

18 August 2016

## Royal Society submission to the House of Commons Science and Technology Committee's inquiry *Leaving the EU: implications and opportunities for science and research*

### Summary

- We remain committed to working with our counterparts in the European Union (EU) and the rest of the world and hope that the UK Government will enable researchers to continue to do the same. While the UK is a world leader in science, many of the global challenges we face can only be tackled by countries working together. The international nature of research will not change. Following the UK's vote to leave the European Union, the Society is working to ensure the best possible outcomes for UK research and innovation.
- The Government must ensure that the UK's competitiveness as a leading scientific nation is not put at risk. This includes by ensuring that there are arrangements for retaining in and attracting to the UK outstanding international researchers and enabling UK-based scientists to collaborate with partners elsewhere in the world, including in the EU. The Government's commitment to underwrite the value of any European grants awarded to UK researchers, even when specific projects continue beyond the UK's departure,<sup>1</sup> was very welcome. Government should also aim to ensure that the UK continues to benefit from EU research funding, networks and facilities. There should be no decline in overall public funding for UK science and opportunities should be taken to strengthen support for UK research and innovation.
- It is important to send a clear message to the rest of the world that Britain is open for business, a place to invest, work and seek collaborators. By strengthening UK science and innovation and making this a central part of the UK's Industrial Strategy, Government can underpin a cornerstone of the UK's future as a knowledge economy.

### Introduction

1. The Royal Society is the UK's national academy of science and the academy of science of the Commonwealth. It is a self-governing Fellowship of many of the world's most distinguished scientists working in academia, charities, industry and public service. The Society draws on the expertise of its Fellows and Foreign Members to provide independent and authoritative advice to UK, European and international decision makers. As the UK's national academy of science, the Society is concerned with the health of the nation's research and innovation system as a whole. Recognising that science is a global endeavour, the Society helps to develop partnerships between scientists and brings together scientists and policy makers from around the world.
2. Outstanding research and innovation advance our economic, social and cultural well-being and our health. In modern economies they are a key source of competitive advantage and can help increase productivity. The UK has created a world-leading research base, which provides the foundation for new ideas and discoveries, and fuels economic growth and the creation of high-value jobs and skills in our knowledge-driven economy. Excellent research and innovation help us to live healthier, fuller and better lives.<sup>2</sup>

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<sup>1</sup> <https://www.gov.uk/government/news/chancellor-philip-hammond-guarantees-eu-funding-beyond-date-uk-leaves-the-eu>

<sup>2</sup>UK National Academies (2015). Building a Stronger Future: Research, Innovation and Growth. <https://royalsociety.org/~media/policy/Publications/2015/building-a-stronger-future-research-innovation-growth.pdf>

3. Research is a global enterprise and the UK is hub for international collaboration. The UK is the second most connected economy in terms of mobile scientists, after the USA.<sup>3</sup> 28% of academic staff in UK universities are non-UK nationals, with 16% coming from other EU countries.<sup>4</sup> Europe is home to world-class research, and researchers come from all over the world to collaborate and to use European scientific infrastructure. Within this community, the UK has created a world-leading research base that interacts with the best and most ambitious in the rest of the world, keeping UK research at the cutting edge.<sup>5</sup>
4. The international nature of science will not change, but the result of the referendum on the UK's membership of the EU presents a challenge to maintaining the UK's excellence in research.<sup>6</sup> As the UK prepares to leave the EU, the Society will be working to ensure that the UK maintains its world-leading position in research and innovation.

### The UK's future as a knowledge economy

5. The negotiation of the UK's future relationship with the EU will determine the UK's access to EU research programmes, arrangements for the movement of researchers within the EEA, and the regulations and policies that affect the conditions for research. It will be important not only to explore how the UK can best continue to benefit from specific EU programmes and competencies, but also to consider how science can contribute to strengthening the UK's international relationships and support the development and delivery of domestic policy objectives.
6. Research and innovation make a major contribution to long-term growth and to fully realise the benefits of research, the Government needs to provide consistent leadership and coordination over time. The Society has called on government to place research at the heart of plans for long-term economic growth and to strengthen public investment in research and development to at least match the OECD average of 0.67% of GDP.<sup>7</sup> As the UK redefines its role in the world, the Government should act to strengthen the UK research and innovation ecosystem as the foundation for the UK's long-term future as a knowledge economy. The Society would strongly encourage the Government to make research and innovation a key element of the new industrial strategy and a central tenet of the negotiations about the UK's future relationship with the European Union.
7. For the UK to prosper as a knowledge economy its international networks and relationships around the world will be of vital importance. Science can support international diplomacy and science cooperation should be a feature of UK foreign policy to strengthen links with nations within and outside Europe. Science diplomacy has the potential to help defuse complex and tense geopolitical situations by providing opportunities in developing and emerging economies.<sup>8</sup> The development and maintenance of strong bilateral and multilateral relationships will also be crucial to the success of UK science and the UK's ability to continue to play its role in the global research endeavour. Government should ensure that the nature of any new arrangements for trade or cooperation strengthen UK science and innovation.

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<sup>3</sup> OECD (2014) Which factors influence the international mobility of research scientists? [http://www.oecd-ilibrary.org/science-and-technology/which-factors-influence-the-international-mobility-of-research-scientists\\_5js1tmrr2233-en](http://www.oecd-ilibrary.org/science-and-technology/which-factors-influence-the-international-mobility-of-research-scientists_5js1tmrr2233-en)

<sup>4</sup> Higher Education Statistics Agency (see <https://www.hesa.ac.uk/stats>).

<sup>5</sup> The Royal Society (2016) UK research and the European Union: The role of the EU in funding UK research. <https://royalsociety.org/~media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf>

<sup>6</sup> UK national Academies (2016) Research and Innovation: After the EU Referendum <https://royalsociety.org/~media/policy/Publications/2016/19-07-16-eu-referendum-statement.pdf>

<sup>7</sup> The Royal Society (2015) Investing in the UK's Intellectual Capital. <https://royalsociety.org/~media/policy/Publications/2015/09-15%20Spending%20review%20representation%20-%20the%20Royal%20Society.pdf>

<sup>8</sup> The Royal Society (2013) Submission to the House of Lords Select Committee on Soft Power and the UK's Influence <https://royalsociety.org/~media/policy/Publications/2013/rs-submission-to-soft-power-consultation-18092013.pdf>

8. In the short-term, action is also needed to limit uncertainty. The Government's commitment to underwrite the value of any European grants awarded to UK researchers<sup>9</sup> was very welcome. A bold public commitment from the Government that the UK wishes to retain and build its excellence in research and innovation is required to assuage any loss of confidence in UK research.<sup>10</sup> The Society welcomed the Prime Minister's recent letter to Paul Nurse,<sup>11</sup> copied to the President of the Royal Society, in which she made clear the Government's commitment to science and research and to protecting their funding in real terms. She also stated the Government's commitment to ensuring a positive outcome for UK science as we exit the EU. As the UK develops its future role in the world, the Society hopes to see continued action from Government to reflect this intention.

## The UK's future relationship with the EU

### *Short-term issues*

9. Since the referendum, there have been anecdotal reports of UK researchers being taken off applications to European funding programmes<sup>12</sup> and of researchers from overseas turning down job offers in the UK. More comprehensive evidence of these issues is needed and we welcome the work underway in this area.<sup>13</sup> The Society has written to its Fellows to gather evidence of any immediate impacts and once these responses have been analysed, the Society would be happy to share relevant information with the Committee.
10. While the UK continues to be a Member State, UK researchers should be able to collaborate with colleagues in the European Union and beyond and participate fully in European research programmes. In support of this, the Government's commitment to underwrite the value of any European grants awarded to UK researchers, even when specific projects continue beyond the UK's departure,<sup>14</sup> was very welcome. This is something the Society has consistently argued for since the referendum.<sup>15</sup>
11. In her letter, the Prime Minister recognised that our research base is enriched by the best minds from Europe and around the world and indicated that providing reassurance to these individuals would be a priority for the Government. The Society has asked that researchers from the European Economic Area (EEA) who are already working in the UK, and their dependents, should urgently be given concrete assurances that they will be able to live and work in the UK should their existing right to work as citizens of EEA countries change.

### *The EU and UK science*

12. The UK's relationship with the EU is complex and the nature of the EU's influence varies across aspects of the UK's research ecosystem. Before the referendum, the Society conducted a phased project gathering evidence about the influence of the UK's relationship with the EU on research. This project produced three reports focusing on funding, research collaboration and mobility, and regulation and policy. The Society considers these three areas to be useful ways to focus discussion of the risks and opportunities associated with leaving the EU. However, note that they are not mutually exclusive and no one issue should be considered in isolation.

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

<sup>10</sup> UK national Academies (2016) Research and Innovation: After the EU Referendum  
<https://royalsociety.org/~media/policy/Publications/2016/19-07-16-eu-referendum-statement.pdf>

<sup>11</sup> <https://drive.google.com/file/d/0BwQ4esYYFC04UnhmRldMbUNralU/view>

<sup>12</sup> See for example: <http://www.nature.com/news/e-mails-show-how-uk-physicists-were-dumped-over-brexit-1.20380>

<sup>13</sup> See for examples: <http://www.sciencecampaign.org.uk/engaging-with-policy/science-in-westminster/brexit/monitoring-the-impact-of-brexit-on-uk-science.html>

<sup>14</sup> <https://www.gov.uk/government/news/chancellor-philip-hammond-guarantees-eu-funding-beyond-date-uk-leaves-the-eu>

<sup>15</sup> <https://royalsociety.org/news/2016/08/royal-society-response-to-guarantees-on-eu-grant-funding/>

13. *Funding.* The UK is one of the largest recipients of research funding in the EU<sup>16</sup> and is very successful in attracting Framework Programme funding, particularly that allocated for excellence.<sup>17</sup> It is not only the scale of funding that is significant, but also the intrinsically collaborative nature of some European programmes. As a Member State, the UK has been able to shape the EU research and innovation agenda in a way that reinforces our strengths.<sup>18</sup> The Government must ensure that there is no decline in overall public funding for UK science and should seek the closest possible association with European research programmes in future.
14. *Collaboration and mobility.* 60% of the UK's internationally co-authored papers are with EU partners, an increasing share of the UK's international publications.<sup>19</sup> Mobility is an important part of collaboration, and the EU's 'free movement of workers' principle makes it easy for researchers to move within the EU. The EU also actively supports researcher mobility, both within the EU and to non-EU countries.<sup>20</sup> Researcher mobility between the UK and EU Member States is key to our future excellence.<sup>21</sup> Government should ensure that a fair and transparent system be put in place for the movement of researchers, to ensure that the UK can retain and attract outstanding researchers from other countries and to enable UK-based scientists to collaborate with excellent scientists elsewhere in the world, including in Europe.
15. *Regulation and policy.* EU policymaking offers an opportunity to implement consistent policy that supports science across multiple countries. Policy that influences research can be divided into two types; policy that is intended to govern research; and broader policy that has impacts for research practice. Both types of EU policy influence UK research. It is critical that we identify those areas of regulation where alignment with EU rules is most important for the UK's competitiveness, and that UK experts remain fully engaged in shaping the development of standards and regulations.<sup>22</sup> The UK's strong research base means that its researchers and institutions are well-placed and well-regarded to inform international policy that governs research, including in the EU.<sup>23</sup>
16. EU programmes are an important part of the UK research and innovation landscape, which amplify our science and expand our international reach. Throughout the upcoming process, science will need a strong, unified voice to represent its interests across government, Europe and around the world. The creation of UK Research and Innovation (UKRI) could provide this strong voice. Robust scrutiny of the Higher Education and Research Bill during its passage through Parliament will be important to achieve this.

### The Society's work following the referendum

17. Following the UK's vote to leave the EU, the Society is working to ensure the best possible outcomes for the UK and for science and innovation. This work will explore the key elements of

<sup>16</sup> The Royal Society (2016) UK research and the European Union: The role of the EU in funding UK research. <https://royalsociety.org/~media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf>

<sup>17</sup> The Royal Society (2016) UK research and the European Union: The role of the EU in funding UK research. <https://royalsociety.org/~media/policy/projects/eu-uk-funding/uk-membership-of-eu.pdf>

<sup>18</sup> UK national Academies (2016) Research and Innovation: After the EU Referendum <https://royalsociety.org/~media/policy/Publications/2016/19-07-16-eu-referendum-statement.pdf>

<sup>19</sup> Digital Science (2016) The Implications of International Research Collaboration for UK Universities. <https://www.digital-science.com/resources/digitalresearch-reports/digital-research-report-theimplications-of-international-research-collaborationfor-uk-universities>

<sup>20</sup> The Royal Society (2016) UK research and the European Union: The role of the EU in international research collaboration and researcher mobility <https://royalsociety.org/~media/policy/projects/eu-uk-funding/phase-2/EU-role-in-international-research-collaboration-and-researcher-mobility.pdf>

<sup>21</sup> UK national Academies (2016) Research and Innovation: After the EU Referendum <https://royalsociety.org/~media/policy/Publications/2016/19-07-16-eu-referendum-statement.pdf>

<sup>22</sup> UK national Academies (2016) Research and Innovation: After the EU Referendum <https://royalsociety.org/~media/policy/Publications/2016/19-07-16-eu-referendum-statement.pdf>

<sup>23</sup> The Royal Society (2016) UK research and the European Union: The role of the EU in international research collaboration and researcher mobility <https://royalsociety.org/~media/policy/projects/eu-uk-funding/phase-3/EU-regulation-and-policy-in-governing-UK-research.pdf>

support for UK research and innovation that should be retained and strengthened, as well as how this might be achieved at the national, European and international levels. The Society will also consider the UK's future role in the global scientific endeavour. This work will underpin our advice to Government as the situation progresses.

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