

The impacts of Horizon Europe uncertainty on UK Chemistry

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Introduction

The UK research and development (R&D) community has been operating in ambiguity since 2016. Despite the UK government's ambition to be *'at the forefront of global collaboration in its R&D'*, researchers in our community are feeling the reality of long-term uncertainty over future UK participation in EU research and innovation programmes. Speaking to our community, we've learned that despite work to maintain relationships, share knowledge collaboratively and build in multiple contingency plans, UK research and innovation is losing out. In this briefing we outline the impacts that UK chemists have experienced and what the government can do to address this.

Our recommendations

Association to Horizon Europe is by far the best outcome for chemistry; a spending commitment to associate to Horizon Europe will enable the research community to continue collaboration with confidence. Evidence shows that researchers are missing out now on cutting-edge, collaborative work planned for 2021.

If domestic alternatives are needed, these must replicate the wider benefits that participation in EU framework programmes bring. This includes access to networks, easy routes to joining pan-national collaborations and international support and mentorship for those in small businesses.

Provide more certainty to the community on alternatives. The research community needs clarity on alternatives now, particularly those in small and medium enterprises (SMEs). SMEs are time-poor and simultaneously negotiating the challenges of the Covid-19 pandemic and multiple other changes to the ways that they work, such as a new chemicals regulation framework and new immigration system.

Missing out on Cutting Edge Collaborations

Technologies that bring together engineering, materials science and nanoelectronics could transform computing, enabling better use of artificial intelligence in devices. Given the globally transformative nature of this work, UK researchers are working in partnership with international colleagues through schemes like the Future and Emerging Technologies (FET) programme within Horizon 2020 (H2020). FET funds collaborations between advanced multidisciplinary science and cutting-edge engineering.

However, uncertainty over Horizon Europe association is affecting the ability of UK partners to contribute fully. We spoke with one researcher who explained that in recent years they have experienced changes in how UK researchers are treated as part of the FET programme.

The researcher has received comments from referees on Horizon 2020 funding applications asking what the implications of Brexit would be for the proposed research, suggesting that the European Commission's guidance to proposal evaluators that they *'should not evaluate proposals with UK*

participants any differently than before' is not being followed in practice. More recently, in discussions on a joint infrastructure programme, the researcher told us that there was an open acknowledgement by EU partners that the UK brought a unique national capability to the project being discussed. However, the partners also cited the risks that working with the UK involved given the uncertainty of UK association to Horizon Europe, so close to the start of the programme. This was used as an argument against building in UK's capabilities too deeply into the joint infrastructure programme, lest it cause problems later on.

“They [EU partners] feel that they cannot bear the risk of a large future collaborative project failing if the UK does not associate to Horizon Europe, because this will have impacts on the multiple other EU partners involved.”

UK based RSC Fellow working as a researcher in a university

Another researcher we spoke with is a leader in the field of nanotechnology manufacturing. He has worked on and led a number of collaborative nanotechnology research projects as part of Framework Programme 7 and Horizon 2020. He explained to us that as calls on safe nanotechnology manufacture have been released in the latter phases of Horizon 2020, he and his UK colleagues have not been invited to participate in consortia, despite their previous collaborative work with these partners. Even when they actively approach partners to try to join consortia for the latter phases of Horizon 2020, EU partners have refused to bring them on board as they feel that there is a big risk in integrating UK contributions into long-term projects without certainty on UK association to Horizon Europe.

*In a survey of our community, when asked **what three factors are most important** in public R&D funding to enable you to do your best work, ‘**access to collaborative networks** that span different countries, disciplines or sectors’ and ‘**access to international knowledge and expertise**’ were the top two responses from both those in academia and in industry too.*

Losing credit and career experience

Innovative Training Networks (ITNs) are part of the EU's Marie Skłodowska-Curie Actions (MSCA), which encourage mobility of researchers. ITNs enable institutions across the EU to deliver researcher training programmes with opportunities for interdisciplinary collaboration with institutions from across the EU and associated nations. PhD students can experience research in other countries, building networks that help them become confident international, interdisciplinary collaborators early in their research careers.

We spoke with a UK-based researcher who coordinated an ITN under H2020 from 2016-2020, overseeing a network of researchers from the UK, Germany and Switzerland. Based on his experience and expertise as an ITN coordinator, he built another consortium, submitting another funding application for a new ITN under the closing rounds of H2020. Whilst they were unsuccessful, they plan to work on a follow-up submission under the new Horizon Europe programme, taking on board reviewer feedback.

However, with the uncertainty of UK association, the group are unsure whether they should compose the updated proposal with the UK researcher acting as coordinator, despite this researcher's prior expertise. It may be simpler to select a non-UK member of the consortium to act as a coordinator, given that UK association to Horizon Europe is uncertain. Even if the UK researchers can still participate in future programmes, any loss of ability to coordinate proposals (even on a temporary basis) has wider impacts on researchers' individual careers. The researcher that we spoke to talked of how experience of coordinating international consortia, like MSCA ITNs, are an important marker of esteem within their own career development. They explained how their experience of coordinating this MSCA ITN supported their own recent move to a Professorship at their current institution.

With the ongoing uncertainty over UK association, he feels that it is likely that UK researchers will continue to work closely with EU colleagues to develop consortia proposals where possible, as researchers want to maintain these valuable relationships. In addition, the UK government has encouraged UK researchers to do this throughout the transition period. However, if UK researchers cannot coordinate, there will not only be a loss of credit to the UK in the proposals submitted, but also losses to UK researchers' individual career development and international profile.

Time and talent lost

The European Institute of Technology (EIT) established EIT Food as a knowledge innovation community (KIC) that aims to build a better food system across Europe, covering all elements of the agri-food space from farming to food production and distribution. It will continue as a KIC under Horizon Europe. The programme includes a professional education element that supports knowledge exchange amongst partners in the KIC including universities, research institutes and businesses (e.g. PepsiCo and John Deere). This enables the development of mechanisms that nurture future entrepreneurs and employees across the international food system.

A UK partner coordinated the professional education element during H2020. However, due to the uncertainty around the ability of the UK to associate to Horizon Europe, business cases for future project funding under Horizon Europe have needed to build in mechanisms to transfer the coordination of the project to an EU partner from the UK, as a contingency.

The UK research and innovation sector has received € 6.1bn (£ 5.3bn) through Horizon 2020, with €413m (£379m) awarded to the UK chemical sciences.

However, the ongoing uncertainty so close to the start of the Horizon Europe programme means that more time is being devoted to the transfer plans now, reducing time available for research and knowledge exchange.

Alongside this, researchers employed in UK institutes using funding from this programme are now reaching the stage where they can no longer wait to see what the status of their employment will be. Current contracts expire with the end of the H2020 programme on 31st December. With no firm confirmation of UK association, which would enable the extension of their contracts into the Horizon Europe programme, they are seeking employment in other institutions, in some cases outside the UK, contributing to loss of R&D talent.

Contact

The Royal Society of Chemistry would be happy to discuss any of the issues raised in our briefing in more detail. Any questions should be directed to policy@rsc.org.

About us

With around 50,000 members in over 120 countries and a knowledge business that spans the globe, the Royal Society of Chemistry is the UK's professional body for chemical scientists, supporting and representing our members and bringing together chemical scientists from all over the world. Our members include those working in large multinational companies and small to medium enterprises, researchers and students in universities, teachers and regulators.