

Russell Group position paper - Framework Programme 9

EU Research and Innovation Framework Programmes have supported world-class research over many years, leading to important breakthroughs and discoveries. Russell Group universities are active participants in EU Framework Programmes and want to continue after the UK has left the EU. We especially value the opportunities to develop long-lasting relationships with fellow scientists and organisations across Europe through joint research projects, researcher mobility and networking platforms which bring significant added value to all involved. Indeed, international partnerships are crucial to the success of Europe's universities and FP9 will provide huge value in supporting further collaboration across the EU and beyond.

Building on the success of Horizon 2020, Framework Programme 9 can play a critical role in strengthening research and innovation cooperation to address key challenges affecting society, the environment and the economy. Russell Group priorities for FP9:

- 1. Focus on excellence** – Excellence should remain the primary selection criterion to drive up the quality of the science base and to ensure the best return for public investment, particularly through the ERC and Marie Skłodowska-Curie Actions
- 2. Open to the World** – FP9 should provide flexibility to work with excellent research partners across the globe, maximising the impact of research funding for wider global benefit
- 3. Strengthening the entire research and innovation ecosystem** – Ensure an effective balance of funding between fundamental, curiosity-driven research and closer-to-market activities, with appropriate support across all discipline areas
- 4. European Innovation Council** – Rationalise funding instruments and strengthen the EU's innovation capacity through the EIC. Research-intensive universities should play a key role in its development and implementation
- 5. Sustainable funding** – Research and innovation must be an EU funding priority, with increased resource to support more excellent proposals; focus on grant funding for university research rather than loans
- 6. Social Sciences and Humanities** – Fully recognise the value of Social Sciences and Humanities, strengthen the opportunities for these disciplines to lead projects and be fully embedded across the Framework Programme
- 7. FP9 Missions** – Missions must be broad and developed in consultation with experts and stakeholders. They must allow for flexibility for bottom-up proposals and emerging global priorities; encouraging interdisciplinarity will be key to their success.
- 8. Simplification** – Streamline funding instruments and introduce a lighter audit burden; improve efficiency through increasing success rates
- 9. Effective measures of impact** – The definition of impact must capture the diverse types of impact research can have over appropriate timescales
- 10. Spreading excellence and widening participation** – Ensure the budget for these activities is spent efficiently and effectively alongside European Structural and Investment Funds, which should remain the main source of funding to develop research capacity in Europe

Introduction

The purpose of The Russell Group is to provide strategic direction, policy development and communications for 24 major research-intensive universities in the UK; we aim to ensure that policy development in a wide range of issues relating to higher education is underpinned by a robust evidence base and a commitment to civic responsibility, improving life chances, raising aspirations and contributing to economic prosperity and innovation.

Russell Group universities are active participants in EU Research and Innovation Framework Programmes across all areas. We estimate that nearly a fifth of all Horizon 2020 projects involve a Russell Group university and they coordinate or host 11% of projects overall. Our universities host a particularly high proportion of European Research Council (ERC) grants and Marie Skłodowska-Curie Actions (MSCA).

Although the UK is preparing to leave the EU, Russell Group universities want to continue to bolster European science through our contributions to EU research. A positive outcome for research and innovation will be mutually beneficial to the UK and the EU science base as a whole. Above all, we would like to ensure the good relationship between the UK and the EU on science can be maintained. We hope the UK Government and the EU can reach an agreement which will allow the UK to continue to engage constructively with future research projects and programmes to the benefit of all.

1. Focus on Excellence

- 1.1 Public funding for research is most effective when distributed on the basis of true international excellence. To boost the science base and knowledge economy across Europe and make the most efficient use of investment, FP9 must continue to allocate funding on the basis of excellence. An excellence-based programme drives up the quality of research by fostering competition and ensures the whole of Europe benefits from innovation, brain circulation and internationalisation.
- 1.2 The Excellent Science pillar of Horizon 2020 is working very effectively and the European Commission should maintain continuity of this part of the programme for FP9.
- 1.3 The ERC in particular is one of the great successes of Horizon 2020 and it demonstrates the real value of focusing EU funding on excellent research. This research is likely to have the greatest impact in the long term, underpinning major shifts in technology and innovation and the basis for whole new fields of knowledge. Indeed, an independent study carried out for the ERC showed that over 70% of ERC-funded projects made scientific breakthroughs or major advances.¹
- 1.4 The ERC provides especially important support for early-career researchers through its Starting Grants and funding should continue to be prioritised for emerging new talent at this critical time in their career. For example, in 2007, Manchester University scientist Konstantin Novoselov received one of the first ERC Starting Grants to investigate the 'Physics and Applications of Graphene'. With fellow Manchester professor Andre Geim, he went on to win the 2010 Nobel Prize for Physics for his work.
- 1.5 Marie Skłodowska-Curie Actions (MSCA) provide valuable training and mobility opportunities to excellent young researchers. These actions develop key research skills, grow expertise, build networks and provide important career opportunities for the early-career researchers Europe needs to help build the knowledge economy of the future.
- 1.6 **The ERC and MSCA should both continue to be a central part of FP9 and with an enhanced budget they could deliver even more impactful research across the EU.** This is in line with the recommendation from the League of European Research Universities (LERU) that these elements should be the "cornerstones" of FP9.²

¹ Qualitative Evaluation of completed projects funded by the European Research Council (July 2016)

² <https://www.leru.org/files/LERUs-Views-on-the-9th-Framework-Programme-for-Research-and-Innovation.pdf>

2. Open to the World

- 2.1 The Framework Programmes already support collaboration with partners outside the EU. However, the impact of FP9 can be enhanced by improving opportunities for collaboration with partners from around the globe. International collaboration is integral to creating world-class research with impact, but it is also necessary to address the biggest global challenges which impact on all parts of the planet. Being truly open to the world with increased flexibility to work with excellent partners in non-EU countries would facilitate research collaboration with a wider pool of top international researchers and expertise, improving outcomes and boosting jobs, growth and productivity.
- 2.2 We support the recommendation in the Lamy Report to open association to FP9 to partners of “a similar level of excellence.” The current rules about eligibility for association to Framework Programmes would need to be changed to open FP9 to new countries as the current rules around eligibility for association are relatively limited.

3. Strengthening the entire research and innovation pipeline

- 3.1 FP9 should retain a comprehensive approach to the research and innovation pipeline to facilitate the development of new ideas, products and services which bring jobs and growth across Europe. As LERU has noted, funding for collaborative research and innovation activities should be spread in a balanced way between early stage, medium and advanced activities to ensure the process is “constantly fed off new ideas and insights”.
- 3.2 Fundamental, blue skies research is a key driver of innovation because it leads to crucial new solutions and breakthroughs. FP9 must have an appropriate balance between funding for basic, frontier research and more development/innovation activities.
- 3.3 It is critical that FP9 prioritises continued investment in fundamental, curiosity-driven research to ensure there is a sustainable pipeline of new ideas to underpin future innovations and address global challenges. The programme should not seek to focus on closer-to-market projects at the expense of basic research.
- 3.4 Outside the Excellent Science pillar of Horizon 2020, there has been a trend towards the EU funding more large-scale, high technology readiness level (TRL) projects. Analysis by the League of European Research Universities (LERU) of TRL levels in Horizon 2020 calls in the 2014-15 and 2016-17 work programmes shows that TRLs of 4 and above (when a technology is already validated) are most commonly requested in Industrial Leadership and Societal Challenges calls.³
- 3.5 Under FP9 there should be more room for bottom-up knowledge development through the missions and the European Innovation Council. The European Commission should consider whether TRLs are the most appropriate classification to use, or whether a broader, more qualitative description of different types of desired impacts or outputs from a call would be more appropriate to ensure that a range of societal, policy and other impacts are captured.

4. European Innovation Council

- 4.1 We support the European Commission’s plans to enhance the EU’s innovation capacity and rationalise existing innovation instruments through the creation of a European Innovation Council (EIC). Universities should be at the heart of its development and implementation, alongside industry and other partners. Knowledge exchange is a priority for Russell Group universities and we share the European Commission’s aim to ensure those with bright ideas and the ambition to scale up internationally have the right support.
- 4.2 Universities are well placed to nurture breakthrough innovators and innovations and they are a key source of start-ups: in 2015/16 alone, 688 new spin-offs, start-ups and social enterprises were created by Russell Group universities, their graduates and staff. Universities across Europe could

³ LERU – ‘The strength of collaborative research for discovery in Horizon 2020’ (2016).

be supported to do this to greater effect and there is a useful opportunity to ensure they can reach their potential in taking research ideas to the next stages of application.

- 4.3 Supporting effective partnerships between universities and businesses (particularly SMEs) is especially important, as universities can help develop the innovation capacity within a company through developing cutting-edge technologies, leading to new and improved products and services; through providing management training, skills and innovative ideas; and through making incubator spaces and support services available for new high-tech companies to grow and flourish.
- 4.4 The European Commission could explore the example of the UK's Connecting Capability Fund as a model for leveraging expertise across Europe, supporting the sharing of good practice and boosting the EU's capacity for innovation and research commercialisation.⁴ Another model which has worked well which the Commission could draw on is that of the Biomedical Catalyst, which is a partnership between UK research and innovation agencies which aims to de-risk innovative science and commercialise ideas arising out of academia and industry, helping SMEs to develop and accelerating the progress of novel products to market.⁵
- 4.5 Original, high-quality research within universities underpins innovation, so funding for innovation needs to be complementary and additional to funding for fundamental, basic research. Building on the long history of research excellence across the EU will be crucial to achieving the ambitions of FP9 for innovation. Universities contain a lot of useful expertise in innovation and commercialisation of research so we support the inclusion of universities on an EIC strategic advisory board, as proposed in the recommendations from the Independent High-Level Group of Innovators on establishing a European Innovation Council ('Hauser report').
- 4.6 The relationship between the EIC and the European Research Council (ERC) will be central to enhancing innovation in the EU. We recommend that the EIC supports initiatives to bridge the gap between research and innovation more effectively and ensure that excellent EU-funded projects are able to reach their full potential in terms of impact. This could be realised through a proof of concept fund, similar to that already run by the ERC, for high-quality FP9 projects for the initial steps of pre-competitive development to turn research outputs into a commercial or socially valuable proposition. Consideration could be given to whether the ERC's proof of concept fund could be moved to the EIC as a simplification measure.
- 4.7 Training is key if the EU wants to foster the next generation of entrepreneurs and the European Commission should explore setting up a version of the Marie Skłodowska-Curie Innovative Training Networks (ITNs) which focused specifically on spanning the gap between the academia and commercial business. Prizes could also be awarded for doctoral/post-doctoral entrepreneurship, to incentivise and reward early career researchers to develop important commercial skills through starting new businesses. In addition, the EIC fellowships proposed in the Hauser report could be used to support talented individuals who straddle academia and the private sector, with a focus on ensuring they are nurturing others to bridge that gap and sharing good practice in how to do so.
- 4.8 Commissioner Moedas has spoken about the importance of social innovation and it will be important to consider how the EIC could support social enterprises, in particular engaging the social sciences, arts and humanities communities in this question.
- 4.9 Ultimately, to be effective, the EIC should rationalise and simplify existing innovation funding instruments and focus on cost-saving. We would not want to see too high a concentration of investment in the EIC at the initial stages before the concept and structure of the scheme is proven; funding could be scaled up over time depending on evaluation of its success and impact.

5. Sustainable funding

- 5.1 Investing in research and innovation delivers economic, social, health, environmental and other far-reaching benefits. The EU should seek to increase its level of investment for the next Framework Programme to underpin a competitive knowledge-based European economy for the future.

⁴ <http://www.hefce.ac.uk/ke/ccf/>

⁵ <https://www.mrc.ac.uk/funding/science-areas/translation/biomedical-catalyst/>

Financing cutting-edge research through the ERC in particular, and developing skills of top researchers through MSCA, will allow the EU to respond with agility to emerging challenges.

- 5.2 Success rates across Horizon 2020 are notably lower (12.6%) than in FP7 (18.4%), with particular challenges under the Excellent Science pillar, where success rates for Future and Emerging Technologies (FET) were on average just 3.6% between 2014 and 2015⁶ and some ERC competitions have had success rates at less than 10%.⁷ The high demand for funding under the Excellent Science pillar indicates that the budget for these activities should be increased further to ensure the EU is maximising the potential of excellent research bids.
- 5.3 When considering funding mechanisms, research should continue to be funded through non-repayable grant funding. The Commission should strongly resist changing funding from grants to loans as this would represent a dynamic shift in the kind of research and innovation activities the next programme would be able to support.

6. Social Sciences and Humanities (SSH)

- 6.1 Research in the Arts, Humanities and Social Sciences across the board – and across disciplines – can deliver crucial insights into today’s major cultural, social and political challenges as it is fundamentally concerned with understanding the nature, history, and variability of human experience. SSH research explores the ideas, narratives, and artefacts that constitute and reflect our lives and our place in the world; it observes and analyses the practices and processes that govern our individual and collective behaviour.
- 6.2 The next Framework Programme should fully embed Social Sciences and Humanities (SSH), both by funding research in these areas and recognising the valuable contribution of SSH across the programme objectives for driving policy to tackle global research challenges.
- 6.3 The Commission could improve the way in which some call topics are currently framed and described where the focus is primarily on the physical sciences, with the SSH element seeming to be an ‘add-on’ in a minor supporting role, by making SSH a core element of the call. Use of terminology in the calls that is more appropriate for other disciplines (e.g. references to TRLs) does not help.
- 6.4 To fully embed SSH in FP9, the Commission should ensure they have sufficient SSH expertise when writing the calls and appropriate representation of the SSH community in those evaluating proposals. It could be worth exploring whether there should be a minimum number/proportion of SSH evaluators on each panel, for example.

7. FP9 Missions

- 7.1 We support the mission-oriented approach to research and innovation in FP9 as proposed in the Lamy Report and discussed in Mariana Mazzucato’s report as a tool to drive economic growth, bringing together different actors in the system and fostering collaboration across sectors at a scale which provides real EU added value. It is important to ensure effective communication of missions and ensure the opportunities to engage the wider public are not missed.
- 7.2 Research and innovation missions should be clearly defined in the work programmes to encourage quality applications. As Mazzucato notes, it is necessary to clearly frame missions with specific targets and timing to determine their success. We support Mazzucato’s proposal that there is no ‘one-size-fits-all’ for missions and the scope and priorities of missions should be decided following expert advice from across disciplines and stakeholder consultation, drawing on lessons from the Societal Challenges pillar of Horizon 2020 and regular evaluation of missions to inform future iterations. Although it is helpful to identify priority research areas, the missions should be broad and allow for flexibility for bottom-up proposals and emerging global priorities.

⁶ Horizon 2020 Annual Monitoring Report 2015

⁷ ERC Statistics

7.3 The design of the missions should also encourage and facilitate interdisciplinary research, bringing together specialist skills and expertise from a very wide range of academic disciplines as well as from different parts of the research and innovation system and different sectors. This type of research draws on a combination of different research methods, knowledge and cultures to develop novel solutions to the most complex research challenges. A stand-alone project with clustering of different disciplines through a “hub and spoke” model could help maximise the opportunities from interdisciplinary research.

8. Simplification

8.1 We welcome the progress that has been made to simplify the architecture, funding rules and application process of Horizon 2020. We would like the Commission to go further in FP9 to streamline funding instruments and to reduce the audit burden on institutions. An efficient audit system should acknowledge best practice and trust institutional practice, especially where there is a proven track record of participation and clean audit in EU programmes and when processes and procedures are also audited robustly by national governments. Lump sum funding would not be a suitable instrument for simplification if it means the responsibility for monitoring would shift from the Commission to the project participants themselves, increasing the burden for the academics, universities, businesses and others involved.

8.2 In addition to increasing the overall budget, which will allow the Commission to fund more projects, we suggest that success rates could also be improved by making changes to the two-stage proposal system. For example, a higher threshold could be set for passing stage one and the second stage should be much more meaningful, with a good chance of success at this stage – this would generate efficiencies for both researchers and evaluators.

9. Effective measures of impact

9.1 Projects under Horizon 2020 are currently assessed on excellence, impact, and quality and efficiency of the implementation. Commissioner Moedas has set out a vision for a more sophisticated approach to measuring impact for the next Framework Programme which goes beyond scientific impact. The European Commission should adopt a broad definition of impact under FP9, which does not only focus on economic impact, but also takes into account social, health, quality of life, environmental, policy and cultural impacts, amongst others. One piece of research can deliver multiple types of impact, sometimes with unexpected outcomes. Any measures to assess the impact of research under FP9 must be able to capture these diverse outcomes.

9.2 The process of undertaking and developing research to the point where it has the potential to impact on the economy, health, society or culture can take many years. The exact impact of blue skies research cannot be predicted in advance, but even where research sets out to explore an idea with obvious potential impact, it may take years of further investigation to develop the idea to the point where impact is able to be realised.

9.3 Analysis of research impact case studies from Russell Group universities shows that ‘time-to impact’ from the start of research (measured by project start date, initial publication date or initial grant date) to the delivery of the first main non-academic impact is on average eight years, with time differences ranging from less than one year to 29 years.⁸ Research that is closer to market can in some cases deliver impact much more rapidly, but this can often be reliant on fundamental, longer-term research. It is essential therefore that FP9 does not have too narrow a definition or focus on impact and takes into consideration the long time frames that can sometimes be needed before blue skies research delivers tangible impacts.

10. Spreading excellence and widening participation

10.1 Building research capacity in lower research-intensity Member States will benefit the whole of the EU’s research excellence. The introduction of the ‘Spreading excellence and widening participation’

⁸ ‘Engines of growth: The impact of research at Russell Group universities’ (November 2015)

element in Horizon 2020 is helping to boost research capacity across Europe and FP9 should continue to have this as a focus.

- 10.2 FP9 should help facilitate partnerships between organisations in more and less research-intensive regions through a sharing of knowledge, expertise and ideas. These actions are complementary to European Structural and Investment Funds, which are and should remain the primary source of EU funding that Member States can use to develop research and innovation capacity.
- 10.3 As with Horizon 2020, we support having a dedicated budget line for widening participation in FP9. Initiatives for spreading excellence and widening participation could be made more effective and more flexible through bottom-up programmes which foster innovative approaches to research management support and networking. Establishing a strong research support infrastructure and training staff in research offices in less research-intensive regions will be crucial to achieve a sustained improvement in their research performance. An evaluation of these bottom-up proposals could help the Commission to identify some of the more effective projects and good practice could then be shared with other organisations and countries.
- 10.4 Clear guidance for bids to Spreading Excellence initiatives and effective communication to prospective participants would also help to provide clarity and set expectations about the kinds of activities and partnerships this part of the programme will support.

**University of Birmingham • University of Bristol • University of Cambridge • Cardiff University
Durham University • University of Edinburgh • University of Exeter
University of Glasgow • Imperial College London • King's College London • University of Leeds
University of Liverpool • London School of Economics & Political Science
University of Manchester • Newcastle University • University of Nottingham
University of Oxford • Queen Mary University of London • Queen's University Belfast
University of Sheffield • University of Southampton • University College London
University of Warwick • University of York**