

Brexit's Impact on R&D Funding

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In this snapshot, FTI Consulting looks at the potential implications of Brexit on Research and Development (R&D) policy.

Quick Read!

- The EU is a global leader in R&D. It's a crucial source of financing for many universities and research organisations
- Pooled expertise and knowledge, driving scale, collaboration and innovation
- The UK and EU are interdependent with extensive integrated pan European research networks
- The UK is one of the biggest recipients of EU research funding
- Research funding is worth €1bn per year to the UK economy and worth 9.7% of total research income for UK universities
- UK received 37% of \$3.5bn in venture capital invested in R&D across Europe in the first quarter of 2016 alone
- There are 125,000 EU students studying in UK in addition to 31,000 researchers from the EU
- Key sectors: pharmaceuticals, space industry, tech and biotech
- Withdrawal from EU research funding will have greatest impact amongst UK SMEs
- Giants such as GSK and AstraZeneca will continue to be eligible for EU funding through their EU operations
- Potential confusion on intellectual property rights could endanger projects
- UK Government committed to funding Horizon 2020 projects but R&D may not be a top priority
- 'Soft landing' is for UK to secure 'Associated Country' status in negotiations

Introduction

Brexit has shaken up the European R&D landscape, creating uncertainty in a policy area that is considered a European success story.

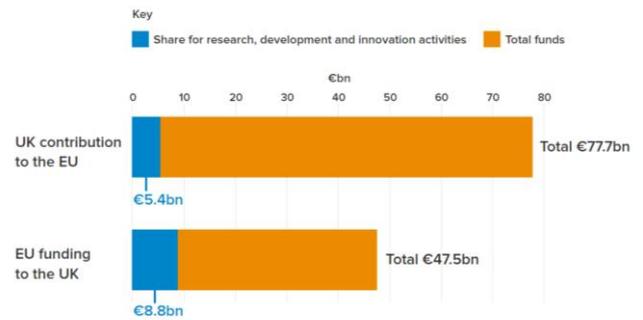
While criticised by many researchers for its burdensome bureaucracy, EU research funding has established itself as one of the most important R&D support mechanisms worldwide. It supports EU policy priorities such as renewable energy and sustainable agriculture by financing R&D that furthers these aims. It supports EU competitiveness by providing financing for R&D into future technologies that would otherwise be too risky for companies to invest in. It provides a framework for businesses to cooperate and share knowledge with partners from the private and public sectors in other EU countries. In particular, small and medium sized companies (SMEs) get exposure to expertise and R&D (that they would otherwise be unable to fund themselves) where they can pool knowledge with other organisations. There are many examples of technologies that increased the competitiveness of EU companies through EU research funding. The engines of the Airbus 320 have become quieter and cleaner thanks to EU funds; EU scientists developed new screening methodologies in diabetes and Alzheimer's disease; and renewable technology such as solar, wind and storage technology has improved through EU research projects.

For many universities and research organisations, the EU is a crucial source of financing that helps interlinking national research projects and enables Europe to compete on a level footing with the US, Japan or China. It also raises the quality of research in smaller Member States as they are exposed to well-funded and established research systems and world-class scientists. Without EU research funding, it would be impossible for many member countries to finance large-scale projects or research infrastructure that are necessary to compete on the world stage. Some countries will always be more successful in attracting research grants. EU Member States with innovative companies and strong research institutions such as the UK, Germany, France or the Netherlands have always been among the biggest recipients. Of these countries, the UK has benefited the most. **In this snapshot, we explore how Brexit will impact both the UK's and Europe's position and what this could mean for business, universities, scientists and students.**

Impact on business

Research funding is the area with the strongest financial net benefit for the UK. For the previous research funding programme FP7 that ran from 2007-2013, the UK contributed almost €5.4bn while receiving €8.8bn in return, a difference of €3.4bn, meaning that UK research organisations and businesses received a surplus of nearly €500M every year.

Flow of funds between the UK and EU 2007-2013 (€ billion)



Source: [Royal Society](#)

This figure has even increased during the current Horizon 2020 programme, the €80 billion EU funding scheme for research and innovation running from 2014 to 2020. When counting all funding sources, including structural funds, UK businesses and universities receive around €1bn per year for R&D. This plays an important role for some sectors in the UK. In particular, the UK's life sciences sector is very present in EU research and a key player in initiatives such as the Innovative Medicine Initiative (IMI), a joint undertaking that pools financial contributions from pharmaceutical companies and the European Commission to tackle major health challenges. Big British pharma such as GSK and AstraZeneca would be less impacted, if the UK was separated from Horizon 2020. Their presence in other EU countries will make them eligible for EU research funding in the future. But smaller companies might not have this opportunity and would have to look for other funding sources, if the UK was not part of EU research funding anymore.

In the transport sector, EU research funding has contributed to many technological developments such as a propulsion system for sea vessels or safety testing systems for aircraft. UK entrepreneurs stated that "the benefits for small companies are enormous as EU projects give companies the opportunity to work with leading technology companies from across the EU."¹ In particular, the UK space industry is concerned that large research budgets for projects such as Galileo might be taken from them by EU competitors.

The EU is now also undertaking more efforts to fund projects that are closer to the market, as far as World Trade Organisation (WTO) rules allow. While the EU is strong in scientific research, it is less impressive in translating these results into business opportunities. The 'Fast Track to Innovation Pilot' aims to give innovations the last push they need to get to the market. Many UK businesses have received funding through this scheme that provides around €100m per year.

A particular concern for business and other research organisations is what will happen with ongoing projects after the UK has left the EU. Smaller EU research projects have an average duration of 2-4 years and larger projects run 3-5 years – this is in addition to the years of preparation before the proposals are even submitted. Participating organisations have made important investments in infrastructure and staff and have agreed on usage and sharing of

¹ Ken Wittamore, Managing Director of Triskel Marine

intellectual property (IP). The latter is very sensitive in collaborative research projects and it is unclear what will happen with these agreements once the UK has left the EU. If UK entities tried to remove the IP they brought into a project, it could actually endanger the project as a whole.

To address this uncertainty, the UK Government has pledged to fund any R&D projects that continue after the UK leaves the EU. This pledge could alleviate the concern that UK projects or potential participants might be disregarded because of the risk of partners from the UK having to leave the consortium after Brexit.

For business, other sources of financing are often more important than public funding. For start-ups in the tech and biotech sectors, venture capital can be critical to bring new inventions to the market. In the first quarter of 2016, UK-based companies received 37% of the \$3.5bn in venture capital invested across Europe. The private equity firm Better Capital, the largest investor in UK venture capital firms, told *The Financial Times* that the European fund "would probably stop investing in the UK" if Britain left the EU. Other venture capital firms are more optimistic and believe that Brexit could also provide opportunities. In the short term, however, the flow of venture capital into the UK will decrease and other European countries such as Germany will try to attract funding previously destined for the UK.

Impact on Research Universities

While EU research funding represents only around 3% of overall R&D investments in the UK, it represented 9.7% of total research income for higher education institutions. UK universities such as Cambridge, Oxford or Kings College are among the organisations that benefitted most from EU research funds.

However, it is not only about the money:

- EU research enables multinational cooperation between research organisations across Europe. Research by the London School of Economics shows how this interconnectedness gives the UK science base an edge over competitors outside the EU, including the US. In a joint letter to the UK Government, seven Science Academies expressed their concerns in clear terms, fearing that Brexit could endanger the leading role UK science has today and highlight that UK research excellence draws extensively on collaboration with colleagues in other EU Member States.
- The UK initiates and coordinates more EU research projects than any other country in the EU. Consequently, the outcome and results generated by the research more often benefits UK entities than organisations from any other Member States. The UK is also strongly involved in shaping the research agenda, ensuring that EU research priorities benefit UK business and academia. The UK would lose this ability if it left the EU research system.
- Finally, top researchers from all over Europe are visiting UK Universities to mutual benefit. UK universities will, of course, continue to engage researchers from other EU countries, but in the competition for the best brains, it might lose one of its top advantages, particularly in comparison to the US. Possible visa requirements, higher university fees and the inability to carry EU

research grants to the UK will make it much more difficult to attract top talent from other EU countries.

On the other hand, UK universities that rank among the best in the world are important for EU research. The excellence of UK universities improves the scientific standards in the EU, and universities have learned a great deal from cooperating with the UK.

At this point, UK academic organisations are mainly concerned about the uncertainty that Brexit brings. The pledge by the UK Government to fund Horizon 2020 projects post-Brexit might quieten the most immediate concerns, but it does not yet provide an answer as to whether UK universities will continue to attract the best scientists from Europe.

“I would like to reassure them (UK scientists) that the referendum as such doesn't change anything regarding their eligibility for funding under Horizon 2020

Carlos Moedas, Commissioner for Research, Science & Innovation



Impact on Researchers

For researchers, UK universities are the most attractive destinations in Europe. They have the infrastructure, quality and reputation that allow scientists to launch or consolidate their careers. According to a study by the Royal Society, the UK hosts 31,000 researchers from other EU countries. These researchers are among the best in their countries, bringing ideas, projects and often their own funds to UK universities and contributing to the UK system.

In terms of money, it is again the UK that has most to lose. The European Research Council (ERC) provides funding of €13.1billion for the period 2014-2020 for frontier research carried out by scientists in all stages of their careers. The ERC has become a world leading funder of cutting edge research and its funded projects are very successful in terms of scientific publications. The UK is again the most successful country in securing ERC grants, ranking among the best performing countries in almost all scientific disciplines. Altogether, the UK hosts 1,300 ERC grant holders.

Competing with top researchers from 27 other countries cannot be matched by any national grant. This prestige is the most important currency in scientific research today.

Impact on Students

Approximately 125,000 students from EU Member States currently study at UK universities. While Brexit caused anxiety among these students, the outcome of the referendum will not change anything about their status as they will continue to receive loans and grants for the duration of their courses. The status of EU students will only change once Brexit happens.

Going forward, EU students may be treated like any other international students who have to pay far higher fees. Consequently fees could increase considerably, meaning far fewer students from the EU would come to Britain as it would simply be too expensive. Financially, UK universities are not too worried; they consider themselves popular enough to attract students from outside Europe to even out this loss. On the other hand, many UK students use the Erasmus scheme that finances studies in other EU countries. British students from UK universities could lose this opportunity.

The Way Forward

It is in everybody's interest that the UK remains closely linked to the EU research system. The UK is rightly proud of its world-class research and the EU will not want to lose this quality. UK academics made their priorities clear that they want "the closest achievable association with the EU research programmes." Equally, the academics want to maintain access to research networks built up across Europe over the years. "It is not only the scale of funding that is significant, but also the intrinsically collaborative nature of these programmes that allow UK researchers to achieve more than they would alone," they say in an open letter to the UK Government.

Non-EU countries can fully participate in EU research funding if they have associated country status. Israel and Switzerland are examples of this status and both have a high level of involvement with EU research.

The financial side might be relatively easy to solve. Should the UK be willing to contribute at the same level to EU research programmes as they used to when gaining a net benefit, it is reasonable to assume the EU may be willing to grant the UK this advantage in order to keep close to the UK's world-class universities. The difficulties begin with the free movement of people, which was the most important reason for many to vote for Brexit.

Switzerland provides an excellent example of this dilemma. Switzerland for a long time was firmly integrated in the EU research system to mutual benefit. Its world-class researchers and innovative companies were popular partners in research projects until the Swiss Referendum in 2014 to reduce immigration quotas. This issue has gained in urgency with Croatia's accession to the EU. The Swiss Parliament must now agree to the free movement of people from Croatia by the beginning of 2017 or it will be excluded from Horizon 2020.

The UK will be confronted with a similar decision, and as Martin Selmayr (Head of Cabinet of Commission President Jean-Claude Juncker) made very clear, the EU will make no exception for the research field.



From a negotiating perspective, it would seem ill-advised if the EU gave in to an important UK interest so quickly, particularly if it relates to the freedom of movement – possibly the most difficult issue to be resolved in the Brexit negotiations.

Should the UK lose access to EU research funding it would be critical that the UK Treasury steps in. However, the higher education and academic sector is not the only one that will require more money from the UK budget. Agriculture, funding for poorer regions such as Wales and Cornwall and infrastructure projects will all require more money from the UK Treasury. The higher education and science sectors will have to make their interests heard very clearly in order not to lose out and to have a chance of maintaining their high quality.

However, the EU will lose one of the strongest supporters of research funding. The Horizon 2020 mid-term review is due in 2017 and also its budget will be under scrutiny. There is a risk that other priorities will take precedent and will reduce the R&D budget. For the many ongoing projects that need to secure future financing, this could be very bad news.

While Brexit will be a loss for European research overall, some universities might benefit. Some of the strongest players will leave the funding competition, making it easier for top universities from the continent to win more proposals. Top scientists might leave the UK and could be attracted by other European universities.

It will also be interesting to see how the dynamics of the European research landscape will change. Anglo-Saxon philosophy and methodology dominate social sciences with a strong emphasis on quantitative research. Without the UK and its strong link to the US, the Anglo-Saxon model might lose in influence and the German and French approaches and stronger preferences for qualitative research could again become more important.

What Needs to be Done

Research-intensive companies and the academic sector in the UK and in continental Europe will need to make sure that scientific research remains a top priority. R&D funding is a pre-requisite for competitiveness, but there are also many other areas and priorities that compete for ever scarcer resources.

Once Article 50 is triggered and the Brexit negotiations start, organisations that want to be part of the EU research system must ensure that the UK goes for a soft landing and obtain the associated country status. R&D can count on a lot of goodwill and all sides are aware of the benefits of the UK being part of the EU research system. However, as the outcome of the Brexit referendum showed, the influence of the R&D sector is relatively

limited and it must play its cards very well in order to move the scales. The example of Switzerland demonstrates that the EU is very serious about the free movement principle and the associated

country status will depend on how much free movement the UK will accept.

Article by Arne Koeppel, Head of Research at FTI Consulting in Brussels

FTI Consulting's Brexit response team will help you to keep track at each step of this evolving process to understand how this could impact your company and core business activities and help secure your trading, regulatory and operating environment.

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