

Campaign for Science and Engineering ‘no-deal’ submission

Contents

Introduction	1
Uncertainty for people and businesses	2
People	2
Regulation and Competitiveness	3
Short term impact	3
Potential loss of EU funding for research and innovation	3
Erasmus	4
Import and export of products required for research	5
Access to Scientific Networks and Data	6
Long term impact	6
Funding	6
The UK’s reputation as a place to do R&D	7
Regulation	8
Partnerships outside Europe	8
People	8

Introduction

It is not always clear what people mean when they use the term ‘no-deal Brexit’. In this submission we have assumed it means the UK leaving the European Union and all its legal and regulatory frameworks without a negotiated withdrawal agreement, with no transition period and no negotiated ‘side-deals’ on specific issues between the UK and the EU at the point of departure.

This submission is not intended to be an exhaustive list of all the possible issues for science and engineering in the event of a no-deal Brexit, rather it discusses some of what CaSE considers to be the most important issues and uses examples of what might happen in various areas to highlight possible consequences that the Government needs to be aware of and plan for. Where possible, we have sought to underpin our submission with robust evidence. However, this has not always been possible as a no-deal Brexit is unprecedented and to varying degrees its consequences are uncertain and unknown.

Uncertainty for people and businesses

People

CaSE has been working to assess the impact of uncertainty over the last two years since the vote to leave the European Union in June 2016¹. The uncertainty around the UK's future relationship with the EU and the status of EU citizens living in the UK has led to declines in applications for jobs and postgraduate courses in the UK from EU nationals. In a Prospect member survey of 650 EU nationals working in the UK, nearly 70% of respondents said they are thinking of leaving the UK because of Brexit². 47% of British Heart Foundation funded researchers are 'more likely' to take up a post outside the UK than before the vote to leave the EU, rising to 80% for non-UK EU nationals³. Some members spoke of staff holding offers for work overseas and waiting to see what happens in the UK before making relocation decisions. Organisations have started to see a decline in the flow of talent from the EU to the UK, noting that the best candidates are harder to attract. This is reflected in application patterns for research positions, including PhDs, postdoctoral roles, fellowships and academic posts. In their submissions to CaSE members reported⁴:

- In 2017, the proportion of EEA researchers applying to Wellcome's early career research schemes fell by 14%.
- UCL have seen significant drops in application rates from EU nationals for postgraduate research roles and academic posts and in 2017 had no applications from the EU for their Life and Medical Sciences research excellence fellowships that offer three years' salary and £50,000 of research funds. In previous years, EU nationals made up approximately a third of applicants.
- Major science funders, including Wellcome Trust, British Heart Foundation and Cancer Research UK, report instances of candidates for prestigious research fellowships and funding turning down the opportunity citing uncertainty due to Brexit as a key factor.

In the event of a no-deal scenario, the uncertainty is likely to be prolonged because the future relationship between the UK and the EU will still be unknown and the legal frameworks that currently exists will fall away. Therefore, it is likely that EU nationals will continue to be deterred from coming to the UK. Ongoing uncertainty will also lead to an increase in EU citizens choosing to leave the UK.

While the Government has committed to protecting the rights of EU citizens already resident in the UK in the event of a no-deal Brexit, it is not clear what the status of those who come to the UK after Brexit day will be, including those who have job offers or students intending to take up courses in UK universities from September 2019. The Government has offered no detail on what the rights of EU citizens would be in this situation: how long they could stay in the UK, if they would have the right to work, whether they would have recourse to public funds or if they could bring family members. **The Committee should seek clarification from the Government on the status of EU citizens coming to the UK after a no-deal Brexit.**

If EU citizens were required to apply for visas through the existing non-EEA route this could be particularly problematic as the Home Office is unlikely to be able to cope with a large increase in visa

¹ CaSE, Policy review: Brexit, March 2018 <http://www.sciencecampaign.org.uk/resource/brexit2018.html>

² Written evidence: Science and Innovation Summit, Prospect, HOC S&T Committee

³ Written evidence: Science and Innovation Summit, British Heart Foundation, HOC S&T Committee

⁴ <http://www.sciencecampaign.org.uk/resource/brexit2018.html>

applications and significant delays could build up for both EEA and non-EEA citizens awaiting visas leading to recruitment problems for businesses and universities. Furthermore, CaSE has already set out how the existing non-EEA route does not meet the needs of science and engineering⁵ and it would certainly not do so if extended to EEA nationals. Current policies tarnish the international view of the UK as a place for highly skilled individuals to work and contribute. Domestically current policy serves to create uncertainty and damage productivity of UK employers, including research organisations, engineering firms and the NHS.

Regulation and Competitiveness

The uncertainty created by the decision to leave the EU is also a risk to the UK's competitiveness in the short term. For instance, if you are looking to start or move a business or project, uncertainty over what the regulatory environment will be once the UK leaves the EU will make the UK a less attractive place to locate while uncertainty persists. In a no-deal exit the uncertainty surrounding the regulatory environment in the UK is likely to increase and last for some time as the current legal framework for the relationship between the UK and EU will cease to exist. While most EU law will be copied into UK law by the EU Withdrawal Act it is not clear how the Government will seek to change retained EU law or how the UK will interact with the EU in the event of a no-deal Brexit.

Short term impact

Our definition of 'no-deal' means no transition period. Therefore, there are likely to be numerous impacts in the short term and the Government will need to react quickly to implement contingencies rapidly and efficiently.

Potential loss of EU funding for research and innovation

Most universities receive between 15-35% of their competitive funding from Europe⁶. Also, while all parts of the UK are reliant on EU research & development funding to some extent, the areas with the highest dependency overall are South West England, outer London and parts of North England and Scotland⁷. The Government should assess the impact of the disproportionate dependence on EU research funding in some disciplines, sectors, universities and regions. **The Committee should ask the Government how it plans to mitigate the loss of EU funding on vulnerable areas of research.**

To date, the UK has secured over €5.1bn of Horizon 2020 funding since the inception of the programme in 2014, the second largest recipient of funding⁸. A no deal Brexit would result in the UK falling out of the Horizon 2020 programme and respective grant holders would no longer be eligible to receive Horizon 2020 funding. The Government has pledged that in the event of a no deal, grant funding awarded to UK institutions would be underwritten to make up for the loss of EU funding⁹. Grant holders have been encouraged to register the grants that they hold on the dedicated online portal¹⁰ to ensure

⁵ CaSE, Policy Briefing: Proposing a new Immigration System, December 2018

<http://www.sciencecampaign.org.uk/resource/immigrationfreshstart.html>

⁶ Digital Science, Examining the implications of Brexit for the UK research base, 2016

⁷ <http://sciencecampaign.org.uk/CaSEVATbriefing2015.pdf>

⁸ [Horizon 2020 projects and participations statistical database, European Commission](https://ec.europa.eu/research/horizon2020/projects-and-participations-statistical-database/)

⁹ <https://www.gov.uk/government/news/chancellor-philip-hammond-guarantees-eu-funding-beyond-date-uk-leaves-the-eu>

¹⁰ <https://apply-for-innovation-funding.service.gov.uk/eu-grant/overview>

UKRI has the initial information required to support underwrite payments should they be required. This underwrite will support successful bids that have been submitted before the UK's exit from the EU that have yet to receive funding. The underwrite guarantee states that the Government will only cover EU funding, and where matched funding has been pledged this must still be sourced from industry or other partners.

This is a welcome move to ensure that grant holders will not lose funding for projects they are already delivering. BEIS and UKRI have put significant work in to this area and we understand that progress has been made with registering grants held by higher education institutions. There remains a risk that businesses, particularly SMEs, are harder to reach and may be disproportionately affected should the underwrite be required. Therefore, this complex data gathering exercise carries a risk that information from all Horizon 2020 grant holders may not be complete on Brexit day. Failure to register projects or technical hitches could leave grant holders without funding. **The Committee should question the Government on its preparedness to implement the underwrite guarantee, including whether it has detailed administrative mechanisms in place to administer the guarantee if it becomes necessary. Furthermore, the Committee should ask the Government to confirm that the money for the underwrite will be new money and not taken from existing research budgets.**

There are some areas that remain uncertain, such as where a UK grant holder may be the lead participant in a consortium that is responsible for distributing funding to other partner organisations. The Government's technical note on '*Horizon 2020 funding if there's no Brexit deal*' states that the Government will explore solutions with the European Commission¹¹. The Government also intends to make provisions for UK organisations to be able to participate in Horizon 2020 as a third country in the event of a no deal Brexit, but this alignment will very much depend on any future negotiations with the EU.

In the event in which the UK could not align in any way with Horizon 2020 in a no deal Brexit, a large hole would be left in the UK's research funding landscape and the potential loss of EU funding is a real cause for concern for research institutions, higher education and businesses of all sizes in the sector.

Erasmus

The Erasmus+ programme provides an invaluable opportunity for students and staff to learn, teach or work across Europe. In 2015/16, 15,756 UK-based students spent time in Europe, in addition to 2,625 staff members¹². The UK also receives a great number of students and staff from abroad, 31,362 students and 4,406 staff members in 2015/16¹³. The scheme also brings economic benefit to the UK, with domestic institutions receiving almost €230m for higher education exchanges between 2014 and early 2018 from Erasmus grants¹⁴. There is evidence to suggest that student mobility enhances outcomes, students who go abroad are 9% more likely to gain a 1st or 2:1 degree and 24% less likely to be unemployed¹⁵. Erasmus+ means this opportunity is not restricted to the most privileged. While it is difficult to access data on subjects studied by those on the Erasmus programme it is a reasonable

¹¹ <https://www.gov.uk/government/publications/horizon-2020-funding-if-theres-no-brexit-deal/horizon-2020-funding-if-theres-no-brexit-deal-2>

¹² [Erasmus+ statistics](#)

¹³ [Erasmus+ 2016 in numbers; United Kingdom factsheet](#)

¹⁴ [Innovations to enhance the effectiveness and impact of Erasmus+ successor programme](#), Universities UK, 2018

¹⁵ [Gone International: mobility works](#), Universities UK International, 2017

assumption that a sizeable proportion of Erasmus staff and student participants will be studying or working on STEM subjects. Therefore, the programme is of direct benefit to the science and engineering community in the UK.

In the event of a no-deal exit the UK will cease to be a part of the Erasmus programme. The following disclaimer for British applications for grants in the 2018 and 2019 calls was included by the EU *“Please be aware that eligibility criteria must be complied with for the entire duration of the grant. If the United Kingdom withdraws from the EU during the grant period without concluding an agreement with the EU ensuring in particular that British applicants continue to be eligible, you will cease to receive EU funding (while continuing, where possible, to participate) or be required to leave the project on the basis of the relevant provisions of the grant agreement on termination.”*¹⁶ The UK Government has said its underwriting guarantee will “cover the payment of awards to UK applicants for all successful Erasmus+ bids submitted before the UK exits the EU”. However, despite the funding guarantee, the continuation of these programmes in a no-deal situation will be subject to “agreement with the EU for UK organisations to continue participating in Erasmus+ projects”.¹⁷ It is not clear whether such an agreement would be forthcoming in a no-deal situation, considering that negotiations will likely have broken down with the EU at that point. Furthermore, in a no-deal situation the Government is likely to have much higher priorities which need to be immediately solved or negotiated and the Erasmus programme is unlikely to be high on the list of priorities.

The Committee should ask the Government what contingencies it has in place to negotiate continued involvement in Horizon 2020 and Erasmus in the event of a no-deal Brexit and whether any discussions have taken place with the European Commission on this. It should also confirm that the Government is aware of the impact of external factors on any negotiations, including that the UK will no longer be able to influence internal EU timeframes and deadlines for negotiation.

In the event of continued involvement for the UK in these programs being unavailable, the Committee should ask the Government what plans it has to replace these programs.

Import and export of products required for research

Much has been made of the future movement of goods between the UK and EU in the event of no deal, including stockpiling of vehicle parts and medicines in the UK. The breadth and complexity of issues facing the research sector with regards to movement of goods and equipment in no deal include – but are not limited to – animals, hardware & instrumentation, plastic waste, medical physics, radioisotopes and chemicals^{18,19}. An example of the risks to one of those sectors, the movement of chemicals, is outlined below.

In the event of no deal, the UK would replace EU legislation on the regulation of chemicals (REACH) that is currently set by the European Chemicals Agency (ECHA) with its own regulatory framework. The

¹⁶ <https://www.erasmusplus.org.uk/brexit-update>

¹⁷ <https://www.gov.uk/government/publications/erasmus-in-the-uk-if-theres-no-brexit-deal/erasmus-in-the-uk-if-theres-no-brexit-deal>

¹⁸ <https://wellcome.ac.uk/sites/default/files/regulation-and-governance-of-health-research.pdf>

¹⁹ <http://www.sciencecampaign.org.uk/resource/case-member-consultation-regulation.html>

Government has stated it would seek to preserve REACH as far as possible with necessary technical changes that would need to be made following the UK's exit from the EU²⁰.

The export of chemicals in this scenario, however, could have large consequences on UK-based firms and their partners within the EEA. In the event of a no deal, companies registered within REACH would not be able to sell their products into the EEA without transferring their registrations to an EEA-based organisation. This means that UK-based organisations will have to transfer their registrations to an EEA-based organisation such as an affiliate or an Only Representative (OR)²¹, or develop new working relationships with customers in the EEA. Crucially, these actions must have been carried out before the UK leaves the EU. In the event of a no deal, these changes would be extremely difficult to make given the short period of time before the UK leaves the EU and getting clarity on whether a no deal Brexit will occur. This could have severe impact on UK businesses, particularly SMEs whose main markets are in the EU, if they are not sufficiently prepared in the event of a no deal Brexit. Many SMEs would not have regulatory expertise in-house and would require much extra guidance from the Government in this circumstance. It is also possible that in the event of no-deal the import of chemicals for research would become problematic because the UK would no longer be part of the ECHA. Furthermore, any chemicals imported could be delayed by queues and checks at the border that may occur in the event of a no-deal Brexit²².

We recommend that the Committee should look at the Government's state of preparedness to ensure products and feedstocks will be available to UK research organisations and that UK organisations can continue to export products for and of research to the EU.

Access to Scientific Networks and Data

The Royal Society of Chemistry, a member of CaSE, has highlighted the risk to scientific networks and data in the event of no deal²³. UK and EU decision-makers would immediately lose access to each other's scientific networks and databases that provide data and information for regulatory decision-making. For example, scientific collaboration around common data packages is at the heart of effective and harmonised chemicals regulation, which delivers a critical facilitation mechanism for frictionless trade in the chemicals sector.

Long term impact

Funding

Due to the intertwined nature of UK and EU funding streams in recent years, a situation has developed where some fields of research are more dependent on EU funding than others, both for competitive research funding but also for facilities and networks. Some disciplines such as Archaeology, Chemistry and IT are very reliant on EU funding, while EU grants account for at least 20% of research funding for 15

²⁰ <https://www.gov.uk/government/publications/regulating-chemicals-reach-if-theres-no-brexit-deal/regulating-chemicals-reach-if-theres-no-brexit-deal>

²¹ <https://echa.europa.eu/support/getting-started/only-representative>

²² See for example: <https://www.bbc.co.uk/news/uk-politics-46480374>

²³ <http://www.rsc.org/news-events/opinions/2019/jan/why-no-deal-is-bad-for-science/>

academic disciplines²⁴. Equally large grants for blue skies research funding in the UK are limited and the European Research Council has been an important source of such funding.

CaSE held a forum with 45 member organisations in August 2016. Attendees at the CaSE forum raised that leaving the EU poses the risk of losing access to certain types of funding if the UK no longer has access to EU research programmes, including Horizon 2020 and any future framework programmes. This also featured in the survey of individual scientists and engineers CaSE undertook ahead of the referendum where three quarters of respondents agreed or strongly agreed that EU funding fills a gap where other funding isn't available due to the research subject.

As we discussed above, access to Horizon 2020 funding and future participation will be affected in the short-term by a no-deal exit. A no-deal exit is also likely to affect negotiations for UK participation in Horizon Europe (and other programmes), the successor of Horizon 2020, which will begin in 2021. UK participations in EU science programmes is a stated aim of the UK Government and the European Commission²⁵. The provisional budget for Horizon Europe is due to be €100bn, roughly €30bn higher than the Horizon 2020 budget²⁶. If a no-deal exit takes place negotiations could be delayed because of a breakdown in the relationship and a loss of trust between the UK and the EU or because the UK Government has other pressing priorities as a result of a no-deal exist. If a deal for UK participation is not in place for the start of Horizon Europe in 2021 the Government will need to consider how it will replace that funding. It is important, in the context of the Government's 2.4% of GDP spent on R&D by 2027 target, that this funding is replaced and made available to UK universities, research institutes and businesses alike. There will be an opportunity cost to this. If the Government has to develop alternatives to Horizon Europe participation and funding, that will use up time that could have been used to develop other policies to create additional, not just replacement, funding to support the 2.4% target.

It is not just funding and participation in Horizon Europe that is at risk. There are a range of other EU research and development programs. Some of these, such as the European Research Council and Marie Skłodowska-Curie Actions are open to EU member states only whereas for others such as the Grand Challenges, EURATOM research programs and European Space Agency programmes it is not clear whether membership or associate membership is open to non-member states. **The Committee should ask the Government what assessment it has made of no-deal on eligibility for the full range of EU R&D programmes, what the impact of ineligibility would be on UK science and what contingencies it has in place in the event of ineligibility.**

The UK's reputation as a place to do R&D

Since the referendum, the unclear direction of Brexit negotiations between the EU and the UK have created a great deal of uncertainty. This uncertainty would likely be prolonged in the event of a no-deal and the political turmoil that could follow. Prolonged uncertainty is likely to have a negative impact on the UK's reputation as an attractive location for R&D investment by businesses or as a destination for a

²⁴ [The role of EU funding in UK Research](#), Royal Society, 2017

²⁵ <https://www.gov.uk/government/speeches/pm-speech-on-science-and-modern-industrial-strategy-21-may-2018>, https://ec.europa.eu/commission/commissioners/2014-2019/moedas/announcements/royal-society-edinburgh-maccormick-lecture-edinburgh_en

²⁶ [EU budget: Commission proposes most ambitious Research and Innovation programme yet](#)

researcher to develop their career. It could also affect the UK's reputation as a reliable international partner.

Regulation

The UK's science and innovation sector is affected by 34 European regulatory agencies²⁷. In the event of a no-deal Brexit the UK would no longer be part of these agencies and they would no longer have authority in the UK to enforce regulation or provide approvals. It will be a long-term project to build up domestic agencies to take the place of these European agencies. For example, the UK's Medicines and Healthcare products Regulatory Agency (MHRA) will likely have to take on the job of approval of all new medicines and treatments, some of which is currently as part of the European regulatory network and the European Medicines Agency (EMA)²⁸. It will take time and significant resources to build up the expertise and capacity the MHRA needs to carry out approvals of all new medicines for sale in the UK. This could lead to back-logs and delays in the availability of new medicines and treatments for patients in the UK.

Partnerships outside Europe

In the light of Brexit some universities and research institutes are re-assessing the balance of their global partnerships and are seeking new partnership opportunities outside the EU, in, for example, China and South-east Asia. However, this is likely to take place in the event of a negotiated Brexit and it is unlikely to change as a result of a no-deal Brexit. In any case, new partnerships outside the EU and a good relationship and collaboration with institutions within the EU are not mutually exclusive.

People

CaSE's members have routinely told us that the strength of the UK's skills base and ease of access to talent are the most important factors in the attractiveness of the UK as a place to do research^{29 30}. In order to meet the Government's target of investing 2.4% of GDP on R&D by 2027, the UK will need to increase the size of the research and innovation workforce. Any future immigration policy must be able to facilitate the types of people and types of movement required for a thriving science and engineering sector³¹.

In the event of a no deal, and the absence of a mobility agreement with the EU, the rights of citizens to move to and from the UK will be subject to great uncertainty, as we discussed above. In the longer term, the UK will most likely have to develop its own unilateral immigration system if freedom of movement ends as the Government has set out. Developing a new immigration system will be particularly pressing in the event of a no-deal Brexit in the absence of any transitional arrangements. **The Committee should**

²⁷ A short guide to regulation, NAO, 2017

²⁸ <https://www.gov.uk/government/publications/how-medicines-medical-devices-and-clinical-trials-would-be-regulated-if-theres-no-brexit-deal/how-medicines-medical-devices-and-clinical-trials-would-be-regulated-if-theres-no-brexit-deal>

²⁹ <http://www.sciencecampaign.org.uk/news-media/case-comment/case-member-hm-treasury-roundtable-r-d-investment.html>

³⁰ <http://www.sciencecampaign.org.uk/news-media/case-comment/case-roundtable-with-beis-r-d-investment.htm>

³¹ <http://www.sciencecampaign.org.uk/resource/immigrationfreshstart.html>

look at the Government's longer-term preparations to implement a new immigration system in the event of a no deal.

About CaSE

The Campaign for Science and Engineering (CaSE) is the UK's leading independent advocate for science and engineering. Our mission is to ensure that the UK has the skills, funding and policies to enable science and engineering thrive. We represent over 115 scientific organisations including businesses, universities, professional bodies, and research charities as well as individual scientists and engineers. Collectively our members employ 341,000 people in the UK, and our industry and charity members invest around £29bn a year globally in R&D.