The EU Referendum
the risks to engineering

The IET's view to initiate debate and discussion within the engineering industry.

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The Institution of Engineering and Technology believes that, on balance, the general advancement of science, engineering and technology in the UK are best served by the continuation of EU membership for the United Kingdom for the following reasons:

- the UK engineering sector would be less able to access the skills it needs if it became more difficult for engineers from EU countries to work in the UK
- engineering in the UK is deeply integrated with global markets and global companies. Its success is therefore dependent on access for its products to global markets. The uncertainty about the terms on which such access would be granted after a decision to leave would damage the engineering sector. It is possible that these effects could be mitigated by adjustments after an exit from the EU, but there is no certainty that these would be fully successful
- engineering and science research would be damaged by exit – since both engineering and science research funding and international collaboration would suffer
- the UK’s influence on global standards making – which is an essential element in the health and growth of the engineering sector – would be weakened by exit

The case for remaining within the EU is underpinned fundamentally by the global nature of both technology-based engineering and science, and also the unknown and unquantifiable transition risks.
Engineering and science research funding

EU sources fund approximately 10% of UK research\(^1\). The UK receives more funding for scientific and engineering research than it contributes to the EU.

Leaving the EU would reduce the funding available for UK science and engineering and is therefore a negative outcome of leaving. However, the financial changes inevitably emerging from the withdrawal of the UK could provide scope for the UK government to replenish that funding directly of course. It is not clear to what extent the funding deficit will be replenished if the UK left the EU.

Engineering research collaboration

The benefit to the UK of European R&D programmes such as Horizon 2020 is much more significant when considering collaboration. Research and development does not know national boundaries and global collaboration is essential.

The EU programmes enable a rich collaborative environment for business and academia. It is true that the UK collaborates globally outside the EU in both science and business. But the EU programmes are part of the reason why UK science and business are attractive to those global collaborators. Losing both this formal EU collaborative environment and the probable loss of access to influencing the direction of EU research would be a significant loss to the UK. Almost certainly greater than any direct financial loss.

On balance remaining in the EU would be better for UK engineering & science research in both academia and industry than leaving.

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\(^1\) ‘The role of European Union membership in UK science and engineering research’, Engineering Professors Council/CoSE December 2015.
People and Skills

The UK does not produce sufficient trained people to staff and grow either its technology based businesses or academic research.

Talent from outside the UK is today vital to the UK technology base. If talent cannot be brought into the UK then the economy will suffer directly. For example 17% of engineering academic staff comes from other EU countries and historically around a quarter of engineering companies recruit engineers from other EU countries.

If the UK loses automatic access to EU talent then we would need to provide some mechanism for enabling such people to work in the UK readily. For example, a fast track visa process for technologists together with unlimited time extensions and rights for family. This is entirely feasible although may appear to be at variance with one benefit of leaving the EU - control of borders.

If a fast track immigration process can be introduced which is attractive to non UK talent, then whether the UK is a member of the EU is not relevant. If this is not feasible then membership of the EU is preferable to enable the vital supply of highly skilled technology workers.

Historically, around a quarter of UK engineering companies recruit engineers from other EU countries.

2 'The role of European Union membership in UK science and engineering research', Engineering Professors Council/CaSE December 2015.
3 'Engineering and Technology Skills and Demand in Industry' survey, The IET, 2008 and 2009 data.
Standards

Engineering Standards are vital to trade – we need only think of GSM (mobile telephony, defined in the EU), VHS and Betamax to understand the impact of standards. These standards can be either National, European, or Global.

Frequently standards define markets and the creation of such standards is competitive to some extent. So for example, there are competing standards for mobile communication which are European, US, Chinese or Japanese. For each new generation of technology, one or more of these standards will eventually dominate globally e.g. GSM for 2G.

Designing equipment to meet global standards is how companies can access world markets. The UK could not create its own standards in this field and expect to have them honoured in any significant market. Hence UK industry would not be able to influence these standards and would inevitably be late to some new markets, unless it became a prominent member and influence in an international standard making body to improve trade with USA or China. Where the relevant standards are global – e.g. PCs and laptops - or National – e.g. train gauges - then of course, membership of the EU or otherwise is of no consequence.

The power of Technical Standards to create global markets means that membership of the EU is a significant driver of growth in some markets.
Access to markets

Membership of the EU was originally at least in part to give the UK access to a large market. Without that membership, the UK would need to negotiate Trade Agreements independently to gain access to global markets.

Engineering firms usually compete globally and are therefore dependent on such Trade Agreements. It is not clear that forming new agreements with the UK would be a priority for other trade groupings and countries nor that the UK would have notable negotiating leverage. However, it is conceivable that we might become incorporated in other treaties, in time. There would inevitably be a delay whilst those treaties were agreed and trade would be damaged during this period. The extent of the damage will be dependent on the length of the delay and this is unknown, so must be of serious concern.

The absence of automatic access to the EU market would be likely to damage Engineering companies until, and if, equivalent Trade Agreements can be concluded.

The IET does not seek to take a political stance on the forthcoming referendum on staying in or leaving the European Union but does wish to help inform the debate by contributing views on the arguments from the engineering perspective. This paper is published for the purposes of stimulating debate and discussion in this area. We think that this is a vitally important decision for future generations of engineers and we owe it to them to highlight the potential benefits for their future.

This document outlines the official position of the IET and may not represent the views of individual members.