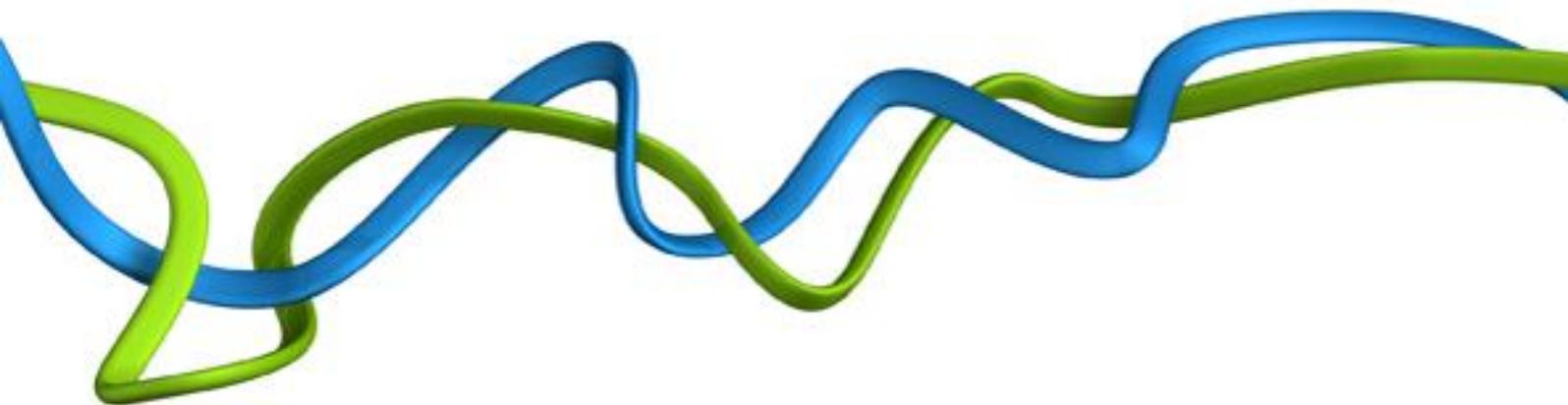


Immigration

House of Commons Home Affairs Committee

Submission from the Royal Academy of Engineering

January 2017



About the Royal Academy of Engineering

As the UK's national academy for engineering, we bring together the most successful and talented engineers for a shared purpose: to advance and promote excellence in engineering.

Immigration inquiry

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Summary

- Maintaining and improving the UK's excellence in engineering is critical to the success of the UK. The impacts of leaving the EU on the engineering sector will depend on many factors, including the movement of labour. The result of the EU referendum has created significant uncertainty, both within the UK, but also for our European and international partners and stakeholders. Such uncertainty is likely to continue until the negotiations are finalised and the UK's new position in the world is established. To help the engineering, research and innovation communities effectively navigate uncertainty and minimise its detrimental impacts, the UK government should increase its efforts to transmit a positive and assertive message that the UK is still a research and innovation powerhouse and is welcoming and open for business with international partners.
- The UK faces an engineering skills crisis, with an estimated 182,000 new engineers and engineering technicians needed per year until 2022. Engineering in the UK is highly dependent on non-UK nationals. The pace of technology development combined with the length of time it takes to fully train qualified engineers means that it is impossible to fill all engineering skills gaps and shortages in the near term by increasing the UK pipeline, although that clearly must be part of the UK's response to leaving the EU.
- Delivery of major infrastructure projects often depends on the availability of large numbers of people with specific skills for a fixed period. At present, the EU is an important source of engineers deployed on UK projects and companies rely on the ability to move their engineers between countries. For the success of the engineering profession and the associated national benefits, the government must work with industry to identify the gaps in essential skilled engineering occupations that cannot be filled domestically in the short term and develop straightforward and cost-effective solutions. This should include maintaining the ease of intra-company transfers, or similar provisions, recognising that many companies require their engineers to move freely to support and fulfil contracts.
- Research and innovation is a global endeavour. The Academy supports the government's ambitions to continue to attract the brightest and best to work and study in Britain and to be the best place for science and innovation. It is important that the UK's immigration policies fully support the realisation of these ambitions.

1. Introduction

- 1.1. The Royal Academy of Engineering welcomes the opportunity to submit evidence to the House of Commons Home Affairs Committee inquiry on immigration. The Academy's response has been informed by the expertise of its Fellowship, which represents the nation's best practising engineers, including leading researchers, industrialists, innovators and entrepreneurs.
- 1.2. Following the EU referendum the alliance of 38 professional engineering institutions and national organisations that represent the engineering profession, known as Engineering the Future (EtF), agreed to work together to support government in the forthcoming negotiations to secure the best possible outcome for the UK. In October 2016 the Academy and EtF published the report *Engineering a future outside the EU*¹; this submission builds upon that report.
- 1.3. The Academy is also working closely with its sister UK National Academies: the Academy of Medical Sciences, the British Academy and the Royal Society, to explore how best to support government in the task ahead with regard to issues related to research and innovation. Consequently, the National Academies have also submitted a joint response to this inquiry, highlighting our shared interest in ensuring the UK's outstanding research and innovation system is maintained.²
- 1.4. Engineering is at the core of our modern society, turning research into wealth, improving lives and driving economic and social progress. With engineering-related sectors contributing at least 20% of the UK's gross value added and accounting for half of the UK's exports³, it is essential that in the negotiations for leaving the EU, the government is fully conversant with the key issues that affect the UK's engineering performance, including immigration.
- 1.5. Engineering success is based on people and the UK has a world-class research base and world-renowned engineers across all sectors, drawing on talent from around the globe. Engineering has a particularly mobile workforce; this is true in both industry and academia, and across all skills level.
- 1.6. However, the UK faces an engineering skills crisis with shortages across all skills levels. Work by EngineeringUK concludes that the UK will need 182,000 new engineers and engineering technicians per year until 2022.⁴ The pace of technology development combined with the length of time it takes to fully train qualified engineers and engineering technicians means that it is impossible to fill all engineering skills gaps and shortages in the near term by increasing the UK pipeline. While the result of the referendum does present an important opportunity to refocus efforts on boosting the supply of UK home grown talent to tackle the skills crisis, inward migration to the UK of skilled individuals who can contribute to filling the skills gaps and shortages remains essential. Consequently, the UK's approach to immigration policy is inextricably linked to the UK's ability to continue to grow and succeed.

¹ [Engineering a future outside the EU](#), Royal Academy of Engineering, Engineering the Future, 2016

² Joint submission from the Academy of Medical Sciences, the British Academy, the Royal Academy of Engineering and the Royal Society to the House of Commons Home Affairs Committee inquiry on immigration, 2017

³ [Assessing the economic returns of engineering research and postgraduate training in the UK](#), Technopolis, 2015

⁴ [Engineering UK 2016, The state of engineering](#), Engineering UK, 2016. Demand for occupations most likely to require intermediate or higher engineering skills is approximately 182,000 per year.

2. The engineering profession

- 2.1. Engineering companies in the UK recruit from a global talent pool. However, accurate figures are not available for the total number of non-UK EU nationals working as engineers in the UK, as there is currently no requirement for this information to be recorded. Although figures are available for the number of engineers utilising the Mutual Recognition of Professional Qualifications Directive in the UK, these figures do not provide a complete picture as many engineering activities can be practised without the need to be registered as a professional engineer in the UK. Existing statistics on the proportion of people in employment by industry can give an indication. For example, Office for National Statistics data shows that for professional, scientific and technical activities 84.5% of employees are UK nationals, 5.5% are non-UK EU nationals and 9.9% are from the rest of the world.⁵ However, such high-level data can mask the reality for engineering companies. The Academy has received evidence from engineering companies reporting employment proportions of between 10% to 20% for non-UK EU nationals and between 13% to 50% for non-EU nationals.⁶
- 2.2. Occupations in the engineering sectors such as civil, mechanical and electrical, or in allied professions including physical scientists and environmental professionals, make up half of the 32 standard occupations listed in the Home Office Shortage Occupation List (SOL).⁷ As a minimum, assuming freedom of movement of EEA nationals is restricted, government should work with industry to review and identify the gaps in essential skilled engineering occupations that cannot be filled domestically and in the short term develop straightforward and cost effective solutions.
- 2.3. Consideration should also be given to the minimum salaries specified for each profession on the SOL. Average salaries vary geographically; similarly, skills gaps and shortages tend to be geographically uneven. It can be more difficult to attract people to locations such as Northern Ireland and the north of England where pay is often lower than in the south, resulting in greater gaps in the supply of high-quality labour across the UK.⁸ Therefore, if a SOL were to be developed for EEA countries, attention should also be paid to the risk that a UK-wide minimum salary might exacerbate skills gaps and shortages in particular regions.
- 2.4. Ensuring progress towards the government's vision of driving economic growth, boosting productivity and raising living standards through investment in high-quality infrastructure⁹ will require the UK to have access to a supply of skilled individuals that matches demand. Delivery of major infrastructure projects often depends on the availability of large numbers of people with specific skills for a fixed period. However, skills shortages are particularly acute in infrastructure sectors, which are highly competitive and operate on low profit margins.¹⁰
- 2.5. At present, the EU is an important source of engineers deployed on UK infrastructure projects. For example, about 9% of the UK construction workforce comprises non-UK EU nationals (the third most reliant sector after hospitality and manufacturing).¹¹

⁵ Office of National Statistics April 2015 to March 2016

⁶ [Engineering a future outside the EU](#), Royal Academy of Engineering, Engineering the Future, 2016

⁷ [Tier 2 Shortage Occupation List](#), Home Office, 2015

⁸ [The Labour Market Story: The State of UK Skills](#), UKCES, 2014,

⁹ [National Infrastructure and Construction Pipeline](#), Infrastructure and Projects Authority, 2016

¹⁰ [National Infrastructure Delivery Plan 2016-2021](#), Infrastructure and Projects Authority (IPA), 2016

¹¹ [Infrastructure 2050](#), Balfour Beatty, 2016

Current uncertainty about the status of EU workers in the UK is likely to exacerbate existing recruitment difficulties, resulting in increasing costs where demand for labour outstrips supply and a risk of project delays. For the government to achieve the 729 projects and programmes detailed in the UK's 2016 National Infrastructure and Construction Pipeline it is essential that government develops straightforward and cost-effective solutions to fill gaps in the labour workforce.¹²

2.6. Intra-company transfers are critical for the engineering profession, as many companies require their engineers to move freely to support and fulfil contracts. Consequently, intra-company transfers are acknowledged as an important measure to help ensure that businesses can remain competitive.¹³ The planned introduction in April 2017 of a minimum salary threshold of £41,500 for all non-trainee intra-company transfer applications presents a risk to some engineering companies. This salary threshold is significantly higher than the average minimum salary on the SOL and as a consequence the visa may not remain accessible for all skilled engineers and technicians. On leaving the EU, for UK engineering businesses, it is essential that intra-company transfers, or similar provisions, are extended to cover EEA citizens and remain accessible for skilled engineers and technicians.

2.7. In considering new immigration arrangements for EU nationals once the UK has left the EU, the opportunity should be taken to streamline the wider, global system to improve speed and efficiency. It is clear that improvements in the current system, particularly with regard to timing and cost would be welcomed by the engineering community.¹⁴ It is estimated that the additional direct cost of recruiting an employee from outside the EU is currently between £2,000 to £4,000 for companies and that it can take up to three months to process a visa application.¹⁵ If the current immigration provisions were extended to accommodate EEA nationals, there is a risk that this could negatively affect UK businesses' access to the flexible, project-based workforces that they need. Any new immigration policies should be simple and proportionate for applicants and employers.

3. Research and innovation

3.1. International talent plays an important role in enabling the UK to realise the benefits from its public investment in research and innovation. The ability of the UK to attract the best researchers in a field is critical to the maintenance of the UK's excellence in research and higher education. The evidence demonstrates that the primary driver of research excellence is exceptional researchers¹⁶, with high-performing institutions having more staff who are from, or have worked, overseas.¹⁷ The UK's research base is truly international: 28% of academics in universities are non-UK nationals, with 16% from non-UK EU member states.¹⁸ Access to global talent, including from EU member states, is crucial to the UK's international competitiveness.

¹² [National Infrastructure and Construction Pipeline](#), Infrastructure and Projects Authority, 2016

¹³ [Immigration: skill shortages](#), House of Commons, Home Affairs Committee, 2015

¹⁴ [Immigration: Keeping the UK at the heart of global science and engineering](#), CaSE, 2016

¹⁵ [Visa Processing Times](#), The Home Office, 2016

¹⁶ [Growing the best and the brightest: The drivers of research excellence](#), Economic Insight, 2014

¹⁷ [Characteristics of high-performing research units](#), Kings College London, 2015

¹⁸ [Characteristics of Academic Staff in 2014/15](#), HESA, 2016

- 3.2. UK university engineering and technology departments have higher proportions of international students and staff, including from non-UK EU countries, than the average for all subjects. In 2014/15, 40% of engineering and technology academic staff in the UK were non-UK nationals, compared to 28% across all subjects. Further analysis shows that 18% of engineering and technology academic staff were non-UK EU nationals and 22% were non-EU nationals. Similar trends are seen when all engineering and technology staff are considered, with 15% non-UK EU nationals in 2014/15, compared to 11% across all subjects as a whole.¹⁹
- 3.3. The same trend is observed when considering engineering and technology students. In 2014/15, 30% of engineering and technology undergraduate students were non-UK nationals, rising to 68% of engineering and technology postgraduate students.²⁰ While the majority of the engineering and technology students who are non-UK nationals are not from EU countries, non-UK EU nationals still make up a significant proportion, at 9% for undergraduates and 17% for postgraduates.²¹ The proportion appears to increase when considering the quality of the engineering and technology departments, with an average of 13% and 24% non-UK EU undergraduate and postgraduate students respectively in the nine UK universities featured in the Times Higher Education Engineering and Technology Top 100 universities.²²
- 3.4. Research areas and degree courses which have a high dependency on non-UK nationals may not be sustainable if the number of non-UK EU nationals coming to work and study engineering in the UK reduces. This risk could be further exacerbated if there was also a reduction of non-EU nationals due to the referendum result affecting the UK's attractiveness for students and researchers from non-EU countries. Such risks will not only impact on the UK's engineering skills pipeline, but could also have more direct economic impacts. International students can be considered a major UK export, worth £10.7 billion to the UK economy²³, while EU students at UK universities have been found to contribute £3.7 billion to the UK economy each year and support around 34,000 jobs.²⁴
- 3.5. The Academy, as a Designated Competent Body (DCB), assists with the accelerated endorsement process for Tier 1 Exceptional Talent and Exceptional Promise visas. The visa is open to applicants from non-EEA countries who wish to be based within the UK, and is aimed at engineering researchers who are already recognised as the brightest and best world leaders in their fields (Exceptional Talent), and also those with the potential to be future leaders (Exceptional Promise). Each application is reviewed by three Academy Fellows with expertise in the applicant's field. Awardees of a set of prestigious UK-based fellowships and grants are eligible to apply for accelerated endorsement from the Academy, recognising the rigorous peer review already conducted during the assessment of their fellowship or grant application. The accelerated endorsement process assists the UK in attracting global engineering talent to the UK.

¹⁹ All staff employed at publicly funded institutions, including managerial, professional, technical, and manual, described by the engineering and technology cost centre.

²⁰ HESA data, accessed 28 September 2016, nationality of undergraduates and postgraduates, 2014/15

²¹ HESA data, accessed 28 September 2016, nationality of undergraduates and postgraduates, 2014/15

²² HESA data, accessed 26 August 2016 and Subject Ranking 2015-2016: engineering and technology Top 100, Times Higher Education World University Rankings, 2016

²³ [Effect of exiting the EU on higher education](#), Universities UK, 2016

²⁴ [EU students vital to regional economics and jobs](#), Universities UK, 2016

- 3.6. Innovation is critical to the UK's economy and productivity, and like research, it is an international endeavour.²⁵ The European Startup Monitor, which represents more than 2,300 start-ups with more than 31,000 employees in all 28 European member states, showed that 25% of UK start-ups were founded by non-UK EU nationals and 45% of UK start-up employees come from non-UK EU countries – the highest proportion of non-own country EU nationals employed across the 13 countries surveyed (the average was 21%).²⁶
- 3.7. The Academy welcomes the Prime Minister's ambition to continue to attract the brightest and best to work and study in the UK.²⁷ Given that talented individuals from around the world are essential to the UK's success in engineering research and innovation, the UK government should ensure that their approach to immigration does not impede the ability of UK institutions and organisations to attract these individuals. Furthermore, non-UK EU nationals who are currently part of the UK's engineering, research and innovation communities need assurance that they will be able to continue to live and work in the UK. We welcome the government's intention to resolve this issue as soon as possible.²⁸
- 3.8. For the UK to continue to support excellence in research and innovation its immigration policies will need to accommodate the unique features of researcher and innovator mobility. Short-term visits for conferences and collaborations are fundamental to the practice of research and innovation, and these should be enabled by the UK's immigration system. In addition, sensible and proportionate arrangements should be in place to retain and attract non-UK nationals who wish to pursue innovative and entrepreneurial activities in the UK.

4. Attitudes and uncertainty

- 4.1. The result of the EU referendum has created significant uncertainty, both within the UK, but also for our European and international partners and stakeholders. Although the Prime Minister's recent commitment to provide as much certainty and clarity as possible throughout the process is to be welcomed, it is inevitable that significant levels of uncertainty will continue until the negotiations are finalised and the UK's new position in the world is established. To help the research and innovation community effectively navigate uncertainty and minimise its detrimental impacts, the UK government should continue to increase its efforts at transmitting a positive and assertive message, particularly to European stakeholders, that the UK is still a research and innovation powerhouse and is welcoming and open for business with international partners.
- 4.2. Although it is widely accepted that concerns about immigration played a significant role in the UK's decision to leave the EU, there is evidence that public attitudes to immigration of high skilled individuals are positive. In polling conducted after the referendum, only 12% of people wanted to see a reduction in the numbers of highly skilled workers migrating to Britain; nearly four times as many, at 46%, supported an increase and 42% thought numbers should be maintained.²⁹ Among people who voted

²⁵ [Investing in innovation](#), Royal Academy of Engineering, 2015

²⁶ [European Startup Monitor](#), 2015

²⁷ [The government's negotiating objectives for exiting the EU](#): PM speech, 2016

²⁸ [The government's negotiating objectives for exiting the EU](#): PM speech, 2016

²⁹ [What next after Brexit](#), British Future, 2016

'Leave' in the referendum these numbers remain broadly the same, with 45% supporting an increase, 40% supporting current levels and 15% supporting a reduction.³⁰ A poll focusing on public attitudes to EU and international students following the referendum found that a majority of British adults would like to maintain, at 44%, or increase, at 18%, the number of international students in the UK.³¹

5. Conclusion

5.1. The political reality of leaving the EU means there are likely to be some restrictions on the free movement of labour. Nevertheless, for the engineering sector, inward migration to the UK of talented individuals will continue to be necessary for the foreseeable future. Therefore, it is important that the UK continues to be outward looking and a leading player in the international research, innovation and business communities. The Academy believes the principles for the UK's immigration system should reflect this approach.

³⁰ [What next after Brexit](#), British Future, 2016

³¹ [Universities UK international students poll](#), ComRes, 2016