

Horizon Europe: maintaining UK leadership in global R&D collaboration

Realising the Prime Minister's ambition for the UK to become a science superpower hinges on our ability to collaborate on research and innovation with the best minds in Europe and across the world. The UK's association to Horizon Europe provides the opportunity to be at the forefront of major scientific projects which will support our ongoing development as a leading tech nation. Working with partners in Europe and beyond, we will be able to deliver solutions in areas such as zero carbon, quantum technology and genomics. Association will provide the UK with access to the talent, know-how and investment we need to cement Britain's place in the world as a leader in science and technology.

*We welcome the Government's decision to commit additional funding to support association to Horizon Europe in 2021/22. **In the forthcoming Spending Review, there is an opportunity to make a longer-term commitment by ringfencing sufficient funding to participate in Horizon Europe for the full duration of the programme.** This would maximise the ability of UK universities and businesses to lead projects, generate high-impact outputs and realise a range of economic, health, environmental and social benefits for the UK and its citizens.*

The benefits of UK association to Horizon Europe

The scientific landscape has grown ever more international and to solve the most pressing challenges facing the UK requires a critical mass of excellent research and diverse minds. This can only be achieved through collaboration with other countries in Europe and beyond. To maintain and enhance the UK's strategic advantage in science and technology, we must build on our strong links with Europe as well as developing closer links with the rest of the world.

UK universities already work extensively with European research partners: between 2015 and 2017, the UK published 162,000 papers in collaboration with academics across the EU, nearly double the number resulting from collaborations with partners in the United States.ⁱ The UK's association to Horizon Europe, the world's largest ever programme for multi-country collaborative R&D, offers a unique opportunity to strengthen these links and to develop our relationships with EU member states, other re-associating third countries such as Israel and Norway, and those likely to associate for the first time including Canada, Singapore, South Korea and New Zealand.

There are numerous benefits linked to the UK's association to Horizon Europe, including major breakthroughs, high-impact outputs and other economic spill-over effects. For example:

- **Access to EU funding streams such as the European Research Council (ERC) has been an important "pull factor", enabling universities to attract and retain world-leading scholars from across Europe**, as ERC grant holders are mobile across the EU and associated countries. The quality of the work conducted by EU research staff is evident in that 75% of EU academics were selected by UK universities for REF 2014, compared to 56% of UK-national staff.ⁱⁱ The structure of funding schemes such as the ERC also promotes research excellence through strong competition.

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 and 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

- **Being at the forefront of developing solutions to key technological challenges:** The Framework Programmes for funding research – of which Horizon Europe is the latest and largest – uniquely focuses on the world’s most pressing and complex challenges including fighting cancer, adapting to climate change, protecting our oceans, living in greener cities and ensuring soil health and food security.ⁱⁱⁱ These challenges require multi-country collaboration and funding at scales no single nation could support alone. The existence of a common framework, rules and funding cycle makes near frictionless collaboration possible with the best partners worldwide in a manner that would be challenging to replicate via bilateral deals or new multilateral schemes.
- **Strengthening university-business collaboration and boosting innovation – UK** private companies can participate in a range of Horizon Europe programmes working with universities to enhance industry expertise and investment in the UK. There are also a number of opportunities for SMEs and start-ups to scale-up: SMEs won nearly €1bn from Horizon 2020 and the new European Innovation Council has earmarked 70% of its €10.6 billion budget for SMEs under Horizon Europe.
- **EU Framework Programmes are a proven mechanism for delivery of high-quality research and innovation outcomes:** Collaboration with European partners supports high-quality research with impact, with scientific publications from Horizon 2020 cited more than twice the world average.^{iv} ERC funded research is especially impactful, with 19% of projects leading to a breakthrough and 60% leading to a major scientific advance.^v For example, ERC funding was instrumental in demonstrating proof of concept for the iKnife developed by researchers at Imperial College London, a new technology which could help shorten recovery times for cancer patients, save surgical time and resources with advanced clinical trials now underway.
- **Collaborations with EU partners generate positive spill-over effects on growth, trade and investment.** It has been estimated that a euro invested through Horizon Europe could generate a return of up to 11 euro of GDP over 25 years.^{vi}

Recommendations for the Spending Review

The Government’s decision to commit additional funding to support the UK’s association to Horizon Europe in 2021/22^{vii} was a welcome move that helped ensure the UK R&D sector can maintain strong collaborative links with European partners following our departure from the EU.

Looking ahead to this autumn’s Spending Review, there is an opportunity to make a longer-term commitment by ringfencing sufficient funding to participate in Horizon Europe for the full duration of the programme. This would ensure the UK can continue to reap the benefits of close involvement in continent-wide research programmes, providing us with access to the talent, know-how and investment we need to cement Britain’s place in the world as a leader in science and technology, and putting the UK on track to better compete with other nations and meet its target to invest 2.4% of GDP in R&D by 2027/28.

This should be done alongside enhancing core UKRI budgets (which are needed to support a broad science base across the UK and to nurture home-grown talent) and putting UK research on a more sustainable footing.

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- ⁱ SciVal platform accessed September 2018. Analysis includes co-authored publications with UK institutions between 2015-2017
- ⁱⁱ 'Selection of staff for inclusion in the REF 2014', HEFCE (August 2015)
- ⁱⁱⁱ For example, through an international research consortium supported by Horizon 2020 academics at the University of Bristol have worked with researchers across Europe to develop a roadmap for how to create 'green' cities where people can live in an environmentally sustainable way, minimising their energy needs and reducing waste. This forms part of the Integrated Climate forcing and Air pollution Reduction in Urban Systems (ICARUS) project.
- ^{iv} European Commission's [interim evaluation of Horizon 2020](#)
- ^v Qualitative Evaluation of completed projects funded by the European Research Council (2017)
- ^{vi} https://ec.europa.eu/commission/sites/beta-political/files/budget-may2018-horizon-europe-regulation_en.pdf
- ^{vii} [BEIS research and development \(R&D\) budget allocations 2021 to 2022](#) included provision of £1.293bn for the UK's contribution to EU programmes including Horizon Europe, Euratom Research & Training, and associated volatility risk.