



An immigration system that works for science and innovation

A response from the Royal Society of Chemistry to the House of Commons Science & Technology Select Committee.

Summary

The Royal Society of Chemistry is pleased to have the opportunity to contribute to the House of Commons Science & Technology Select Committee's call for evidence on *An immigration system that works for science and innovation*. This response builds upon our previous submission to the Committee as part of their *Brexit, Science and Innovation* inquiry.¹ Our response focuses upon the mobility needs of those working in the research and innovation community and how the UK's future immigration system should be designed to support science to enable economic growth and to deliver solutions to global challenges. We draw upon evidence from our own work in hosting scientific conferences to illustrate the international nature of scientific endeavour and highlight the key role that frequent, short-term mobility plays in maintaining and enhancing the UK's role as a world-leader in science and innovation.

Recommendations

It is essential that the UK's future immigration system contains enough 'built-in' flexibility to respond to rapid change and trends in science and innovation, enabling the UK to bring in the skills that it needs in fast-moving new fields as they emerge.

A future UK immigration system needs to enable easy movement of researchers on short to medium-term contracts. Some of these researchers move to the UK on prestigious world-renowned fellowships (e.g. Marie Skłodowska-Curie Fellowships). Although many of these posts are awarded as fixed-term contracts, often these researchers represent those with the skills that need to diffuse further through the UK research and innovation ecosystem to support UK prosperity.

Moreover, there must be easy routes to enable them to choose to continue to live and work in the UK once their initial contracts end. These researchers possess specialist skills and knowledge that will be essential to delivering solutions to the Grand Challenges proposed as part of the Industrial Strategy.

The UK's future immigration system must include a light-touch, low-cost and fast way for scientists to travel to the UK for short-term research visits. It must be easy to navigate, technology-enabled, ensure rapid response times and it must not detract from the UK's attractiveness as a destination in which to present work and to collaborate. The current non-EEA system for undertaking such kinds of visits is burdensome and does not recognise the timescales and flexibility required for the UK to benefit from such short-term scientific exchanges.

Designing an immigration system that maintains the UK's position as a global science leader is essential for science and innovation to deliver the goals of the Industrial Strategy.

Involving the research community in work to develop a new immigration system should result in an immigration system that delivers for science, innovation and UK prosperity more widely. Our community stands ready to work with the Home Office and others to advise on the design of an immigration system that enables science and innovation to realise the vision of growth and prosperity across the UK that is outlined in the Industrial Strategy.

Main text

Introduction

Throughout the discussion on science and the UK's exit from the EU, the research and innovation community have been unanimously clear about the importance of people. Easy movement of people is essential to science. This is clear in both the evidence received by the House of Commons Science & Technology Select Committee as part of their *Brexit, Science and Innovation* inquiry and in the evidence received by the Migration Advisory Committee, in relation to their work on the impact of EEA and non-EEA workers in the UK labour market.²

In our previous response to the committee,³ we have made clear that there are specific issues concerning how science and innovation is undertaken that means that those working in this area tend to be highly mobile. Because of this, for the UK to achieve the Home Office's stated goal *'to take steps to ensure that Britain is able to attract the brightest and the best'*⁴, an agile and flexible immigration system is essential. In this response, we explain, with supporting evidence, the kinds of mobility that a new UK immigration system must be able to support for UK science and innovation to continue to be world leading.

International researchers working in the UK

For the UK to remain globally competitive in science and innovation we must attract skilled and talented people to work in our companies and universities.

The research community across the UK is already international in make-up. Data from the Higher Education Statistics Authority indicates that in UK chemistry departments around a third of staff come from outside the UK:

- 18% of staff are non-UK EU nationals
- 14% of staff are non-EU nationals⁵

These people bring ideas and knowhow at the frontiers of scientific discovery and application, enable the UK to establish new capability, and train the next generation of researchers and innovators.

Understanding the extent to which non-UK nationals make up the wider workforce across scientific industry has been challenging. However, in our response to the House of Lord Science and Technology Select Committee, we shared views from those working in the life sciences industry regarding access to international talent:⁶

We have heard that in areas such as computational chemistry, bioinformatics and biophysics, access to a global pool of talent (so not only EU or EEA) was essential to find scientists with the skills needed for a company to take advantage of new research fields (e.g. big data) to enable them to innovate further. Building domestic capacity across the breadth of science and innovation (including new and emerging fields) will be essential to delivering an industrial strategy that enables growth.

It is essential that the UK's future immigration system contains enough 'built-in' flexibility to respond to rapid change and trends in science and innovation, enabling the UK to bring in the skills that it needs in fast-moving new fields as they emerge.

Alongside mechanisms to enable scientists to move to the UK longer-term, evidence shows that scientists are highly mobile; moving between institutes and countries is a common part of scientific careers. These periods of mobility, which can vary from the order of days to several years, are a widely accepted feature of scientific careers.⁷

Scientists need to move for fixed periods in order to develop their careers, undertake specific work or collaborate, meet with and network with other scientists. In order to draw a distinction between different kinds of movement, we write below about 'medium-term' mobility to illustrate movement on the scale of months to years and 'short-term' mobility to describe movement on the scale of days to months.

Medium-term mobility requirements

Across research and innovation, movement on a scale of months to years is considered an important element of research careers. For those working in academia, undertaking post-doctoral research is the main mechanism through which this kind of movement occurs. Post-doctoral researchers are a highly-skilled, dynamic, mobile group of researchers that contribute significantly to the UK's overall research outputs and are a vital part of the academic UK scientific workforce. Post-doctoral roles are typically fixed-term contracts from 1-3 years.

Comparing the proportion of researchers in chemistry departments on permanent versus fixed-term contracts, we find that almost three-quarters of those on open-ended or permanent contracts are UK nationals. Over a third of staff on fixed-term contracts are from outside the UK:

- 74% of staff on open-ended or permanent contracts in chemistry are UK nationals
- 35% of staff on fixed-term contracts in chemistry are non-UK nationals⁸

These kinds of fixed-term roles are a ubiquitous feature of academia around the world and support individuals to develop into independent researchers. After their post-doctoral contract ends, these researchers may transition into new roles across academia, industry and other sectors in the UK. However, they may move to a role in another country. Movement into a different role in the UK means that a researcher could move to another institution to carry out further research or to a role in industry, for example, working for a small or medium enterprise (SME) that requires specialist research knowledge.

In both cases, this brings benefits to the UK, whether it is through the diffusion of talented researchers into other parts of the UK economy or through the building of international research links and collaboration opportunities with another country. Our immigration system must recognise that providing easy routes for these kinds of skilled researchers to move into other roles, once their fixed-term post has finished, will support economic growth and the delivery of the Industrial Strategy across the country. The government has identified four grand challenge areas as part of its industrial strategy; artificial intelligence, ageing society, future of mobility and clean growth. Advances in many of these challenges will be brought about by cutting edge research in fast-moving areas like synthetic biology, advanced materials and measurement science. To achieve these, the UK needs to be able to both attract and retain skilled workers who may come to the UK through this post-doctoral route.

In many areas of scientific research there is a need to travel from the country of work for extended periods of time to undertake fieldwork. For example, taking atmospheric measurements at remote monitoring stations. Coupling this alongside regular short-term travel associated with a scientific role (see below) and travel for personal and family reasons means that scientists can be away from their country of work for long periods. The UK's immigration system must incorporate sufficient flexibility to accommodate such movement and ensure that it does not jeopardise a researcher's present or future immigration status.

A future UK immigration system needs to enable easy movement of researchers on short to medium-term contracts. Some of these researchers move to the UK on prestigious world-renowned fellowships (e.g. Marie Skłodowska-Curie Fellowships). Although many of these posts are awarded as fixed-term contracts, often these researchers represent those with the skills that need to diffuse further through the UK research and innovation ecosystem to support UK prosperity.

Moreover, there must be easy routes to enable them to choose to continue to live and work in the UK once their initial contract ends. These researchers possess specialist skills and knowledge that will be essential to delivering solutions to the Grand Challenges proposed as part of the Industrial Strategy.

Short-term mobility requirements

As well as the ability to move to other countries for fixed-term or permanent contracts and to travel from the country of work in order for fieldwork and collaboration, science thrives on the ability of scientists in the UK and the rest of the world to meet face-to-face for short-term visits. These short-term visits could be to attend a conference and present work, to visit a collaborator, or to use specialist equipment that may not be available in a scientist's home institution or even home nation.

Scientific conferences contribute to the UK's reputation in our areas of research strength and to our profile as a global research leader. Our future immigration system needs to make sure that it enables the UK to continue to play this key convening role in the international research community.

The Royal Society of Chemistry runs a series of major international chemistry conferences every year that bring together leaders in the field from across the world to share their work and make new connections and collaborations. We have analysed data on our conferences over the period 2015-2017 (28 conferences in total) in order to illustrate the importance of these short-term visits to the practice of science. The data from our conferences shows that our major conferences hosted in the UK attract researchers from around the world. Scientific discourse through events is a key method through which ideas are exchanged and collaborations formed, all of which support researchers in the UK to advance science.

In common with similar events across research communities, researchers from around the world are invited to submit a short summary about their work that they wish to present at the conference (an abstract). Abstracts are selected based on scientific merit and represent the best research in the field. Across our 2015, 2016 and 2017 conferences, over 60% of the abstracts accepted for presentation at these major conferences came from outside the UK. In addition to this, the attendee profile for our major conferences demonstrates the importance of short-term mobility for science. Across all of the Royal Society of Chemistry's major scientific conferences held in the UK over the last three full years (2015, 2016 & 2017), more than 50% of our delegates came from outside the UK (Figure 1).

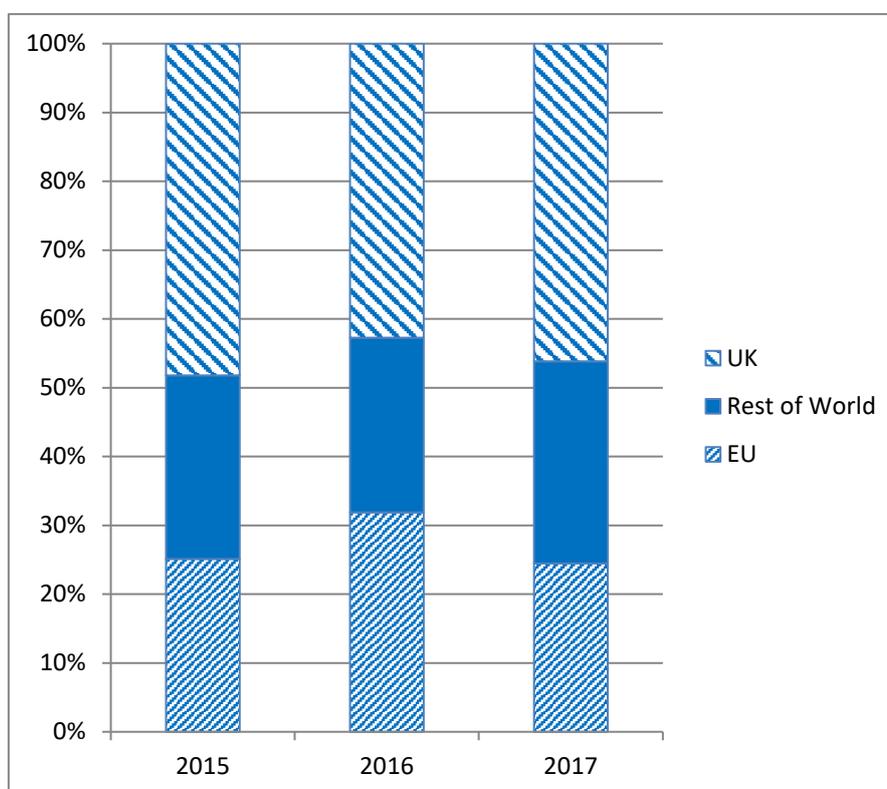


Figure 1 – Graphical representation of where attendees came from to attend major RSC Conferences in the UK in the period 2015-2017.

A detailed analysis of one of these events, the 13th International Conference on Materials Chemistry, held in Liverpool in July 2017, reveals that 568 delegates from 44 different countries attended this conference. This meeting, which highlights the latest developments and discoveries in materials chemistry, featured top researchers from around the world presenting their work. Materials chemistry is a discipline that underpins the development of solutions to a number of broader global challenges across areas like environment and energy. It involves the design and synthesis of materials with desirable characteristics, which can then be applied in a diverse range of ways across the world, e.g. more easily recyclable plastics or new batteries for energy storage. This international meeting featured 30 plenary talks from researchers working in 11 different countries, including Switzerland, China, the Netherlands and India.

Through our programme of conferences, we are aware of instances where non-EEA researchers have been unable to attend due to difficulties with obtaining an appropriate visa. It is challenging to collect consistent data on this issue, given that people may withdraw from a conference at very short notice. However, we have recorded several instances of non-attendance at our meetings due to a delegate not receiving their visa in time and visa applications being denied. As well as missing the opportunity to participate in a conference, there may also be a financial loss for the attendee in relation to arrangements made to attend the meeting.

The evidence above shows the importance of short-term mobility for travel to conferences as part of new scientific developments. It should be noted that the same kind of mobility is equally applicable to instances where researchers wish to visit a collaborator to work together, for training purposes or to use the UK's world class scientific infrastructure – for example the Diamond Light Source at the Harwell Science and Innovation Campus in Oxfordshire.

In all of these cases, complexities arising from visa requirements can result in a researcher missing their speaking slot at a conference or their allocated time to use a large piece of infrastructure. These incidents can contribute to the perception of the UK as being an unwelcoming environment for international researchers.

The UK's future immigration system must include a light-touch, low-cost and fast way for scientists to travel to the UK for short-term scientific visits. It must be easy to navigate, technology-enabled, ensure rapid response times and it must not detract from the UK's attractiveness as a destination in which to present work and to collaborate. The current non-EEA system for undertaking such kinds of visits is burdensome and does not recognise the timescales and flexibility required for the UK to benefit from such short-term scientific exchanges.

Designing a new immigration system

As set out above, a new immigration system that works for science and innovation needs to recognise the international nature of scientific discovery and the mobility of researchers and innovators, which supports this. To maintain and enhance the UK's status as a world-leader in science, the immigration system needs to meet the recommendations above. This would enable:

- Researchers with key skills in new and emerging disciplines to work in the UK on research contracts and remain in the UK after initial research with ease;
- The best scientists from around the world to visit the UK to share cutting-edge science through conferences, collaborations and to use UK facilities;
- We would also hope to see similar opportunities extended to UK scientists to use facilities, present research, work and collaborate in other countries with ease.

As part of the transition towards a new immigration system, the Home Office has commissioned the Migration Advisory Committee (MAC) to undertake a review of EEA workers and international students in the UK. The commissioning letter from the Home Secretary to the MAC regarding EEA workers also sought advice on *'how the UK's immigration system should be aligned with a modern industrial strategy'*, acknowledging that the two issues are closely linked.⁹ Many in our community have submitted evidence to the MAC and we await the committee's final report.

As explained above, the Home Office has already acknowledged that there is a strong link between the UK's immigration system and the UK's ability to deliver an Industrial Strategy, which improves growth and prosperity across the country. The Industrial Strategy white paper highlights the role of research and development as one of the five foundations of productivity ('ideas').¹⁰

Designing an immigration system that maintains the UK's position as a global science leader is essential for science and innovation to deliver the goals of the Industrial Strategy.

Involving the research community in work to develop a new immigration system should result in an immigration system that delivers for science, innovation and UK prosperity more widely. Our community stands ready to work with the Home Office and others to advise on the design of an immigration system that enables science and innovation to realise the vision of growth and prosperity across the UK that is outlined in the Industrial Strategy.

Contact

The Royal Society of Chemistry would be happy to discuss any of the points raised in our response in more detail. Any questions should be directed to Dr Mindy Dulai, Senior Policy Advisor, Research Landscape dulaim@rsc.org, 01223 432674.

About us

With over 52,000 members 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.

¹ - [Royal Society of Chemistry response to House of Commons Science & Technology Select Committee inquiry into 'Brexit, Science and Innovation'](#), February 2018

² - [EEA workers in the UK labour market: interim update](#), Migration Advisory Committee, March 2018

³ - [Royal Society of Chemistry response to House of Commons Science & Technology Select Committee inquiry into 'Brexit, Science and Innovation'](#), February 2018

⁴ - [Home Office single departmental plan](#), May 2018

⁵ - Source data: HESA student and staff records 2015/16 (<http://www.hesa.ac.uk>)

⁶ - [Royal Society of Chemistry response to House of Lords Science & Technology Select Committee inquiry into 'Life Sciences and the Industrial Strategy'](#), September 2017

⁷ - [International mobility of researchers: A survey of researchers in the UK](#), Susan Guthrie, Catherine Lichten, Emma Harte, Sarah Parks and Steven Wooding, RAND Europe, May 2017

⁸ - Source data: HESA student and staff records 2015/16 (<http://www.hesa.ac.uk>)

⁹ - [Home Secretary's commissioning letter to the chair of the MAC](#), July 2017

¹⁰ - [Industrial Strategy, Building a Britain for the future](#), HM Government, November 2017

All links active on 6 June 2018