

Railway capabilities in the UK



GREAT

BRITAIN & NORTHERN IRELAND

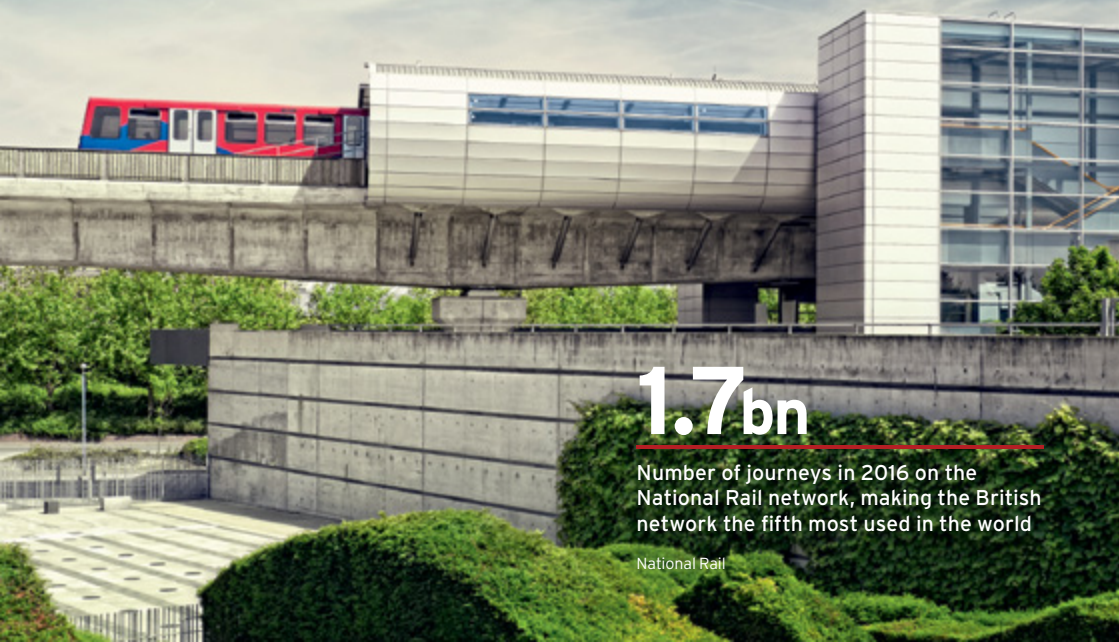
Then...

1st

The world's first locomotive-hauled public railway opened in Britain in 1825



... and now



1.7bn

Number of journeys in 2016 on the National Rail network, making the British network the fifth most used in the world

National Rail

Welcome to the home of railways

Ever since the earliest years of train travel, Britain has occupied a unique position as pioneers of the railways. Today, our railway industry is amongst the best in the world across all elements of rail systems: from the **planning and design of projects; the procurement process, specialist equipment supply, construction, test and commissioning; all the way through to operations, maintenance and whole-life asset management.** UK-based companies have the skills, expertise and global experience to develop new rail systems and improve or expand existing ones. We also have a great reputation for **delivery** – offering innovation and best-in-class products and services.

We're proud to have some of the safest, most reliable and technologically advanced rail systems in the world that are enjoying growing passenger numbers and significant government investment. This has helped expand the UK's rail sector capabilities and experience – and create a thriving and competitive private sector. A modern, innovative industry and our longstanding heritage means the UK is qualified to work with companies and governments across the world to deliver the same level of operational technology, reliability and safety for your rail networks.

This brochure provides an overview of the UK rail industry's key capabilities and explains how your organisation could benefit from working with the best quality companies in the global rail industry.

“The UK has a world-class capability in planning and delivering rail projects. Our companies have extensive experience of delivering rail infrastructure projects on time and to budget. Our competitive home market means UK companies ensure the best solution taking account of full life-cycle costs and the latest global best practice but adapted to local conditions. This experience is being put to use at every stage of rail projects of every size all over the world.”

Department for Transport

£18.4bn

The UK Rail industry's income in 2015-16, an increase of 35% from 2014-15

Office of Rail and Road

200,000

UK jobs in the rail industry, with around 40% of those in the supply chain

Rail Delivery Group

1.35bn

The London Underground (LU) network alone makes 1.35 billion journeys every year. LU connects the capital via 11 lines, 270 stations and 402km of track, with each train travelling on average 126,000km each year

Transport for London

A growing, world-leading railway sector

Our booming rail sector shows that British companies have the range of capabilities, experience and forward momentum to help drive development in railways across the world.

The UK railway sector (including both national mainline rail as well as urban metro and light rail/tram systems) has seen unprecedented growth over the last two decades. Passenger kilometres and journeys have more than doubled and the rate of growth in train journeys has outstripped economic growth, at twice that of GDP.

This generates £9.3 billion a year in passenger revenue alone, meaning that the network funds itself. Rail passenger growth in the UK is greater than most other European countries, including France, Germany and the Netherlands. This

“Great Britain’s railways have a strong track record on improving safety, and after a decade of investment and growth, are now statistically the safest in Europe.”

Ian Prosser, Director of Railway Safety,
Office of Rail and Road

growth is set to continue, with an extra 400 million railway journeys forecast on the mainline network by 2020. The industry’s business plan is for 20% more capacity into and out of central London at peak times, and a 32% increase in seats into and out of large regional cities.

Light rail, tram and metro networks are also continuing to grow strongly in the UK, with passenger journeys on the eight key networks increasing by 5% annually from 2010-2016.

UK Rail is the **safest railway network in Europe** to travel on [source: orr.gov.uk] and ranks in the top three European countries

for workforce safety. It is also a great success as a low carbon form of transport: rail reduces CO2 emissions by up to 7.7 million tonnes a year, valued at £460 million. Carbon emissions per rail passenger kilometres have been cut by 25% in 2015-16 when compared to 2005-06.

Annual passenger numbers

Year	Passengers	Passenger % change	Journeys	Journeys % change
2010-2011	1,156,896,521	▲ 8.59	1,322,426,386	▲ 8.51
2011-2012	1,227,960,111	▲ 6.14	1,428,575,382	▲ 8.03
2012-2013	1,268,979,546	▲ 3.34	1,480,120,447	▲ 3.61
2013-2014	1,332,561,756	▲ 5.00	1,558,753,504	▲ 5.31
2014-2015	1,392,535,310	▲ 4.50	1,622,975,245	▲ 4.12
2015-2016	1,463,777,211	▲ 5.12	1,685,933,571	▲ 3.88

National mainline network

A robust and competitive supply chain

The UK rail supply chain, with a turnover of £8 billion, makes a significant contribution to the UK economy. It is well-established and gaining in strength, with new suppliers coming on board to service both the UK and international markets. Privatisation in the UK has created an open marketplace for suppliers and manufacturers from the UK and abroad, helping support a diverse, competitive and innovative supply chain. The Rail Supply Group (RSG) has been established in partnership with industry and the UK Government to support further rail sector supply growth. RSG has established a number of initiatives to support critical areas such as increasing the uptake of innovation, skills development and growing exports.

£88bn

The total investment commitment in the UK rail infrastructure pipeline, including major projects such as HS2 and London Underground - the greatest investment in the sector in over a century





UNDERGROUND

5 reasons to choose UK rail companies

The UK rail sector has successfully worked with partners and clients around the world to plan, design, build and operate advanced and sustainable railways. From professional services to manufactured products, the UK offers first rate expertise, innovation and value at every level.

1. Work with the world's best designers and project expertise

UK talent and expertise in planning, design and project delivery is recognised around the world for its excellence. The UK is home to some of the best legal firms, architects, engineering consultants, programme managers and contracting businesses working in the rail sector, all with domestic and international experience of delivering projects on time and to budget.

Three technical and design firms with UK headquarters rank amongst the top 10 overall design firms in the world, highlighting the UK's world-class proposition. Meanwhile, many international engineering consultants are based in the UK and draw on a strong UK skills base to serve clients globally.



2. Use our project delivery skills in complex and dense environments

As cities around the world become more densely populated, their transport infrastructure needs upgrading to accommodate more people. British companies can help.

Our railway sector has significant experience in delivering projects in the world's most complex and dense urban environments.

At London Bridge in London, for example, we rebuilt the station and reconfigured the track to significantly increase capacity while the station remained open, with over 130,000 people arriving during the morning peak each weekday.

Many new urban mass transit systems – and extensions to existing ones – are being developed alongside infrastructure to support the sustained growth in passenger numbers and expansion plans across the UK rail's national freight and passenger rail network. This development plan supports significant expertise in both these individual specialisms and, most crucially, in how they integrate with one another.



3. Tap into our expertise in monitoring, maintaining, and upgrading infrastructure

We have the oldest railway in the world and the safest in Europe. Our firms have a wealth of experience running and equipping a cost-effective rail network in a competitive market, helping to deliver value across the whole lifecycle and entire system.

The UK excels in capabilities linked to asset management and remote condition monitoring, which allows railways to develop a smart or intelligent driven regime of maintaining their assets.

4. Gain from our experience as a world leader in private sector led delivery of rail services

Our private railway sector leads the world in adopting new models for rail delivery across **franchising, concessions, and Public Private Partnerships (PPP)**. Passenger numbers on the UK's railway have doubled since privatisation. As a result, British companies are well placed to advise others.

Taxpayers benefit from the efficient provision of services, delivery of improvements, and money returning to the public purse as a result of growth on routes.

5. Benefit from our growing skills base and expertise in skills development



The UK's **National Skills Academy for Rail** continues to raise the quality of training and skills development in the UK. **The Crossrail Tunnelling and Underground Construction Academy** is teaching the next generation of tunnelling engineers. While our **new National College for High Speed Rail** will teach some of the brightest engineering and construction students in Britain, providing them with the skills to build Britain's flagship HS2 rail project as well as high speed rail projects around the world.

The UK is well placed to advise other organisations about developing their own skills base. We are working with other countries to set up their own national skills and technical academies, and to improve the development of skills through more effective procurement.

**Work with us.
The Department for
International Trade can
put you in touch with
the right organisations
for your needs.**





Key capabilities

Our rail companies have the skills and experience to meet the equipment and service needs of rail systems across the world. Here's an overview of our key capabilities.

Planning, design and project delivery: talent and experience

UK companies provide world-leading services and products on international projects across a number of areas including:

- Commercial and legal services
- Transport strategy, planning and feasibility studies
- Urban infrastructure
- Engineering and design
- Procurement
- Cost, programme and project management
- Construction

Our companies can support every phase of a project, from advising at the earliest stages on the best transport mode to adopt, all the way through to final commissioning. UK suppliers are

flexible and adaptable: they often partner with other nations' suppliers to forge the strongest possible overall offer for clients.

As one of the most creative, design and technology oriented economies in the world, British firms also offer a wealth of original thinking. This includes award-winning uses of Building Information Modelling (BIM) processes and design for complex engineering challenges.

Whether you are a government agency looking for advice on a project that will have a transformational impact on your country's transport infrastructure, or a client who wants to know how your project costs measure up against similar projects in the rail sector, you can find the answer in the UK.



Advisory services – expert consultancy

The UK's experience of significant investment in rail infrastructure combined with our expertise in innovative infrastructure funding, delivery and operating models means UK consultants are well placed to help international clients address a broad range of challenging issues. Governments, infrastructure providers and transport authorities across the world already value UK expertise in advisory services delivered by a diverse body of UK consultants.

UK consultants can help advise on areas such as:

- Market liberalisation
- Strategic planning
- Financial planning
- Organisational development and change management
- Franchising and concessions
- Procurement
- Transaction support including PPP advisory services

Use the vast knowledge base of British rail and infrastructure consultancy to help make your projects a success.

Operations expertise

Train operations in the UK have improved significantly over the past two decades because of investment in infrastructure and asset management, along with privatisation and franchising. UK companies help pass on this operational expertise to partners around the world.

Train operators and their suppliers have invested hundreds of millions of pounds in refurbished depots, maintenance and service facilities to make sure trains are more reliable.

Train operating companies have also invested more than £20 million in 20 state-of-the-art driver simulators. This work is in conjunction with the ongoing signalling improvements being led by Network Rail who are investing in the latest technology to better manage and control the

network. This will reduce delays and operating costs, and improve reliability and flexibility, creating a sustainable and optimised future for the rail network.

The UK franchising model gives private operators commercial incentives to attract more passengers and contain costs. UK rail franchising has attracted a range of companies and organisations including both international and domestic train operating companies such as Arriva, FirstGroup, Go-Ahead Group, Stagecoach Group and Serco.

As pioneers in this area, it's unsurprising international clients are increasingly seeking UK expertise in structural reform and rail operations.

Comprehensive rail infrastructure and equipment

The UK rail industry supports a strong supply chain that delivers proven and innovative solutions to rail clients in the UK and internationally. A broad range of UK companies – from small independents to large, international Original Equipment Manufacturers (OEMs) – supply products and services across **permanent way, power and electrification, signalling control and communications, stations and depots.**

Recognised for the high quality and performance of their products and services, many of the UK's infrastructure and equipment suppliers are world leaders, with capabilities ranging from the provision of niche technologies to high-volume heavy manufacturing.

New companies continue to enter the British market, attracted by the ongoing investment in UK rail. This has created new competition, technologies and innovation from other sectors, and helped to create new efficiency in client supply chains. Overseas companies have also looked to invest in UK-based rail suppliers, recognising the value of their capabilities.

UK companies export a diverse range of products including ballast stabilisation and drainage, track, switches and crossings, rail fastenings, lightweight cable troughing, and friction management solutions as well as track plant and maintenance equipment.

Find the right UK supplier for your needs.



World-leading asset management

UK expertise in rail infrastructure asset management is the best in the world - **the UK Standard, PAS 55 (now ISO 55000), set the benchmark for modern asset management systems.** Railway and track operators globally rely on UK know-how to deliver major gains in efficiency and make the most of their valuable assets. Cutting-edge technology and tools are being developed and used by the UK industry to allow for precision evaluation of the status and condition of infrastructure, rolling stock and individual components.

Maintaining rolling stock and infrastructure is essential for asset performance, service reliability, passenger and customer experience - as well as a rail operator's bottom line. The UK's rail industry and research organisations are at the forefront of a trend towards a preventive and predictive approach that lengthens the lifecycle of assets and increases the time between maintenance levels. We are leading the way in developing and supplying first-class maintenance and monitoring services and developing efficient, effective and easy-to-use predictive and diagnostic tools for infrastructure engineers and train operators.

Work with some of the best asset-management expertise in the world.

Safety expertise

Sustained investment and a fresh-thinking approach to safety in the UK have delivered tangible improvements and real value to rail, ensuring it keeps its unrivalled position as the safest method of surface transport.

The UK is almost unique in having a dedicated rail industry body in the **Railway Safety and Standards Board (RSSB)**, which supports the industry collectively with authoritative data, analysis, standards, research and technical expertise in enhancing safety as part of improving business performance.

UK rail companies regard safety as a process of continuous improvement. This is achieved through rigorous safety management, along with developing and applying new technologies, solutions and products that minimise risk, injury and accidents. Prompt and thorough investigation of incidents has long been a cornerstone of railway operation, **making the UK's engineers the world leaders in assessment of rolling stock fatigue, infrastructure maintenance processes and the identification and analysis of risk factors.**

As safety standards and security requirements become more stringent, rail operators around the world are tapping into the UK's wealth of expertise to improve safety without incurring prohibitive costs.

Work with British companies to help improve the safety of your rail network.



Specialist education, training and workforce development

Britain is world renowned for the quality of its higher education system. We also boast a number of railway education and training institutions that offer world-leading industry-specific and vocational programmes. Our vision is to pioneer technical excellence, and our mission is to produce a new generation of highly-skilled professionals to lead Britain's future rail industry. These institutions are already helping us to achieve this aim:

- **The National Skills Academy for Rail (NSAR):** established by industry to support current and future skills needs within the railway engineering industry. International clients are now looking to this groundbreaking model to support workforce development in their local markets.

- **The National Training Academy for Rail (NTAR):** a joint government and industry initiative delivering a new multimillion-pound state-of-the-art facility specialising in vital traction and rolling stock training.
- **The National College for High Speed Rail (NCHSR):** to provide Britain's workforce with the specialist training, skills and qualifications required to build HS2 and future rail infrastructure projects.

Our specialist training helps supply the industry with world-class talent and skills - why not work with some of the best people in the business?



Innovative Research and Development

There's a diverse and vibrant range of work taking place to support the innovative transformation of the UK rail industry, including many initiatives that involve collaboration across the supply chain. From wide-reaching research and development to new uses of technology in rail products, the UK has strong research capability both at an institutional level and within the private sector.

There are also a series of programmes supporting innovation in the UK rail sector including those run by the **Rail Safety and Standards Boards (RSSB)**, **Innovate UK**, and **Network Rail**.

Over 40 UK universities are involved in rail-related research activities with Birmingham, Huddersfield, Sheffield, Nottingham, Southampton, NewRail at Newcastle University and Imperial College, London amongst the most prominent. They are working on a range of different research projects from rail-wheel interface, adhesion, wear and materials performance to the aerodynamics of high-speed trains in tunnels. Much of this research is directly funded and in partnership with industry.

The Rail Research UK Association (RRUKA) is a significant institution that helps to facilitate research efforts across the rail industry and universities. It supports railway research in academia and the provision of research-led solutions to the rail industry.

We're developing innovative solutions for the challenges facing modern railways. The Department for International Trade can help put you in touch with the right British companies for your needs.





Department for International Trade

The UK's Department for International Trade (DIT) has overall responsibility for promoting UK trade across the world and attracting foreign investment to our economy. We are a specialised government department with responsibility for negotiating international trade policy, supporting business, as well as delivering an outward looking trade diplomacy strategy.

Disclaimer

Whereas every effort has been made to ensure that the information in this document is accurate, the Department for International Trade does not. Accept liability for any errors, omissions or misleading statements, and no warranty is given or responsibility accepted as to the standing of any individual, firm, company or another organisation mentioned.

© Crown copyright 2017

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published by
Department for International Trade

Image credits: Page 1, 2 bottom, 4, 6, 8, 10. Page 2 top: Public domain.
Page 9: Rail Images. Page 17: Tubeline.com

