

ICE Policy Paper: Brexit and Infrastructure Interconnectivity

Introduction

In a recent meeting of the All Party Parliamentary Group on Infrastructure, Members of the House of Lords, House of Commons, experts and industry discussed Britain's interconnectivity with the European Union (EU) and the challenges for infrastructure which lie ahead.

This Institution of Civil Engineers (ICE) policy paper sets out the broad challenges facing the United Kingdom in the development and building of new infrastructure as a result of Brexit. It also makes recommendations to the Government and industry which ICE believes are necessary for the continuation of the timely delivery and maintenance of much needed infrastructure assets.

The paper identifies the necessity for the UK to maintain connectivity with Europe whilst seeking to expand trade partnerships with the rest of the world. Bearing this in mind it is necessary to consider the implications for new infrastructure resulting from policy decisions in the near future.

The paper goes on to consider how the UK can continue to invest in infrastructure in the event of a loss of access to finance from the European Investment Bank. It considers the importance of developing human capital and skills and preventing the loss of access to skilled labour from the European Economic Area (EEA). Finally the paper sets out recommendations which would keep the UK at the forefront of international standards, ensuring British businesses can trade freely both within and outside of Europe.

This work builds on ICE's Brexit Infrastructure Group work undertaken last year which can be found on the [ICE website](#).

APPGI Panel on Brexit Interconnectivity: Wednesday 25th April 2018

Stephen Hammond MP (Chair) All-Party Parliamentary Group on Infrastructure

Professor Lord Robert Mair, President, Institution of Civil Engineers

Lilian Greenwood MP, Chair, Transport Select Committee

David Bell, Director of Standards Policy, British Standards Institution

Mike McNicholas, Managing Director of Infrastructure, Atkins

James Stewart, Vice Chair and Head of Brexit, KPMG

Key Recommendations

Recommendation 1 - The Government should identify the physical infrastructure needed to maintain mutually beneficial links with the European Union under a new customs system, whilst expanding trade with the rest of the world.

Recommendation 2 – The feasibility of establishing a UK Investment Bank should be explored, prior to the transition period coming into effect, by the Government as a contingency against a loss of access to low cost finance from the European Investment Bank.

Recommendation 3 – The Government should act to ensure freedom of movement for some construction workers and other built environment professionals, working with industry to map the skills required to deliver future projects under the National Infrastructure and Construction Pipeline

Recommendation 4 - The Government and industry should accelerate efforts to implement digital transformation and innovative ways of working.

Recommendation 5 – The UK should seek to remain a member of the European Standards Organisations CEN and CENELEC, with the Government assuring maintenance of the current regulatory approach.

Maintaining Physical Connectivity with Europe

The UK's membership of the EU has seen the development of near frictionless trade and an expectation of freedom of movement for individuals which is low cost and uncomplicated. Maintaining or replicating the conditions of frictionless trade and the expectations individuals have come to expect outside of the single market and customs union is a significant challenge. This is especially true in an environment where customs and migration checks are more rigorous and the UK seeks to increase the volume of trade from additional partners.

The Government is currently considering two customs proposals outlining the UK's future relationship with the EU; a customs partnership and a customs arrangement.

A customs partnership would remove the need for new customs checks on the border by maintaining the external tariff. The UK would continue to collect EU tariffs on imported goods from outside the EU. Importers could claim back any difference if they sell those goods in the UK and the UK has a lower tariff in future.

A customs arrangement would seek to minimise checks by using new technologies and trusted trader schemes where tariffs could be collected outside the border rather than on a transactional 'every crossing' basis.

Alternatively, if there is no agreement, the UK will default to World Trade Organisation rules and customs checks would apply on all goods and services.

The greater the extent of divergence away from the existing customs union, the greater the need for additional infrastructure such as lorry parks, expanded port facilities and border checks. Existing infrastructure would also need to be adapted to facilitate new technology. Alterations will also need to be made to existing infrastructure which was never designed for border checks, the Channel Tunnel and the border with the Republic of Ireland being the primary examples. These new and modified assets would also need to be both in the UK and ports of entry in the EU.

The Government must be mindful that infrastructure takes time to design, fund and build. With Brexit less than a year away and any transitional period expected to be no more than two years, Ministers must take into account that the development and implementation of new technology and infrastructure assets may not arrive before the new arrangements come into force.

Operation Stack is implemented in Kent when there are delays to cross channel travel due to bad weather, operational difficulties, security or industrial action. The lessons learnt suggest that delays to crossings would cost the UK freight industry £750,000 per day. Both local and national government have committed to a recommendation for the building of lorry parks to avoid congestion on roads. These would need to be some 65 hectares in size but would take many years to build and have also faced legal challenges.¹

In May 2018, the Government announced a replacement initiative, Operation Brock, which would make alterations to the M20 to allow the motorway to act as a temporary lorry park on the southbound carriageway whilst allowing flow in both directions on the northern carriageway. This, however, can only be an interim measure and ICE welcomes the Government's decision to consult on a long term solution.²

The UK also has important links with the EU and EEA on energy supply and digital infrastructure. The unexpected cold weather in March 2018 saw domestic demand for gas spike and outstrip domestic storage and supply, with Liquid Natural Gas being diverted to Asia at the time.³ Much of the on demand supply, which would have come through Dutch and Norwegian transfers, was also unavailable. It is important the Government prioritise resilience through expanded storage and increase physical links to ensure contingency of supply.

¹ [House of Commons Transport Committee \(2016\)](#)

² [DfT \(2018\) Road Haulage Update](#)

³ [Bloomberg \(2018\) Cold Snap Triggering Gas Crisis in UK Shows Rising Supply Risk](#)

Further, the banking sector's future relies heavily on digital connectivity with Europe for trading and clearing. Initiatives such as the Connecting Europe Facility, give provision for pan-European integration of Digital Service Infrastructure, supporting security, telecommunications, energy and transport across borders. This initiative and others are important for the UK's service economy and for integration of new customs arrangements reliant on technology. The UK must seek to remain active in efforts and projects which provide mutually beneficial outcomes.

Finally, it should be noted that there are significant infrastructure challenges which still need to be addressed outside of the demands of Britain's exit from the EU. Regional and East-West transport infrastructure, housing, rail and road capacity remain long-standing challenges which need to be met. Looking to future technological changes, support for the development of electric, connected and autonomous vehicles must remain a priority in order to meet environmental policy goals and mitigate against future scarcity of traditional carbon fuels.

How the Government and private investors meet these challenges, as well as the short-term factors Brexit may impose, is yet to be determined or remain unclear but they are challenges Britain will have to face in a post-Brexit world.

Recommendation 1 - The Government should identify the physical infrastructure needed to maintain mutually beneficial links with the European Union under a new customs system, whilst expanding trade with the rest of the world.

Continuing the Flow of Investment

The delivery of all new infrastructure assets is dependent on investment and finance. Without access to affordable capital, projects large and small will never leave the design phase. Whilst Brexit has dampened investor confidence to some extent, given the current political uncertainty, the UK, and the City of London, remain world centres for finance and financial instruments, with the wealth of expertise and liquidity this brings.

There remains a belief that the appetite for private investment in UK infrastructure is high and liquidity, both in the UK and in the wider global economy is also abundant. There are, however, not enough avenues and support mechanisms for private investment to support public infrastructure works at present.

The UK has benefited greatly from inward investment from the EU, with the European Investment Bank (EIB) investing some €31.3bn in the economy between 2012 and 2016.⁴ This represents around one tenth of the financing for the current National Infrastructure Delivery Plan running to 2021.⁵

However, finance from the EIB has declined greatly since the UK's vote to leave the EU, with just €1.8bn invested in 2017 – a 72% drop from 2016.⁶

There is a concern that if the Government is unable to negotiate continuing access to finance from the EIB, a vital component of infrastructure financing will be lost, and capital lending costs would increase.

EIB financing has a number of advantages; primarily it provides low cost financing for new infrastructure projects. The EIB is also one of the few large scale organisations which prioritise investment for social and regional infrastructure; it acts as an anchor investor, supporting projects by attracting other sources of financing to complete financial close and it is off balance sheet, which supports the Government's fiscal priorities.

ICE has previously called on the Government to achieve clarity on the UK's future relationship with the EIB and to consult on a possible UK investment bank in the event of a loss of access to EIB financing.⁷

The Government have indicated a concern that such a bank would be added to the Government's balance sheet and funded through borrowing through Public Sector Net Debt. Should this concern remain, ICE would

⁴ [EIB \(2017\) The EIB in the United Kingdom](#)

⁵ This figure is based on EIB lending to the UK between 2012 and 2016, converted to Sterling and adjusted for inflation from a baseline of 2012 set against the NICP pipeline to 2021 estimated at £297.3bn

⁶ [EIB \(2017\) The EIB in the United Kingdom](#)

⁷ [ICE \(2017\) Brexit Infrastructure Group Investment Briefing](#)

encourage the Government to explore the possibility of supporting a privately owned and financed investment bank, supported through guarantee, using the underutilised UK Guarantees Scheme (UKGS).

Such a proposal would use the guarantee scheme, which has a cap of £40bn,⁸ to support the capital requirements of a new bank, which some have estimated as requiring £20bn in seed capital.⁹ The UKGS has, to date, provided just £1.8bn of guarantees through nine projects.

A UK Investment Bank would meet the purpose of the UKGS, which is to encourage the use of debt finance on private markets to support infrastructure development. It would also support the mobilisation of private capital to the scale necessary to deliver nationally significant public infrastructure projects.

Such a bank would also help maintain the UK's international expertise in this field and reduce the cost of private borrowing by transferring the Government's creditworthiness. Further, as a guarantee with sufficiently low risk can be considered a contingent liability, this would have the potential to remain off balance sheet. Other international investment banks, such as Germany's KfW, raise private capital with state support in the form of a guarantee in much the same way.¹⁰

Recommendation 2 – The feasibility of establishing a UK Investment Bank should be explored, prior to the transition period coming into effect, by the Government as a contingency against a loss of access to low cost finance from the European Investment Bank.

Skills and Free Movement

The UK faces a skills gap in infrastructure. Analysis by the Infrastructure and Projects Authority (formerly Infrastructure UK) suggests that we will need to retrain and up-skill around 250,000 of the existing construction workforce and 150,000 of the engineering construction workforce by the end of the decade.¹¹ The Edge Foundation has estimated that there is an annual need of 203,000 people with Level 3+ (A level and above) engineering skills but that there is a shortfall of between 37,000 and 59,000 in meeting that need.

To put these figures into context, some 6.7 million people work in some capacity relating to engineering.¹²

The UK is highly dependent on migrant labour to meet this gap. In London, 27% of construction jobs are currently filled by EU nationals¹³ and 8% of the total UK construction workforce are EU workers.¹⁴ ICE believes that Government and industry should work together to map the skills required to deliver the National Infrastructure and Construction Pipeline and reflect this in any post-Brexit immigration system.

This need will be more pressing in coming decades due to the demographic challenge the UK faces as the population ages and there are fewer people of working age. The Office for National Statistics estimates that by 2046, 25% of the population will be over the age of 65.¹⁵ Qualified construction workers and engineers take a significant amount of time to train and there are insufficient numbers of young people in education or training to maintain the numbers of skilled workers due to retire in the next ten years. Some 877,000 people, 15% of the total, are over the age of 55, but only 12,000 graduates entered the engineering profession in 2015.¹⁶

To address this challenge it is vital that EU economic migrants working directly within the built environment sector, or in associated industries, have certainty about their right to work and study in the UK in both the near and long term. This right should be reciprocal, allowing UK graduates and learners to access courses, work and share best practice and skills across the EU.

It is also important that the Government continue to invest in skills, education and training. Both Government and the sector should step up to the challenge by committing to support apprenticeships and skills training and

⁸ [Gov.UK UK Guarantees Scheme \(2018\)](#)

⁹ [Financial Times \(2017\)](#)

¹⁰ [KfW](#)

¹¹ [HM Treasury \(2015\) National Infrastructure Plan for Skills](#)

¹² [Engineering UK \(2017\) The state of engineering](#)

¹³ [Engineering UK 2018 The state of Engineering, Synopsis and Recommendations](#)

¹⁴ GLA (2017) Housing in London

¹⁵ [RICS. March 2017 UK construction industry could lose 8% of workforce post-Brexit](#)

¹⁶ [ONS 2017, Overview of the UK Population](#)

¹⁶ [Engineering UK \(2017\) The state of engineering](#)



promote the sector so young people are aware of the viability of engineering as a career choice. Two thirds of UK manufacturers are concerned about the future availability of skilled staff for their businesses, whilst only just over half, currently train apprentices.¹⁷

Both the immigration and education systems must recognise the strategic importance construction has to the UK's competitiveness; engineering as a sector employs 19% of the UK workforce and generated some 23% of the economy's £5.3 trillion turnover.¹⁸ There is a need to promote productivity in the sector and avoid an outcome where scarcity of labour supply raises the costs of infrastructure delivery and maintenance to unaffordable levels.

The built environment sector must also make best use of emerging technology and more efficient methods of working. In the longer-term, off-site construction and manufacture in particular offers the possibility of a more efficient future. Possible benefits include reductions of the size of the on-site workforce, the ability to distribute the construction workforce around the country and the possibility of reducing the overall demand for labour.

Off-site construction has already been deployed in a number of projects including delivery of some of Crossrail's stations, most noticeably the new Liverpool Street Station platforms. It has also been used to great effect for Manchester Metrolink, with 55 tram stops installed for Phase 3 of that project using modular concrete units created off-site and installed on-site. Installation of the roughly 3000 units reduced the on-site construction process from 10-12 weeks to just four days.¹⁹

Implementation of off-site construction and other practices requires skilled workers learning from best practice. It also requires development of the skills the wider workforce need to integrate this method from the design phase and increasing awareness of more efficient construction methods in order to meet the demands of the industry. This could lead to a more efficient, regionally balanced and safer means of delivering projects.

We would encourage the Government to work with industry to model the sector wide impact off site manufacturing and other digital transformation technologies could have as a precursor to wider adoption. We would also encourage all government departments to consider the use of off-site construction for their projects, following the lead of the Departments for Transport, Health, Education, Justice and Defence announced at the 2017 budget.

Recommendation 3 – The Government should act to ensure freedom of movement for some construction workers and other built environment professionals, working with industry to map the skills required to deliver future projects under the National Infrastructure and Construction Pipeline

Recommendation 4 - The Government and industry should accelerate efforts to implement digital transformation and innovative ways of working.

Maintaining Britain's Leadership on International Standards

The UK, through the British Standards Institution (BSI), has been a leader and key influencer on the development of standards through the international standardisation system, not least CEN and the European Committee for Electrotechnical Standardization (CENELEC), the two main European Standards Organizations (ESOs). Participation in these bodies, as well as in the International Standards Organisation and International Electrotechnical Commission, has, according to BSI's stakeholders, been essential to the UK's participation in international trade, delivering benefits through harmonisation and simplification of market access conditions.²⁰

The European standards system has simplified the market structure in Europe through the use of the single standard model. When a European standard is developed by industry and other interested parties, either on the basis of an international standard or as a European initiative, then all member bodies must adopt it as a national standard. This model delivers a single national standard for an aspect of a product or service where the need for one is identified.

¹⁷ [The Engineer \(21017\)](#)

¹⁸ [Edge \(2018\) Skills shortages in the UK Economy](#)

¹⁹ [Construction News \(2014\) Manchester Metrolink calls for all kinds of connections](#)

²⁰ [BSI \(2016\)](#)

The number of individual standards across the membership of these bodies has dropped from a peak of an estimated 160,000 national standards in the 1980s to roughly 20,000 European standards today.

These standards are largely non-regulatory and non-governmental specifications, codes and guidance for industry, which are developed consensually and without compulsion, for voluntary use, by standards organisations to facilitate trade and set mutually recognised best practice guidelines.

ICE believes that regulatory divergence would reduce the UK's impact on decision-making and ability to influence on international standards. Divergence would complicate the UK's continuing involvement in the European standardisation system because adherence to the single national standard model is a membership obligation of both CEN and CENELEC.

Divergence would also complicate national regulations, reducing British commercial and trade competitiveness and productivity, through differential UK and European standards regimes and through an inability to influence the standards of our trading partners. This would also have implications within the UK under the devolution model or with businesses deciding to ignore UK standards in order to comply with European standards, as the larger market.

The real world impact would see increases in the cost and complexity of the supply chain with the trading of construction products being a particular concern. There would also be additional bureaucratic costs in order to mitigate any confusion, especially on long-term contracts which incorporate European standards.

There would also be complications in the field of research as standards enable research to be easily translated into industry practice. Cross border projects and the ability for companies to operate abroad, either from the EU working in the UK or vice versa would be inhibited as individual workers and contractors have to give regard to different standards depending on the jurisdiction they are delivering projects in.

ICE supports BSI's efforts for the UK to remain a member of the European Standards Organisations. It is imperative to avoid unnecessary additional barriers to trade and negative impacts on the construction industry caused by a failure to stay within all of the tiers of the global standards system.

According to the membership statutes of CEN and CENELEC, membership requires the "capability of the country to become a member of EU or the European Free Trade Association" (EFTA) as things currently stand.²¹ To remain a member without remaining in the single market or seeking membership of EFTA, BSI would need to seek statute change with the support of two thirds of CEN and CENELEC members.

BSI believes continued membership to be a reasonable and feasible goal and can be supported with a statement from the UK Government maintaining a commitment to the existing performance based approach to regulation underpinned by market-led voluntary standards. ICE supports this action.

Recommendation 5 – The UK should seek to remain a member of the European Standards Organisations CEN and CENELEC, with the Government assuring maintenance of the current regulatory approach.

²¹ [CEN/CENELEC Internal Regulations Part 1:2018 \(2018\)](#)