

# **The Impact of EU Membership on Britain's Railways**

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You've probably heard the expression "I want something that's bog standard". I had too, but it was years before I discovered that it referred to engineers and clients demanding items to British or German Standards, as their use could be expected to deliver quality results. Even before UK joined the European Community all those years ago, engineers were used to buying products to British (BS) or German (DIN) standards. Given that engineering is an applied science and the laws of physics apply throughout the world, it made sense for the EU, through CEN, CENELEC and ETSI (for lexicon see below), to harmonise standards gradually throughout Europe. Increasingly there is also cooperation with the International Standards Organisation (ISO).

Railways have not been immune to this trend and the EU has been promoting and, increasingly, introducing legislation to deliver a level playing field for the rail industry. This led to new words and acronyms coming into daily use. Interoperability, ERA, TSIs, NNTRs, NOBOs, DEBOs and ASBOs come to mind, One had to get used to new rules, procedures and processes.

One often hears of apparent 'nonsense demands' inflicted on our railways in the name of the EU, although, when probed, the issue being addressed almost never proves to be nonsensical. The explanation is usually more mundane, such as something that is inconvenient because it wasn't thought about properly or early enough. For some, it is the path to a lower cost future, for others it is the last straw!

With all this in mind and with the EU referendum coming up, The IMechE Railway Division held a debate on the subject on 9 May 2016. In planning the event, they decided that the issue was far too sensitive (and too political for an apolitical charity) to have an IN or OUT debate but, instead, it proposed four railway related topics and invited speakers to address some or all of them. The questions were:

- Examples of the consequences of EU membership that have had a negative or sub-optimal impact on Britain's railways (whether inspired directly by EU regulations or by the UK Government's 'over-rigid interpretation' of these regulations);
- Examples of the consequences that might have been worse but for the UK's generally pragmatic and common sense approach;
- Examples of positive outcomes that membership of the EU has had for the UK railways - and the railway industry supply chain; and
- EU/EC Railway-related myths that need to be exposed as such.

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<sup>1</sup> **Note:** This document represents solely the personal opinions of the presenters and (where stated) those of the author. It does not represent the position or policy of the Institution of Mechanical Engineers

With six speakers from the DfT, London Underground, RSSB and The University of Birmingham, as well as a former railway CEO and an outspoken contributor to a railway publication, the 75 strong audience at the IMechE's headquarters were in for an exciting evening of debate. Coincidentally, it was Europe Day, a day for celebrating peace and unity.

### **What's It All About:**

It's always good to set the scene, and this was done by Robin Groth. Robin is Deputy Director International and Safety at the Department for Transport and also a member of the Board of Administration of the European Rail Agency. His presentation reminded us of the aims of the EU:

- Opening up markets for goods and services;
- Clear and transparent rules;
- Common rules, as far as possible, recognising the different characteristics of the rail networks in Member States;
- Legislative packages to realise the potential of rail;
- Create opportunities for EU based companies (including those in the UK).

For rail, this means that the EU has introduced a number of rules and requirements, such as Interoperability (e.g., technical rules, authorisation, registers of vehicles), Safety (safety management systems, safety authorisation), train driver licencing, a requirement that Member states open their railways to competition and that they make fair charges for access.

Moreover, it has created the European Railway Agency, whose purpose is to act on the EU's behalf to make these processes work openly and fairly.

The EU is also very active in promoting research, which has resulted in large sums being made available for railway research.

Robin highlighted the contribution of the UK to the EU's railway work. The UK is one of the 'Big 3' (along with France and Germany) and this leads to a general view that getting UK agreement is very important on rail matters and, as a result, the UK is often in the driving seat. Possibly because of the way Britain's railways do business, with no one body in overall charge and decisions taken by consensus, the UK often takes the role of 'trusted broker' in negotiations, when it is necessary to reconcile the differences between the Nordic, Latin and Germanic cultures. After all, British culture is a mix of all three. We are sometimes able to reconcile issues that arise due to the politics or history between France, Germany and Eastern Europe, and we have special links with parts of the former Empire (USA, Middle East, India, Australia etc.). A further benefit is that English is often the Lingua Franca – and Brits often draft the documents, minutes etc. However, being part of a 'club' means that 'club rules' must be developed and observed and this means that there will be compromise and constraints.

As a result of this intense participation, a high proportion of European senior positions are now held by UK Nationals including:

- The head of the Railway Unit in the European Commission;
- The head of the Transport Research Unit in the European Commission;
- 2 out of 6 Heads of Units in the European Railway Agency;
- The deputy Chair of the European Railway Agency Board;

- The chair of the European Rail Research Advisory Council.

Moreover, many Britain's railway staff are involved in the drafting of the Technical Specifications for Interoperability (TSIs), Euro Norms (ENs) and other standards. The Office of Rail and Road (ORR) and RSSB co-ordinate the UK inputs to drafting committees and the Rail Delivery Group (RDG) and Network Rail (NR) also input through the Community of European Railways (CER) and the European Infrastructure Managers (EIM). As an example of the UK's influence, the TSI for Persons of Reduced Mobility (PRM) largely reflects UK domestic standards and practice.

Concluding, Robin mentioned current and future activities of the EU:

- Implementation of the 4<sup>th</sup> railway package – including a new role for ERA in authorising vehicles for use;
- Shift2Rail – a Research programme pushing the technology to make rail more competitive;
- Rules, processes and standards:
  - ERA is working with partners (Japan, USA, Gulf states, OTIF etc) to share and evolve best practice and develop the future 'global standards', e.g., for next generation signalling;
  - ISO/IEC standards taking over from ENs.
- International Strategy:
  - Market opening agreements with partners around the world;
  - Mutual recognition (cross acceptance) of existing rules;
  - Mutual recognition of conformity certification and authorisation processes;
  - Migration to common rules and standards for the next generation technology.

### **Rules and Standards:**

Tom Lee, who is RSSB's Deputy Director of Research and Standards and also Professional Head of Command, Control and Signalling, spoke next about the practical implications for people embarking on change, in particular the burden that standards are perceived to place on those delivering projects. Tom made it clear that the key issue is to make the right decisions from the beginning. Of course some requirements are not optional; the Railway Interoperability Regulations 2011 (RIR 2011), which mandate the TSIs and the Railways and Other Guided Transport Systems Regulations (ROGS 2006) are the law and must be complied with. Although deviations from TSIs can be sought, it is a far from trivial process.

However, there are other standards that projects will identify, once decisions have been made about making a change, having taken into account the reasons for the change. These standards are, in general, written with the knowledge that they are a 'best fit' solution, and that there will sometimes be circumstances where they are not appropriate. It is possible to seek to deviate from the standards. In later questioning, in response to concerns that obtaining deviations is an uncertain process, Tom said that over 300 deviations were submitted last year and all but one of them were approved; deviations are evaluated by RSSB but decisions are made by committees of representatives from the industry.

Tom expanded on Robin's remarks about the impact and influence of the UK on standards setting in Europe. He illustrated an apparently very complex structure for decision making, but where the UK's record of participation has led to some excellent results for the UK.

In terms of legislation, The EU issues Directives and Regulations. Directives have to be transposed into legislation by the Member State, but Regulations apply immediately. The Interoperability Directive and the Regulations mandating the Common Safety Method for Risk Assessment and Evaluation are examples. Tom identified that in developing ROGS from the previous legislation, the opportunity was taken to simplify the process of safety certification for the bodies forming the railway industry, that is, TOCs, Network Rail etc. No longer was a safety case required but instead a Safety Certificate and a Safety Management System, a process that is more flexible and scalable for different sized companies and levels of risk. Tom concluded by talking about Positives and Challenges (with some observations):

Positives:

- A move towards a single EU rail system allows products and services to be traded across borders without re-testing and reassessment (we are not there yet!);
- A reduction in the amount of state imposed rules which means a single set of requirements and greater choice in certain areas (but a clean-up is needed and this is not easy);
- A chance to influence the EU so good UK practice can be adopted and embedded in EU standards.

Challenges:

- EU standards often require interpretation and so are not easy to just use (it's English, Jim, but not as we know it!);
- A significant engagement is required to ensure EU standards work for UK and we don't always get our way as it is as much a political process as a technical one;
- Deviation from EU standards is harder and more time consuming;
- Harmonisation to a common EU target system might have long term benefits but with potentially short term cost and effort. Can we manage transition well?

### **A Metro Perspective:**

John Downes – Head of Engineering Governance and Services, London Underground, presented the position for Metros which also generally includes Light Rail and Trams. He said that the framework for liberating the 'main line' railways in the EU was inappropriate for local networks not possessing the same characteristics and not needing to inter-operate. There is, after all, no prospect of the Bakerloo line being extended to its nearest neighbour any time soon, and there is little in common between, say Glasgow Underground and rubber-tired Paris Metro trains (in terms of vehicle/tunnel size and bogie technology at least).

Thanks to excellent work carried out by the UITP's Urban Rail working group and by lobbying of the Commission, there has been general acceptance of this view, although sometimes EU officials inadvertently propose to draw them into the net. However, the metro, tramway and light rail sector has recognized the benefits of standardisation, including sub-

systems, equipment and components, and is cooperating with a Commission mandate to the European standards bodies to include requirements of metros in European Standards, where there is economic benefit.

Equally, some of the processes adopted can be translated to the metro/light rail sector whilst others are inappropriate. Thus, the metros' safety regulators are the National Safety Authorities and any derogations from standards are handled at metro or national level. TSIs do not apply. Interfaces with national networks are handled on a case by case basis.

All this was achieved because the Commission listened to industry representation and, as a result, avoided regulation. However, they recognised the power of standardisation but allowed the industry to set the standardisation agenda for things that were needed, with no action where the view was that they were not needed

In conclusion, John said that the Commission aren't faceless bureaucrats; you can meet with them, explore positions, understand motivations and find something that is mutually beneficial. But it requires engagement and effort. You cannot 'snipe' from the sidelines after the event and expect to have any influence on a deal that has already been done.

### **Academia:**

Next, we heard from Professor Felix Schmid, Professor of Railway Systems Engineering at the University of Birmingham, speaking in his private capacity. Felix, a Swiss born engineer, presented a very positive picture of the benefits of working with other European countries on research and highlighted the truly multi-national team of academics, administrators and students at Birmingham. He expressed a particular fondness for the EU freedom of movement that allows EU students to attend UK universities (which rely on foreign students) without any visa restrictions AND UK students to benefit from exchanges funded by the Erasmus programme. UK students can spend 6 to 12 months studying in other EU countries, including Norway and Liechtenstein. They can NOT go to Switzerland, which adopts EU standards for railways but has 'no seat at any of the tables', because it no longer fully subscribes to free movement of labour. Felix highlighted the benefit of free movement through the case of the Malaysian academic who was not allowed to work for Birmingham University for a two days to act as an external examiner for a doctoral student. He also said that organising conferences including participants from emerging economies outside the EU is a nightmare.

Turning to research, Felix highlighted the Dynotrain programme, which ran from 2010 to 2013, cost over 5.5m Euros, including 3.3m Euro of EU funding, and involved:

- University partners: Birmingham (UK), Chalmers (Sweden), KTH (Sweden), MMU (UK), PoliMi (Italy), La Sapienza (Italy), TIFSA Madrid (Spain), TU Berlin (Germany), TU Lisbon (Portugal);
- Industry partners: Alstom, Bombardier, CAF, Siemens;
- Infrastructure: DB (Germany), Network Rail (Britain), SNCF (France), Trenitalia (Italy).

Although the programme concluded in 2013, analysis of the four terabytes of data collected is continuing. The programme included running a 14 vehicle train through Germany, France, Italy and Switzerland, covering some 7500 km in 4 weeks. The train included 6 test vehicles

with 10 instrumented wheelsets, from which 300 physical parameters measured and 600 parameters evaluated including:

- Track geometry;
- Rail profiles;
- Wheel profiles;
- Wheel-rail forces;
- Vehicle accelerations and displacements;
- Video recordings;
- Vehicle stationary tests.

It was Felix' view that this research would not have taken place, had the EU not contributed the majority of funds and provided the research framework that enabled the collaboration.

### **The View from 'Across the Water':**

Dick Fearn, a respected former BR manager, who has been Chief Operating Officer and then Chief Executive Officer of Irish Railways – Iarnród Éireann (IE), outlined how the EU had supported IE with considerable financial aid over the period 2000 to 2013 to help them move from a railway on the verge of collapse to a thoroughly modern railway. IE operates a small network of just under 1900 km of route, today carrying just 40 m passenger journeys a year, and with about 4000 employees. It wasn't like that in 2000!

The EU provided:

- Funding for network modernisation;
- Funding for rolling stock replacement, without insisting on using EU rolling stock manufacturers;
- Support from EU member railways (large and small) sharing operational experience;
- A derogation from the requirement to separate operations from infrastructure until 2013.

As a result, IE was able to improve the safety of the network, its capacity and the quality and reliability of the services. For the rolling stock, some carriages were purchased from CAF, but the more flexible Diesel Multiple Units were purchased from Hyundai Rotem in South Korea – albeit with many European sub-systems.

Dick was extremely positive about the support provided by the EU and in his final slide showed how, since 2000, costs have fallen to about a quarter of their former level.

### **And finally.....**

Ian Walmsley, an experienced rolling stock engineer and contributor to Modern Railways gave the final talk in his usual forthright manner. He started by reminding us that Harold Wilson once used almost the same words in connection with his EU negotiations that David Cameron used on the conclusion of his negotiations earlier in 2016. He then took us through his personal view of a number of issues:

- If we left, we might be free from some of the regulations (tunnels, fire, ETCS);
- The TSI for Persons of Reduced Mobility is based on UK best practice, but only the UK has imposed an implementation deadline (2020);

- UK has a talent for regulation and might demand more than the EU;
- Specifiers and suppliers are often unwilling to seek deviations to standards; to do so is seen as a sign of failure. This is a UK cultural issue;
- Regardless of our membership of the EU, market forces will lead to us using the common standards so as to access a bigger market;
- If we left EU we would still have to provide EU compatibility to sell goods, so would sell the same goods to the UK;
- EU led railway research has as many daft activities as UK led research.

All this led to his conclusion: In or Out, there would be no impact on the UK rail industry.

There was a lively debate at the end, covering issues such as:

- Should Crossrail (the Elizabeth Line) and Crossrail 2 be classed as interoperable?
- Reinforcement that gaining deviations from TSIs is hard;
- Concern that changes to TSIs (e.g., the 2<sup>nd</sup> version of the Freight Wagon TSI was fundamentally different to the 1<sup>st</sup>) can and does make it difficult to exploit products without constant design changes;
- There was a view that TSIs are ‘random requirements’ that ‘authorities’ chose to write for no good reason;
- Small railways benefit from well-established standards as they can have confidence that things made to those standards will work, compared with the challenge for a small railway of having, for each project, to reinvent the requirements for itself. Others observed that this might be true for big railways too!

## Conclusion

The presentations and discussion covered all the questions that were posed in developing the event. In particular, there were a number of myths exposed which are worth repeating here. (For the avoidance of doubt, these are the myths. The opposite is the truth!):

- “Britain has but a weak influence on EU/EC standards and regulations for railways”;
- “The EU/EC wants to regulate everything”;
- “The EU/EC does not listen”;
- The ending of the EU/EC derogation for Irish Railways (IE) in 2013 in terms of separation of infrastructure and train operations has been a major problem for IE”;
- “The EU/ EC inflicted the PRM-TSI requirement and deadline on us”;
- “Life would be much simpler/better/lower cost for Britain’s railway industry if we left the EU”.

The last words in the presentations were Ian Walmsley’s: “It won’t actually make much difference to Britain’s railway industry if we leave the EU”. Is this true? No one really knows. Most of what we currently do is mandated by UK law, even though it was prompted by EU directives, so we could just carry on. However, we would no longer have a right to representation on the various standards setting and regulation bodies and, over time, our process would diverge from that of the EU unless the UK took the conscious decision to adopt EU rules despite our lack of involvement in the development process. It could be easier and simpler, and it could be very much worse.

Here is a personal plea for consistency. Britain's railway has a massive programme of works to expand and renew its infrastructure and rolling stock. It has taken a long time to train and familiarise people with the current regulatory, standards and approval framework, and the one key thing the industry needs is stability so that it can get on and deliver.



## LEXICON

ASBO - an authorised certification body independent of the project seeking certification who can certify that the CSM has been properly applied to manage risk to acceptably low levels.

CEN - European Committee for Standardisation

CENELEC - European Committee for Electrotechnical Standardisation

CER – Community of European Railways

CSM – The Common Safety Method for risk assessment and evaluation mandated by an EU Directive

DEBO – an authorised certification body independent of the project seeking certification who can certify that NNTRs have been complied with

DfT – UK Department for Transport

EIM – European Infrastructure Managers’ group

ERA – European Rail Agency

ETCS – European Train Control System

ETSI – European Telecommunications Standards Institute

Interoperability – a term in general use that encompasses EU legislation intended to create the level playing field for railways

NNTR – Notified National Technical Rules, as advised to ERA by Member States. The local rules to which new assets and systems must comply until such time that everything complies with the TSIs

NOBO – an authorised certification body independent of a project seeking certification who can certify that TSIs have been complied with

NR – Network Rail

ORR – Office of Rail and Road who authorise bringing interoperable assets and systems into beneficial use in UK

OTIF - Intergovernmental Organisation for International Carriage by Rail

RDG – Rail Delivery Group

RSSB – Rail Safety and Standard Board

TSI – Technical Specification for Interoperability to which all significant new works carried out on Europe’s railways must comply

UITP – Worldwide Union of International Public Transport Operators