, creating a positive cohort effect.

However, since the removal of the Future and Emerging Technologies element of the Framework Programmes, **the Excellent Science Pillar (including the ERC and Marie Skłodowska-Curie Actions (MSCA)) has fallen from 31% in Horizon 2020 to 26% in Horizon Europe**.<sup>3</sup> Accordingly, the Russell Group **supports calls to protect and boost the scale and role of the ERC and MSCAs within FP10**, with a continuing focus on excellence.

## Pillars II and III

The Global Challenges and Industrial Competitiveness, challenge-driven pillar (Pillar II) is also vital to universities and researchers across Europe, often working with industry partners, promoting collaboration across our continent and enabling networks of expertise and facilities which would not be realised without it. **Support from public funds is particularly important for lower technology readiness level (TRL) projects where risk is higher, but so are potential rewards.**

We would therefore welcome an increase in calls for projects which involve genuinely new technologies and which increase our understanding of core challenges themselves. **The shift to encouraging a better balance between higher and lower TRLs was very welcome in Horizon Europe, and we hope the Commission will build on this in future.**

We are aware that the issue of impact within Pillar II was discussed at length in the run-up to the Horizon Europe regulation. **We would hope that in considering impact in FP10, due consideration will be given to the potential long-term impact of more technologically innovative, ground-breaking projects** – and ensuring that an overly prescriptive approach to impact does not undermine the prospects for such projects.

**The UK has experience of measuring impact** through the Research Excellence Framework (REF) impact case studies and Research Council Pathways to Impact, and it is generally agreed that the REF has been a powerful tool in a UK context, both for impact generally and for open science. We would be more than happy to discuss members' experiences of, and opinions on, the UK experience with partners if this is of interest.

Finally on Pillar II, **efforts to simplify applications and grant management** are always welcome. However, we would hope to see a full evaluation of the operation of the lump-sum model before a view is taken on any further expansion. In the lump-sum model, payments are linked to the completion of work packages, rather than actual costs incurred. Full evaluation will be particularly valuable to see whether burden has simply been transferred rather than reduced and to avoid unintended consequences. There may be a risk of requirements to produce certain deliverables before funding is released disincentivising bidding for higher-risk, more innovative projects.

The Innovative Europe pillar (Pillar III) includes support for end-to-end innovation, covering all stages of innovation, as well as proof of concept funding. We know this is a gap in the UK context and it provides real opportunities for universities and businesses alike, including Russell Group spinouts – especially in de-risking technologies before they go to market, thus raising their odds of doing so successfully. However, our sense is that awareness of these opportunities in universities is low, and we would warmly welcome **efforts to raise awareness, co-ordinated between the European Commission and participating states, of Pillar III for universities and spinouts.**

## Looking to the future

As challenges facing Europe and the world continue to grow, collaboration between researchers, innovators and entrepreneurs in like-minded countries has never been more important. EU Framework Programmes are world-leading, and enormously attractive to the best and brightest all over the world. Russell Group universities are delighted to be able to participate fully. We look forward to playing a full part in FP10 – a stable, predictable, long-term framework for working together on the challenges and opportunities we share.

<sup>1</sup> [https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/eu-countries-agree-steps-attract-and-retain-research-talent-2023-12-08\\_en](https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/eu-countries-agree-steps-attract-and-retain-research-talent-2023-12-08_en)

<sup>2</sup> <https://marie-sklodowska-curie-actions.ec.europa.eu/news/new-study-highlights-marie-sklodowska-curie-actions-contribution-to-excellence-and-the-european-research-area>

<sup>3</sup> <https://www.the-guild.eu/publications/position-papers/lessons-learned-and-way-forward-the-guild-s-recommendations-for-horizon-europe.pdf>

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