



HM Government

Industrial Strategy

Rail Sector Deal



Foreword

The UK's railways are critical to our country's economic success, as they have been since the age of Brunel. The Government is determined to ensure our railways continue to be at the cutting edge of global trends and build on the enterprise that invented, innovated and advanced rail travel throughout the world.

The private sector has a significant part to play - privatisation has reversed decades of decline and heralded the fastest expansion of our railways since the Victorian era. This Sector Deal looks to build on the strong partnership working between the rail sector and the government to exploit the opportunities of new technologies, improve the efficient use of our rail network capacity and enhance the experience of the passengers who use our railways, by improving the service they receive.

This Deal comes at a critical time for the sector, with a huge increase in rail use in recent years. In the last 25 years passenger numbers have more than doubled. Since privatisation, the volume of freight moved by rail has increased by almost a third so the railway now carries £30bn of goods annually. That growth has had consequences: today much of the network is bursting at the seams. To address this, the government is investing in infrastructure, including through transformative national projects like HS2, which will become the backbone of our country's rail network, serving around 300,000 people each day.

More than £48bn will be spent over the next five years on maintaining and upgrading the existing network to boost performance and sustain growth, increasing reliability and punctuality for passengers.

We are determined to make the most of this record investment for all those who use our railways. That is why we have established the Rail Review, led by Keith Williams, which will scrutinise the whole structure of the rail industry. Through this Sector Deal the rail industry and the government will collaborate to ensure the sector delivers today's priorities and can respond to the review's recommendations.

Delivering the benefits of new digital rail technology is at the heart of this Rail Sector Deal. The UK is at the forefront of many aspects of applying digital technology to rail, and continued investment will help the UK become a world leader in rail technology, boosting exports and skills. It is also a great opportunity to excite young people with digitally innovative careers that will shape the future of travel.

The mutual commitments between the rail industry and the government set out in this document will allow more trains to run per hour by running trains closer together; deliver more frequent services and more seats, and cut delays by getting trains moving more quickly after disruption. The Sector Deal will enable companies to drive innovation, invest in research and development, upskill the workforce and look beyond the UK to export markets worldwide. This Deal provides certainty for the industry with clarity and involvement in shaping investment in our railways for the first time and, through this collaboration between government and businesses, it will provide better railways for the country's rail customers.



Rt Hon Chris Grayling MP
Secretary of State for Transport



Rt Hon Greg Clark MP
Secretary of State for Business,
Energy and Industrial Strategy



Gordon Wakeford
Chief Executive Officer, Siemens
Mobility UK and Chair, Rail
Supply Group Council

Executive Summary

The Rail Sector Deal sets out a new approach to the rail industry and the government working in partnership to transform the rail sector by taking actions to increase the use of digital technology, boost productivity, improve the service received by those who use our railways and build the skills of the UK workforce to capitalise on these opportunities.

The delivery of this Sector Deal will equip the railway for its strategic role as a driver of economic growth and to provide a positive experience for passengers and freight users through this century and beyond.

Railways in the UK form the backbone of a low carbon system of transport infrastructure that is currently experiencing the greatest wave of investment since Victorian times. New infrastructure is being commissioned, new trains are being procured, digital technology is being embraced and rail usage is achieving unprecedented levels, both in terms of passengers and freight. This is demonstrated by the number of delegations from across the world who come to learn how the railway works in the UK. However, this is not a time for the rail industry to be complacent - there is great potential to do more and make the railway an even greater global success story and to provide world class service to rail users.

Much of the UK rail network is either near, or at capacity, and during peak periods the service available to passengers needs to improve.

There is currently not enough capacity to enable freight growth, the least environmentally damaging way of moving large volumes of goods long distances, and some existing signalling is close to expiry, creating reliability problems. In addition, the rail industry still has a long way to go to improve diversity. Combined with this is a need to upgrade technical, particularly digital, skills across the sector.

This Sector Deal will deliver improvements in three areas:

▶▶ **The passenger experience** - the deal will drive greater capacity on the railways and increase data sharing, serving to increase the services available to passengers and enhance how they plan their journeys.

▶▶ **The economy** - a well-functioning railway is a driver of economic growth as it allows people to travel more widely for work, makes more effective use of our existing network's capacity and moves goods between suppliers, manufacturers and customers reliably and efficiently.



▶▶ **The rail industry supply chain** - the UK's already highly competitive supply chain will become even more focused, efficient, productive and confident, with investment in skills, stock and capital equipment, as a result of enhanced confidence in the pipeline of work and fewer risks attached to investments.

Digital technology is at the centre of this Sector Deal - digital signalling and traffic management systems are the core components for resolving the capacity problems on the current network. Through an innovative process of early contractor involvement, Digital Railway - part of Network Rail - has engaged industry and brought their expertise to the design phase of the specifications.

The government and industry will work together to set out a clear plan for digital signalling and traffic management interventions, which will enable industry to invest in the necessary skills and resources to deliver passenger and freight capacity and reliability for the long-term.

The adoption of innovation and the uptake of ideas is key to the success of British industry and the railway is no different. The sector and the government have worked together to determine where the UK strengths are, or could be, just as the Industrial Strategy has in its four Grand Challenges.

Advanced control systems, energy management, high value rolling stock systems, whole life asset optimisation, through life management and enhancing the customer experience are all areas of UK strength or potential. The supportive infrastructure for successful innovation has improved and the Rail Sector Deal will look to expand the space for innovation. Research and Development (R&D) spend is also rising, supported by the Industrial Strategy commitment to raise investment to 2.4 per cent of GDP. Network Rail will invest £245m in R&D over the next budgeting period, Control Period 6 (CP6), which runs from 2019-24.

The challenges are clear, but as the adoption of new digital technologies accelerates and new investment increases, there is an opportunity to present the railway to a new generation of potential employees as the dynamic, attractive, futuristic industry that it is. Formal institutions like the National College for High Speed Rail, the National Skills Academy for Rail and the National Training Academy for Rail are complemented by increasing numbers of rail faculties in the higher education and further education sectors. The uptake of apprenticeships is proceeding well towards target of 20,000 apprenticeships by 2020 set out in the Rail Sector Skills Delivery Plan.

The Rail Sector Deal includes a midlands pilot of shared apprenticeships and schools engagement, which will encourage SME involvement in shaping skills requirements and delivering the message of rail as a dynamic career choice for a new generation of learners.

For rail to achieve its full potential, investment in infrastructure is crucial. The settlement for CP6 is an indication of the government's confidence in the industry. Early engagement with the supply chain will provide them with the confidence to invest in the necessary capacity to carry these projects through successfully and at a manageable cost, including by encouraging new entrants into the sector. Delivering the Digital Railway is central to the shared aims of the sector and the government and, as part of the Rail Sector Deal, industry has committed to delivering digital control systems at a lower whole life cost relative to conventional solutions. To further boost the visibility of the opportunities, the government, in partnership with industry, will agree a mechanism for ensuring industry is engaged in the development and delivery of projects in CP6, and will also develop new procurement approaches involving major clients such as Network Rail and HS2 Ltd to improve engagement with the supply chain and small and medium sized enterprises (SMEs).

The Rail Sector Deal recognises the value brought by local solutions to local challenges. The Midlands Engine and the midlands rail cluster are at the heart of the rail industry and will pilot a rail data platform, providing a complete picture of rail user experience, needs and appetite; a programme supporting high potential SMEs in the supply chain to get to the next level, and a skills programme on shared apprenticeships and schools engagement. The lessons learned from this process will enable industry and the government to roll out a tested programme elsewhere in the UK.

The Rail Sector Deal will strengthen the partnership between the rail industry and the government at a time when an effective, efficient and forward-looking industry will increasingly drive economic growth in the UK. The enhancements to how the rail industry delivers for our economy will bring greater value for money for the taxpayer, better services for passengers and freight users and the opportunity to grow and export for the rail supply chain.



Rail Sector Deal Key Commitments

Ideas

Sharing rail industry data widely across transport modes and infrastructure systems will bring new entrants to the rail market and enable the development of innovative customer-focused products, which will enhance passenger experience.

Industry action to support the rail sector	Government action to support the rail sector
<ul style="list-style-type: none"> ▶ Establishment of a platform for securely sharing rail industry data. 	<ul style="list-style-type: none"> ▶ Promotion of the role of 'Platform Sponsor', working closely with industry partners and new entrants to the market.

People

Development and implementation of an Education and People Strategy will strengthen industry's leadership and digital rail skills, and will improve promotion of the rail sector as a great place to work, attracting talented individuals to ensure a capable and adaptable workforce, now and in the future.

Industry action to support the rail sector	Government action to support the rail sector
<ul style="list-style-type: none"> ▶ Develop and implement a long-term Education and People Strategy by refreshing the Rail Sector Skills Delivery Plan. 	<ul style="list-style-type: none"> ▶ Provide guidance and support, to ensure the Education and People Strategy builds on the Transport Infrastructure Skills Strategy and Transport Infrastructure Efficiency Strategy.



Infrastructure

Building on the 5-year certainty provided by the rail Control Periods, Network Rail and HS2 Ltd will produce more detailed plans and longer-term 'roadmaps' to provide even greater certainty to the rail supply sector. This will drive productivity, supporting the sector to deliver significant reductions in the cost of digital signalling, which will increase capacity and reliability of the network and improve passenger experience.

Industry action to support the rail sector	Government action to support the rail sector
<ul style="list-style-type: none"> ▶ By the end of 2025, industry will achieve a whole industry whole system unit cost that is significantly lower than current UK conventional infrastructure only costs (equivalent to European Benchmark Costs). 	<ul style="list-style-type: none"> ▶ Produce a detailed 5-year plan and longer-term roadmap of Digital Railway interventions with a more certain, sustainable investment profile.

Business Environment

Building on the publication of the Rail Network Enhancement Pipeline guidance, which sets out how industry can support and influence CP6 delivery plans, the government will agree a mechanism to ensure more active involvement in the development of CP6 renewals plans. This will provide even greater confidence to the rail supply sector to invest in people, skills and research & development.

Industry action to support the rail sector	Government action to support the rail sector
<ul style="list-style-type: none"> ▶ Improved export performance - doubling by 2025, through: <ul style="list-style-type: none"> - A UK rail supply chain capability map to identify strengths and weaknesses. - An analysis of overseas opportunities, barriers and to provide local market rail sector overviews. - An export mentoring and secondment programme. ▶ Development of a productivity plan to support the Transport Infrastructure Efficiency Strategy. 	<ul style="list-style-type: none"> ▶ To agree a mechanism for ensuring the industry is actively engaged in the development of Control Period delivery plans, and ensuring that industry is an integral part of the development and deployment of longer-term rail investment opportunities. ▶ Examine how public sector organisations could better support UK rail exporters and provide ongoing access to government decision making through an exports consultation group.

Places

To have prosperous places throughout the UK. By increasing the growth of SMEs and apprenticeships, we will improve awareness of opportunities, increase the quality and quantity of applications for apprenticeships and improve knowledge and image of the sector with young people, and enhance the Midlands Engine as a world class rail hub and centre of excellence.

Industry action to support the rail sector

Implement a 'shared apprenticeship' programme and a schools engagement programme, starting with a pilot in the midlands, to deliver:

- ▶ Increase in number of SMEs recruiting apprentices.
- ▶ Increase in number of apprenticeships offered.
- ▶ Increased impact and co-ordination of regional schools engagement activities.



Ideas

It is over two hundred years since the world's first fare paying passenger railway service ran on the Swansea and Mumbles Railway. The simple idea to run passenger services on a freight line for the first time is something that is taken for granted today, but innovative ideas like these have been at the cornerstone of the railway's evolution ever since.

The railway must continue to draw on the UK's position as a global leader in science and research. The UK performs well in measures of research excellence and is home to four of the top ten universities in the world¹. Today, these new ideas are needed more than ever. We must drive a step-change in the way we use R&D to embrace new technologies, pushing the boundaries of how we apply new knowledge to address the key challenges we face as a society.

R&D is an integral part of delivering the UK's Industrial Strategy. The government wants the UK to be the world's most innovative economy and through the Industrial Strategy has committed to reaching the target of 2.4% of GDP investment in R&D by 2027². Total R&D expenditure in the UK in 2016 represented 1.67% of GDP, below the European Union (EU-28) provisional estimate of 2.03%³.

Reaching this target will enhance the UK's ability to thrive globally and build a strong, prosperous economy. The rail sector should be at the forefront of achieving this and this Sector Deal contains measures to ensure it can be.

Raising the intensity of research and development and Innovation (RD&I) in UK Rail

Industry is already implementing new RD&I through programmes such as the Deep Tube Upgrade Programme, to deliver new state of the art rolling stock, and the Digital Railway Programme. We are also setting new standards of excellence in how we capture and explore new ideas, investing in programmes like Crossrail's Innovate18, and collaborating across industry to share methods, techniques and products.

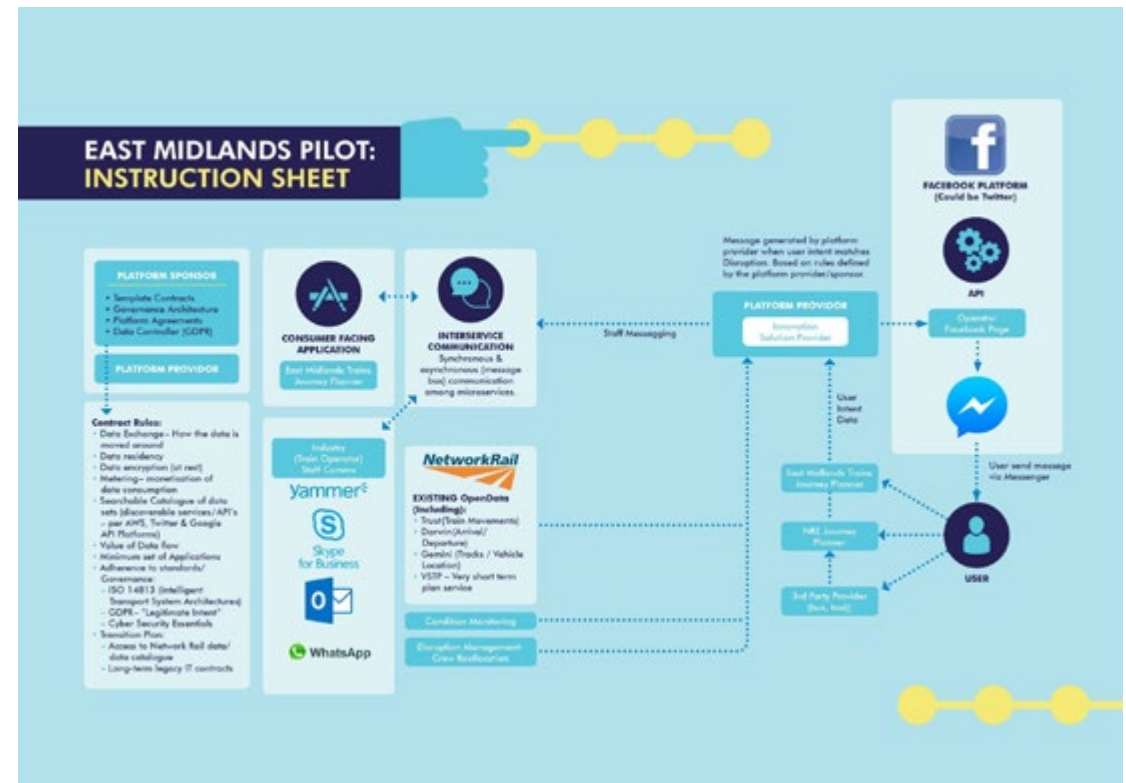
The success of these programmes is dependent on the industry's ability to create conditions where innovation can flourish. This means building core strengths and supporting in areas where it can really compete globally.

Based on rigorous analysis^{4,5}, the Rail Supply Group (RSG) strategy 'Fast track to the future'⁶, published in 2016, identified **five key areas of technology** where the UK has the potential to be a world leader: advanced control; energy management; high value rolling stock systems; whole life asset optimisation

and through life management; and customer experience. Supporting suppliers of all sizes to innovate will enable the sector to improve rail technology and innovation in the UK.

A key strategic enabler has been the **Rail Technical Strategy**⁷ and the accompanying Capability Development

Plan⁸, which have allowed the network to develop in a coherent manner with the consistency of direction **providing the supply chain with confidence to invest in innovative solutions.**



As a result of the RSG's sector strategy, we have seen further improvements in the UK rail innovation ecosystem. For instance, the formation of the **Innovation Leadership Group (ILG)**, which is creating the environment to enable an increase in the uptake of innovation in the industry. Under ILG's leadership we have seen:

▶▶ Cross-industry assessment of the UK rail industry's innovation capability, identifying areas of good practice and those requiring further attention, with

subsequent action plans developed.

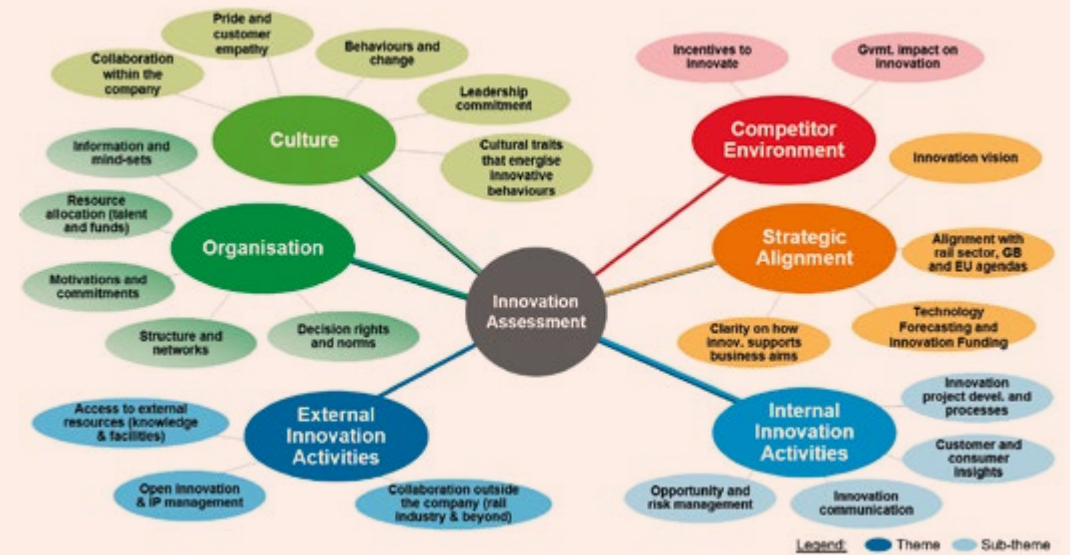
▶▶ Identification of good practice in procurement to support the uptake of innovation, which is starting to be utilised by UK rail procurers.

▶▶ On-going assessments of innovation capability at the organisational level, which has resulted in organisational developments that have accelerated the uptake of innovation.



The Innovation Capability Maturity Model

Developed by the Rail Safety and Standards Board (RSSB), this is a strategic tool that enables organisations to develop their capability to realise value from innovations in ways that are appropriate to their position in the value chain. Since its launch in 2014, around 30 companies are now using this tool, including over 50 per cent of the UK Passenger Train Operating community. This has resulted in a range of organisational led initiatives to build internal capability as well as internal investment in R&D.



Accelerating the uptake of innovation will be made possible by ensuring high levels of confidence to invest in R&D, products and services. The conditions for this are strong. Recent analysis shows that R&D continues to grow, expanding by £1.4bn to £33.1bn in 2016, an increase of 4.3 per cent, above the long-term annual average increase of 4.1 per cent since 1990⁹.

The government is working to hasten this process through successive budgets that have put ideas and innovation at the heart of the efforts to drive productivity and economic growth.

This has included investment, via Innovate UK, of up to £40m in a three-year programme of rail innovation competitions, targeted at UK-based business, and UK-based SMEs^{10,11}.

The Department for Transport is also working closely with the Department for Digital, Culture, Media and Sport on new telecoms technology for the railways, including £35m directed at running trials, including installing trackside 5G infrastructure along the Trans-Pennine route.

As a result of organisational development, we are seeing growing innovation capability. For example, the Train Operator **Greater Anglia** now runs an in-house innovation programme that includes elements of training, organisational processes and investor funding to accelerate the uptake of innovation. In addition, to lower the barriers to entry for new entrants those outside the rail industry, Northern has included two operational test trains for research use within their franchise from 2020 onwards.

Initiatives such as these are collectively facilitating a more efficient innovation ecosystem, encouraging further investment from the private sector and yielding benefits.

For instance, since the successful trial of the 'Independently Powered Multiple Unit', we have seen at least five further privately sector-led initiatives to develop self-powered (non-diesel) trains that are in various states of readiness. Some of the first battery/diesel bi-mode trains in service will be operated by Transport for Wales in early 2019. Customer experience has also been improved through the successful delivery of projects such as, 'Superfast Wi-Fi In-carriage for future travel' (SWIFT), trialled between Edinburgh and Glasgow, by an integrated project team comprising **Network Rail, ScotRail, Cisco** and **Telent**.

Progress has also been made in how the industry generates ideas, and how they are captured and nurtured. The **UK Rail Research and Innovation Network** (UKRRIN), formed in 2017, is a partnership between the rail supply industry and a consortium of eight universities; it has secured funding of £92m for research aimed at establishing the UK as a world-leading centre of railway excellence. This includes £64m of private sector investment into innovation, in addition to £28m from the government, thereby accelerating supplier-driven industrialisation through pooling and co-ordinating academic, industrial, train operator and infrastructure manager resources.

In October 2018, the Office of Rail and Road (ORR) approved Network Rail's proposed £245m to fund RD&I related to rail infrastructure over 2019-2024 (NR CP6 funding), subject to third party investment.

Increasing the uptake of innovation through procurement

The government is exploring new ways to accelerate the take up of innovation in the UK. This means helping to maximise the opportunities presented by organisations such as UKRRIN and making the most of the mechanisms in bodies such as Innovate UK and the Catapults for converting ideas into demonstrable projects. It also means continuing to identify and address any barriers or limitations in existing systems that stymie the growth of new ideas.

The Rail Sector Deal will **address the lack of innovation opportunity in contracts due to current procurement methodology**, promoting outcome-focused whole life supply contracts to increase system reliability and avoid risk averse behaviours. This will:

- ▶ help drive sector capacity and capability to develop, deliver and deploy new technologies;
- ▶ encourage increased investment in UK-based rail R&D and innovation activities;
- ▶ drive up productivity in the rail sector;
- ▶ incentivise greater collaboration across the supply chain, particularly with SMEs; and
- ▶ increase the export potential for the sector.

Transforming the use of data

The industry holds a lot of data about rail users and the performance of the network. There is now an opportunity to provide further value from data by making further datasets open for exploitation in order to enhance passenger experience and door to door journeys. Progress has been made with regards to data sharing. As part of the wider transparency commitment, in 2012 Network Rail released open data which they have continued to grow, and now includes access to a number of operational data feeds, including train positioning and train scheduling data across the network.

In addition, in 2015 the Rail Delivery Group (RDG) launched its self-sign-on open data portal which led to the release of greater than ever levels of information and has supported improvements in the consistency of information between channels, through the development and maintenance of a National Rail information database (Darwin).

With a strong foundation in data sharing, the industry will look to further improve its offer. This will draw from ongoing work to better define datasets that are commercially sensitive and the rail industry will take a proactive approach to publishing further datasets that are seen to be non-sensitive. Incentivising the rail industry to openly release and share non-sensitive commercial data is fundamental to enhancing customer experience.

The Rail Sector Deal will transform the use of data to improve operations and customer experience by **establishing a data platform to securely share rail industry data**. The data platform will enable rail industry data to be shared widely across different modes of transport and infrastructure systems, enabling innovation and new customer focused products and services to greatly enhance passenger experience and door to door travel as well as more effective movement of goods and reduced costs.

The industry will also develop ways to incentivise and stimulate innovation around the use of data through an evolving ecosystem, including trialling new products and services.

The implementation of this will be phased, starting with small local pilot schemes with potential opportunities identified in the east midlands, and later phase pilots across the UK. To support this, as part of the Sector Deal, the government will be responsible for promoting the role of 'Platform Sponsor' - managing the fundamental rules of the data sharing platform and its capabilities, working closely with train and freight operating companies as well as new entrants to the market. This will ensure the platform is managed and used securely, responsibly and ethically, while maintaining confidentiality, protecting information that is genuinely commercially sensitive and preserving the position under the Freedom of Information Act 2000.

To support this, a re-allocation of existing innovation funds is expected of up to £5m over three years to be match funded by industry (equal to or greater than 50%), including through resources and equipment. There is potential for RDG, RSSB, UKRRIN and Transport Systems Catapult (TSC) to collaborate on development of the platform, which will take the published Rail Industry's Data Joint Action Plan¹² further. This plan outlines how the government and the rail industry, including the RDG, the ORR and the RSSB will work together to improve the quality and openness of rail data and to increase collaboration between the rail and tech sectors, for the benefit of passengers, the railway, and the UK economy.

Transport Systems Catapult

The TSC was founded in 2013 as part of the wider Catapult programme - a government-supported network of elite technology and innovation centres, each with their own specific sector focus. TSC's remit is to transform the UK's capability for innovation within the transport sector and to help drive future economic growth through using their in-house expertise to identify and overcome market failures, and by bringing together industry and academia to accelerate the development of new products and services.

The provision of Mobility as a Service (MaaS) is challenging the balance between private cars and public transport. Ride-sharing services have demonstrated car ownership can decline when travellers' needs are satisfied. Moreover, pop-up mobility services are flourishing around UK cities, providing a useful asset for local authorities (LAs) and extending the provision of public transport services. TSC's Mobility on Demand Laboratory Environment (MODLE) project aims to demonstrate how mobility service providers can run profitable services creating opportunities for LAs and public transport operators in providing better service for users.



We are embarking on the **fourth industrial revolution**. The rail industry can exploit the benefits of innovation to deliver a modern railway that gives the ever-increasing number of customers a better experience and reduces cost. It will also help to improve performance against each of the four C's (Carbon, Capacity, Cost and Customer) identified in the Rail Technical Strategy.

Sharing data has the potential to reduce costs, as has been the case in Transport for London (TfL). Through the provision of open data to developers, TfL is improving journeys, saving people time, supporting innovation and creating jobs. Independent analysis estimated that the provision of free, accurate and real-time open data by **TfL has helped London's economy by up to £130m a year**¹³.

The digital and data elements of the Rail Sector Deal could enable UK companies to become global leaders in these fields. Achieving this expertise before other countries begin to digitalise their networks at scale and develop similar skills would allow the UK to benefit from a 'first-mover-advantage' - that is, it could reap the benefits of being a major exporter of goods and services for digitalisation before other countries begin to catch-up. We are already at the forefront of rail digital systems R&D globally and creating market demand for these technologies will promote the further investment in, and development of, UK capability that will be an export strength.

Supporting Mobility as a Service

Mobility as a Service (MaaS) will mean that users will create, manage, and pay for a single trip combining public and private transport modes in the way that is most convenient for them. This will mean they reduce use of their own vehicles or separately reserved and paid-for public transport. The Future of Mobility Grand Challenge recognises this and seeks to integrate different methods of travel to drive growth and productivity through better use of people's time and skills, improving the economic prospects of individuals by making more opportunities available to them over a larger area. This poses capacity challenges, making more important the increase in the number of trains and reliability offered by our Digital Railway plans. In addition, making MaaS a reality addresses the challenge that declining mobility has on our ageing population. Offering people easier access to different but seamlessly connected ways of travelling will not only have a positive impact on economic potential but help improve mobility for those less able to travel.

With the fast pace of change to adoption of new technology and changes to passenger expectations as part of the Sector Deal, the government and industry will jointly assess the Rail Act 1993 with a view to clarifying its wording and subsequent application, if necessary, and to evaluate its suitability for enabling future mobility services.

The Data Sharing Platform makes it possible to co-ordinate the timetables for different methods of transport.

The effect of this integrated approach to travel will shift the dial away from personally owned cars as a default towards tailored travel planned on public systems: buses, trams, metros, mainline railway and ways of travelling not yet conceived working together. In providing this service for the traveller, we will create new digital economies that boost productivity for both new and traditional businesses, and ensure UK-wide profitability.



People

There is a skills shortage in rail if we are to sustain the existing network and take on board and reap the benefits of the digital technology.

This means working with the industry to not only develop and introduce new skills but also to accelerate efforts to increase the skills in the existing workforce. These challenges are broader than just rail. They affect the whole of the engineering sector and are set against a backdrop of people and skills trends that include:

- ▶ Growing skills gap and demand
- ▶ Ageing workforce and changing skills requirements
- ▶ Difficulties in attracting talent and poor gender diversity
- ▶ Limited training resources and shortage of trainers and lecturers
- ▶ Uncoordinated range of skills initiatives fragmenting effort
- ▶ Lack of a joined-up approach across sub-sectors¹⁴

To be able to offer the growing number of passengers the service they deserve and to make the most of the period of unprecedented investment in the railway, we need wide ranging investment in people.

This is needed to ensure the continued successful operation of the railway at the same time as delivering new, transformative infrastructure projects such as HS2 and the Digital Railway. These will require new and additional skills, with skills profiles that are yet to be defined. They will need to be identified and developed alongside the continuous development of critical existing roles, such as signal designers, project managers, systems engineers and commercial managers.

The Rail Supply Group's 2016¹⁵ strategy for productivity and growth in the UK rail supply chain - Fast Track to the Future - set the context for the need to keep pace with a fast-changing rail sector. It found that over 3,000 new rail engineering level 3 graduates (A level equivalent) are required just to maintain current skills levels. At least 7,000 more level 4 advanced technicians (undergraduate equivalent) would be required across the sector, while HS2 alone is forecast to require 600 advanced rail engineering technicians (level 4-6+) each year from 2019 onwards.

The paper calculated that the cost of skills shortages and gaps to rail industry employers equated to £206m per year (£110m to the direct rail industry and £96m to the supply chain), potentially increasing to £316m per year by 2024 without intervention from industry and the government. This includes a cost to the government of £358m per year¹⁶.

However, while the resources to meet the challenges of attracting and training people are limited and face significant competition from other sectors and within the rail supply chain itself, the potential gains are substantial. The Fast Track to the Future paper also found that just a 10 per cent reduction in skills gaps and shortages in the industry could reduce costs to the business base by £60m and to the government by £67m¹⁷.

Delivering the Rail Sector Skills Delivery Plan

Realising ambitions like these requires a plan for attracting and training the best talent that is both coherent and consistent. To ensure its recommendations would be aligned across transport modes and to ensure efficiencies could be properly realised, the Transport Infrastructure Skills Strategy published by the Department for Transport in 2017 followed the RSG's strategy.

This emphasised the need for considering the transport network holistically - supporting jobs, skills and apprenticeships for people in every part of the UK by ensuring road, rail, ports and airports come together around common goals to effect real and coordinated change in the transport sector. In this regard, the published strategy was a call to action: "To attract the right people to meet the challenges of new technology and to deliver our ambitious infrastructure programme, we need to encourage people into transport careers both through apprenticeships and other means¹⁸". In doing so it proposed a number of skills, R&D, education and diversity initiatives oriented around a fundamental need to understand and change how a career in transport, and apprenticeships in particular, are perceived.

This learning was subsequently incorporated into the 2017 Rail Sector Skills Delivery Plan¹⁹(RSSDP), which was developed by the industry with a similar aim to set out a coordinated set of actions for clients and supply chain and industry partners, including:

Leadership	Intelligence	Promotion & Attraction
Commitments & Outcomes		
<p>Pledges: Industry leadership commits to drive delivery of the industry Sector Skills Plan and the associated targets/KPIs as defined in TISS and as set by the leadership team</p>	<p>Intelligence: Understand future and current skills shortages to enable targeted investment and monitoring of progress to close gap reducing industry costs</p>	<p>Industry image: Rail sector is seen by educators and potential recruits as a high-tech and dynamic industry; increasing the number, diversity and quality of recruits and apprenticeships</p>
<p>Commercial environment: Buyers and government authorities to commit to medium/long term commercial activity that will provide confidence to the supply chain with a predictable pipeline of work that enables additional investment in resources and skills</p>		<p>Regional engagement: To position the railway as a great place to work, using a coordinated and geographically targeted approach</p>
		<p>Increase diversity: An industry-wide collaboration and commitment to increasing the diversity of the sector workforce</p>

Recruitment & Retention	Standards & Qualifications	Training & Assurance
Commitments & Outcomes		
<p>Clearing house: Optimising supply and demand around recruitment of apprenticeships, graduates, career changers and movement of existing industry personnel</p>	<p>Common modern curriculum: Adoption of consistent industry-wide competence standards to support transferability of skills, thus reducing the cost of retraining</p>	<p>Quality assurance: Increased competency across industry-wide workforce</p>
<p>Career path: Increase visibility of potential career progression and mobility within the industry broadening industry knowledge</p>	<p>Apprenticeships strategy & levy: Increase industry-wide apprenticeships by 20,000 by 2020 to meet TISS target and assist the industry in exploiting the apprenticeship levy to gain maximum benefit</p>	<p>Trainers & assessor's capability: Current, valid, sufficient and reliable assessment of capabilities</p>

Delivery of the RSSDP is key to ensuring the industry is supplied with the right skills at the right time and in the right place. Achieving this will help to alleviate productivity challenges as well as help set the future direction of the sector. The Rail Sector Deal supports the continued delivery of the RSSDP and further focus on:

- ▶ Ensuring **training and accreditations** have credibility and formal recognition across both government and industry, accompanied by increases in the number of students in full time rail related courses at level and especially level 5 as well as specific training targets, with an overall upskilling of the workforce in terms of average industry skill level from 2 to 3.
- ▶ **Public procurement that encourages skills development** in rail supply chains through the use of skills score cards and a visible pipeline to enable skills investment. This would include a workforce development plan encompassing clients and suppliers to map demand.
- ▶ As the sector increases its focus on digitally enabled mobility, the sector skills strategy needs to encompass **developing rail/mobility specific technology capabilities and expertise**. These include digitalisation, AI, simulation and modelling, advanced analytics and systems architecture.
- ▶ **International secondment programme to support exporter activities**.

▶ **Shared apprenticeships** programme in the midlands, facilitated by Rail Forum Midlands. The foundation of any industry - and its key to success - is its workforce. The rail workforce must rise to the challenge of delivering complex major projects, covering both conventional and high-speed rail, while responding to the introduction of new technologies including digital signalling and traffic management while retaining a sharp focus on the needs of the customer. With an ageing workforce and a lack of diversity compared with other sectors, the rail industry needs to invest in skills to meet future demands.

Investing in people for the long term

Investment in people and skills is a key theme within the Rail Sector Deal, and one that underpins other themes in the overall proposal. The rail industry recognises that a long-term skills strategy will increase social and economic impact through developing skills and creating jobs. This will help support the delivery of a modern railway, with a better trained and better equipped workforce, including digital skills that will drive productivity throughout the industry and lead to the delivery of more effective services.

The Sector Deal is focusing on three themes where people are at its heart:

- ▶ **Digital rail skills** to ensure our sector's current and future workforce is equipped for digital technology.

- ▶ **Leadership and management development** to increase the quality and quantity of leadership and management training.
- ▶ **Promotion and attraction** to achieve a step change in our efforts to attract diverse talent into the rail industry at all levels including apprenticeships. This will build on existing company activity, sectoral activity and sectoral co-ordination through 'Routes into Rail', a cross industry group encouraging young people to pursue careers in rail.

The rail industry offers a wide variety of interesting and well-paid careers spanning numerous disciplines. However, it also recognises that rail is in competition for talent with other sectors who have historically been better at promoting themselves and their job opportunities. As such, there is a significant need for the sector to raise its profile to attract high-calibre talent.

Progress is being made. For example, RDG is creating a virtual Driver Academy to improve the recruitment, training and management of train drivers who remain a key resource for the rail industry.

The Academy brings together existing industry training resources and promulgates best practice and innovation in training techniques. Its aim is to create a sustainable and diverse driver workforce for the modern railway.

RDG also manages the Railway Engineering Graduate Scheme for engineering undergraduates and graduates seeking a career in mechanical or electrical engineering with UK passenger and freight train operators. The scheme is accredited by the Institution of Mechanical Engineers and the Institute of Engineering and Technology and offers a fast route towards Chartered or Incorporated Engineer status.

To help address these challenges the industry will develop and implement a long-term Education and People Strategy to enable the industry to anticipate and move with the pace of change and to remain a pioneering operator in the global rail market.

Infrastructure

The future growth of our railway will depend on our ability to utilise the best of modern technologies to develop new digital solutions that can improve the way trains are run and help put passenger and freight users at the heart of railway operations.

Sectors such as aviation have been deploying digital solutions to address capacity challenges for many years. Rail, by contrast, still largely relies on analogue technology. This is despite the significant benefits digital technologies can bring in enabling more trains to run faster, more safely, and on time. At a time of unprecedented growth in passenger numbers, and of levels of investment not seen since the Victorian era, the opportunities these technologies provide for addressing the challenges of modernising the network are clear. This is the context in which the Secretary of State for Transport recently challenged the rail sector to ensure that digital technology is commonplace on our railway within a decade²⁰.

The deployment of digital signalling technology as part of the Digital Railway programme is central to this. Numerous recent studies have highlighted the potential ability of these technologies to realise passenger and freight benefits and to deliver whole life cost reductions in comparison with conventional solutions. For example, Fast Track to the Future²¹ described the significant opportunity the introduction of new technologies such as the

European Train Control System (ETCS) and Traffic Management (TM) provides to improve the capacity of our railway whilst also reducing costs significantly. The UK has world class signalling skills that we already export, and deployment of new technologies at home will allow UK industry to meet the growing demand for digital railway systems worldwide.

The 2016 Autumn Statement²² announced a new National Productivity Investment Fund (NPIF), targeted at investment from 2017/18 to 2021/22 in areas that are critical for productivity: housing; research and development; and economic infrastructure. Included in the fund was £450m allocated to trial digital signalling technology in order to expand capacity and improve reliability. This commitment reflected the government's belief in the potential of digital signalling to not only provide the most cost-effective solutions for the railway, but also to deliver wider economic goals including developing high value, highly skilled tech jobs, driving innovation in products and services, and creating a set of exportable capabilities to sell into a growing global market for digital solutions.

This will support the rebalancing of the economy by promoting economic growth in rail clusters in the north, midlands and south west of England. A more efficient higher capacity railway will also encourage modal shift from less efficient transport modes, establishing the UK as a leader in low carbon transport.

Delivering the Digital Railway

In 'Connecting people: a strategic vision for rail'²³, the government set out its vision of driving faster improvements in customer service and passenger experience, including using digital technology. This included options for new traffic management systems, which can be installed in signalling centres to help drivers and control staff keep trains running on time and speed up recovery from service disruption. To support this vision, the government made a commitment of £84m to prepare a range of trains for the fitting of state-of-the-art in-cab digital signalling equipment and the deployment of digital technology as part of the NPIF allocation. This funding will be targeted at projects that can bring passengers benefits, and which are affordable and represent value for money.

Building on this, the 2018 Digital Railway Strategy²⁴ highlighted the opportunity to deliver lower whole life cost relative to conventional solutions over the medium to long term.

If achieved, this will play an important role in addressing industry's affordability and asset sustainability challenges. Earlier work conservatively estimated the whole life cost savings to be 10 per cent, rising to as much as 30 per cent over time²⁵. The Strategy argued that NPIF-funded schemes should deliver benefits by mid-CP6, addressing specific capacity constraints, improving performance, and enhancing safety for passengers and workers. Secondary benefits of the Digital Railway should include improving the passenger experience; accelerating economic growth and improving environmental outcomes²⁶. In this context the Digital Railway programme has a core role in providing cross-industry leadership, expertise and co-ordination for introducing digital technology to rail, including through industry sponsorship, industry change strategies, and business and systems requirements.

In parallel to this, Network Rail routes are increasingly leading on local delivery, working with suppliers and train operators and reflecting local priorities. This reflects the Department for Transport's wider vision of a more reliable, efficient and modern railway delivered by joined up local teams. This vision was formalised in early 2017 with Network Rail announcing its decision to establish eight devolved routes, each with a managing director responsible for aligning train operating companies and freight train operating companies in their area and engaging suppliers.

This devolution has been further supported through changes in regional transport governance with regional integration of operations and infrastructure, such as Scotrail and Transport for Wales Rail.

To counter potential risks associated with decentralisation and devolution, Network Rail has established the System Operator as a distinct entity, responsible for the effective planning and overall coordination of the rail system. The System Operator is now embedded into the Periodic Review process and is subject to its own performance measures from the ORR.

The **System Operator will be critical** in deriving the benefits of major enhancement programmes. Its system-wide perspective takes an independent, long-term view that goes beyond the lifetime of today's franchises to consider options including timetabling patterns, rolling stock and the options for the provision of infrastructure including digital signalling²⁷. Delivery of suitable digital technology solutions will be a key consideration in decisions about operators, with proposals developed and assessed against robust and specific business cases. This includes developing digital proposals that can demonstrate improved operational performance and significant value for money. It is expected that embedding these requirements will ultimately lead to a set of long-term digital best practices for the railway.

The impact of the Sector Deal
Digital train control and traffic management systems can provide a critical step-change in the successful operation of the UK rail network.

Both capacity and reliability are critical measures for Britain's rail network. Customers rely on our trains to get them to their destination every day. At peak times on the busiest parts of the network, Britain's railway is at capacity, which can cause delays and overcrowding for passengers and push freight onto the road network. Improved signalling systems are part of the solution to this capacity challenge.

Conventional signalling systems today are based on lineside signals that inform drivers when it is safe to proceed. Typically, they have an asset life of c.35 years and are quantified in units of signalling known as SEUs (Signalling Equivalent Units). Almost two thirds of signalling on the UK network needs replacing in the next 15 years, which provides a once in a generation opportunity to adopt transformative digital railway technologies.

The Rail Sector Deal will target the delivery of a digitally enabled network that can face those capacity and connectivity challenges that a growing economy brings. The unit cost work undertaken in preparation for the Rail Sector Deal has looked at the life expectancy of signalling infrastructure and the profile for their replacement.

The collaborative involvement of suppliers throughout the life-cycle will bring lower whole life costs and significant reliability and performance benefits alongside significant wider socio-economic and passenger benefits. Undertaking train fitting and signalling renewals at pace and scale with a collaborative approach will deliver significant cost efficiencies.

Through this Sector Deal we will, by the end of 2025, achieve whole system (train borne and infrastructure based) **unit costs significantly lower than current UK conventional infrastructure only costs** (equivalent to European Benchmark Costs). This reduction in unit cost should allow Network Rail to implement Digital Railway across much of their network to deliver significant customer benefits. These changes will also support aspects of the Clean Growth and Future of Mobility Industrial Strategy Grand Challenges.

By digitalising the railway, we can expect to see significant benefits in terms of:

- ▶ Better asset sustainability
- ▶ Increased capacity
- ▶ Improved reliability
- ▶ Enhanced safety
- ▶ Improved passenger performance
- ▶ Accelerated economic growth
- ▶ Improved environmental outcomes

The investments in digital signalling technology facilitated by this Deal will lead to the development of world-leading capability and expertise. The UK's large and congested network and complex signalling layout make implementation especially challenging, leading to legacy expertise of a high standard. This expertise will deliver a more highly performing supply chain for future projects in the UK that can more easily take advantage of export opportunities.

Improvements in railway performance and supply chain capability should increase productivity in both the UK rail industry and the wider national economy. While it is difficult to accurately estimate the impact of the Sector Deal, the rail industry estimates the potential benefits from digital signalling alone from £3.1bn pa to £38bn pa, depending on the level of digital signalling installed²⁸. This excludes any wider benefits that may result from improved digital connectivity on the rail corridor, such as enabling mobility as a service or on-board Wi-Fi.

Business Environment

A supply chain strategy

The importance of the UK rail supply chain to the UK economy goes beyond its role in delivering a well-functioning railway. As well as providing the high-quality goods and services on which the railway depends, the thousands of individual companies that make up the supply chain support employment and economic activity in their communities. Demand for rail-related goods and services supports hundreds of thousands of jobs, either in the supply chain or wider rail industry, and makes a significant contribution to UK GDP. The rail industry also plays an important role in maximising the economic and productivity benefits of new, transformative technologies like digital signalling, of investments in ambitious projects like HS2 and Crossrail, and in driving a step-change in improving the efficiency and effectiveness of passenger and freight movement.

Achieving these benefits was the objective of Fast Track to the Future²⁹ which emphasised the “once-in-a-lifetime opportunity to rejuvenate that supply chain to be more competitive, productive and sustainable, and we need to work in partnership with government to do this effectively”.³⁰ For the first time the rail supply chain developed a common strategy to address the industry’s priorities and concerns and to position the UK as a global railway leader.

As part of this plan to grow manufacturing capacity and productivity, and to capitalise on export opportunities, it identified a series of core aims. These included commitments to, by 2025:

- ▶ more than double exports
- ▶ attract the very best UK talent to create a sustainable skills base and to develop new technologies
- ▶ harness the energy, drive and innovation of SMEs to meet the needs of the global railway market
- ▶ be a global leader in High Speed Rail
- ▶ have an entrepreneurial supply chain that constantly innovates to meet customer needs.

This was driven by a vision of a modern railway capable of addressing the challenges resulting from unprecedented growth over the last two decades. It is a vision that sees industry leading the way in innovation and continuously improving its capabilities and expertise.

An environment for growth

Responding to industry views and the conclusions of expert reports on the structure and management of the railway, the government has acted to create an environment in which the railway industry can flourish.



In order to secure the longer-term future and financing of Network Rail, the Shaw Report³¹ recommended:

- ▶ a greater focus on the customer (passenger and freight) through deeper route devolution, supported by independent regulation;
- ▶ developing industry-wide plans to develop skills and improve diversity; and
- ▶ exploring new ways of paying for growth in passengers and freight on the railway.

The government recognises the need to create the market conditions to ensure investor confidence.

To support the creation of these market conditions the government is committed to comparatively long-term funding for rail through the Statement of Funds Available and the regulatory funding process.

The 2017 Hansford Review, ‘Unlocking rail investment – building confidence, reducing costs’ considered third party investment in infrastructure delivery on the national rail network.³² The review examined contestability in the UK rail market and the potential benefits a contestable market might derive in delivering better value for money, a better deal for customers, and increases in innovation.

Its recommendations arose from analysis of the impact of existing barriers and the limitations of existing contracting strategies, and by considering the advantages and shortcomings of Network Rail's organisational structure and direction of travel. It grouped its twelve recommendations under four headings:

- ▶ Delivering more value for money
- ▶ Broadening third party investment
- ▶ Enabling third party projects
- ▶ Oversight arrangements

By trying to make it easier for other organisations to invest in the railway, Network Rail has sent the message that it is 'Open for Business'. This means demonstrating to the market its plans for change and considering how infrastructure services are contracted, and whether existing methods are the best for reducing the cost of infrastructure projects to the government and Network Rail.

'Connecting people: a strategic vision for rail'³³ announced significant changes to improve the commercial models being used to contract for passenger services, including the introduction of short term 'one team' models and longer-term models. Today, new commercial models are also being considered for Digital Rail projects as well as other projects, such as the Western Rail Link to Heathrow and East West Rail.

The report also emphasised the importance of building market confidence by both demonstrating

past successes and through the visibility of a credible forward pipeline of opportunities. Mega projects like Crossrail are already providing credible UK references. However, there remains a challenge around providing a clear forward view of opportunities and this is a key area where the Rail Sector Deal can play a vital role.

The benefits of these and previous initiatives have seen the UK rail industry receive a **three-fold increase in private investment since 2010**. While rolling stock represents a large proportion of this, critically, we have seen **increases in private investment in track, signalling and stations**³⁴.

For example, private pension fund investment has enabled the construction of iPort near Doncaster, a £400m inland port project and one of UK's largest logistics developments. This Strategic Rail Freight Interchange is delivering more than 570,000sqm of warehousing linked with a rail freight intermodal container facility and set to provide rail freight services to all major UK ports and the Channel Tunnel. Set to create 5,000 jobs, the project was developed by logistics developer and investor Verdion, with backing from its funding partner the Healthcare of Ontario Pension Plan.

In addition, rolling stock investment has attracted inward investment. For example, at the start of 2015, the UK had one major rolling stock manufacturing facility. This has since increased to three, with further manufacturing facilities planned across the UK.

The Rail Sustainable Development Principles³⁵



The Rail Sustainable Development Principles represent core values of the rail industry to manage a good business. They take account of whole-system and whole-life-cycle approaches to drive greater efficiency and better delivery.

They are:

- | | |
|------------------------------------|--------------------------------------|
| 1. Customer driven | 5. Reducing our environmental impact |
| 2. Putting rail in reach of people | 6. Carbon smart |
| 3. Providing an end to end journey | 7. Having a positive social impact |
| 4. Being an employer of choice | 8. Supporting the economy |
| | 9. Optimising the railway |
| | 10. Being transparent |



Meaningful engagement with the supply chain: a new procurement approach

Rail investment in the UK is at record levels with nearly £53bn³⁶ to be spent on the railway in England, Scotland and Wales from 2019 to 2024. Given the focus on renewals this investment represents a significant opportunity for the rail supply chain. All parts of the sector - operators, suppliers, infrastructure managers and government client bodies - need to collaborate better to secure best value from this investment and improve the railway for passengers, communities and the economy.

This requires a meaningful engagement with the supply chain to provide them a greater voice when plans are developed or amended due to a changes of policy, law or financial resources. The Rail Sector Deal proposes that **the government, in partnership with the private sector, agrees a mechanism for ensuring industry is actively engaged in the development of renewals planning and delivery** throughout CP6 and future control periods. This partnership will ensure that industry is an integral part of the development and deployment of longer-term rail investment opportunities.

The aim of this is to create a more certain pipeline of asset renewals to support more efficient delivery of rail infrastructure and provide the supply chain with greater confidence

to invest in people, technology and innovation, ultimately generating greater efficiencies and economies of scale. This will ensure the supply chain has the skills, capacity and capability to deliver the cost effectively. It will also enable the supply chain to capitalise on domestic investment and deliver market led proposals, to strengthen and demonstrate its capabilities in key technologies such as digitalisation, digital signalling, traffic management and data analytics to become world leader. The government can support in making this a reality.

A number of immediate actions will highlight the outcomes of this future direction. For example, there are plans in place for **the supply chain to join The Strategic Vision Industry Rail Board**. The government also recognises the value in adopting methods for improved scenario testing on proposed government policy decisions, helping to understand their potential impact on the rail supply chain before they are adopted.

We will also agree a **new procurement approach**, including better engagement between Network Rail and HS2 Ltd, alongside the supply chain. This will be **based on three principal areas**: early contractor engagement; a simplified tendering process; and the adoption of procurement scorecards between buyers and Tier 1 suppliers.

A greater role for SMEs

The challenges facing SMEs have been well explored as part of the development of the RSG's sector strategy, which culminated in a commitment by 2025 to harness the energy, drive and innovation of SMEs to meet the needs of the global railway market. As such, the focus on SMEs is a thread that runs through several enablers with specific objectives, including:

- ▶ Increasing the uptake of innovation through procurement agreeing collaborative procurement models based on outcome-based specifications, including regional, SME and employment assessment.

This has included investment, via Innovate UK, of up to £40m in a three-year programme of rail innovation competitions, targeted at UK-based business and SMEs.

- ▶ Continued government aspiration for 33 per cent of public spending to go to SMEs by 2022.
- ▶ An Education and People Strategy encompassing a training implementation plan and an industry wide collaboration and partnership arrangement with SMEs.
- ▶ Support programme for high growth potential SMEs - piloted in the midlands.



Long term journey to sustained increases in productivity

While the Sector Deal as a whole will contribute to increased productivity by several means, there are also opportunities for further improvements to maximise value for money to passengers and tax payers. This primarily requires the development of long-term and collaborative relationships between suppliers, clients and funders so that the expertise of the supply chain can best be utilised to improve the design and delivery of projects. It is also about becoming a learning industry that utilises best practice from other countries and other sectors to improve productivity. To achieve this the industry will develop and implement a plan to improve rail industry productivity. This productivity plan may include an industry led national supplier competitiveness and productivity improvement programme - any programme would look to improve the competitiveness, and the organisational and technological capabilities of high-potential UK SMEs in the rail supply chain.

The productivity plan will build on other key aspects of the Sector Deal, such as supply chain engagement, and benchmark current performance against other rail industries and other sectors.

In support of this, the government, in partnership with clients and the supply chain, will support the industry in restructuring decision-making points, removing barriers to improving productivity and ensuring the right behaviours and incentives are in place.

Creating opportunities in the global market

Our ambition is that the investment being made in rail enables the development of goods and services that can be exported to markets around the world. This is a significant opportunity with the global rail market estimated to be worth €163bn and expected to grow by over 2 per cent each year until 2023³⁷. Growing our rail supply chain's share of this market would improve UK economic performance. It could also deliver wider benefits, potentially making the domestic supply chain more innovative and productive and improving resilience to variations in domestic demand.

Many British companies are already exporting successfully. British rail goods are in use on railways around the world. British companies also export both rail services and services associated with the construction of railways, from architecture to engineering consultancy.

However, noting that UK rail export performance is not as good as that of countries such as France and Germany, Fast Track to the Future stated the industry's ambition to deliver a coordinated approach to supporting growth in both exports and inward investment. This approach is to deliver the RSG's goal of more than doubling rail exports by 2025.

The government and industry are cooperating to achieve this goal. The Railway Industry Association and other industry groups lead visits by British companies to important overseas markets, and work with the government to deliver a strong UK presence at international rail events.

In this Rail Sector Deal, industry and the government agree a series of new measures to build on existing activity in order to deliver the RSG target. To ensure the UK supply chain can maximise benefit from new and established rail opportunities, the government and industry will take steps to deliver more collaborative working and to improve both knowledge and capability.

Rail export performance can be improved by **better cooperation between the public and private sectors**, utilising the strengths of public sector organisations and industry bodies to support UK rail exporters.

To help ensure all public sector organisations involved in rail are appropriately supporting UK exporters, industry will establish an export leaders consultation group. The government will engage with the group to understand and respond to industry views and to jointly identify new opportunities.

This collaboration will have a greater impact if we better understand both the strengths of the UK supply chain and the detail of overseas opportunities.

To develop our **understanding of UK expertise**, industry will develop a supply chain capability map. This will build on work already done by industry and the government to set out areas of UK strength and weakness, including in data and digital.

Once complete this capability map could:

- ▶ be the basis of an industry-led marketing campaign to improve overseas perceptions of UK rail;
- ▶ be used by UK government representatives overseas to better promote the strengths of the UK rail industry;
- ▶ support focussed targeting of inward investment to build domestic capability and improve future UK export offer; and
- ▶ inform domestic policy to build a sustainable and globally competitive UK supply chain

Industry will also deliver a **detailed analysis of overseas rail opportunities** and of barriers to taking those opportunities, and of the UK's global competitors. Together with the capability and capacity analysis above, the assessment could:

- ▶ enable the government and industry to focus effort on the opportunities where UK supply chain strengths best fit demand needs, including on data or digital projects;
- ▶ enable the government and industry to prioritise markets where the combined efforts of the government and industry can open doors to opportunities that might otherwise be inaccessible;

- ▶ create a pipeline of rail opportunities for consideration by the sector and for support through Infrastructure Exports: UK, and overseas rail market overviews for companies looking to export;
- ▶ identify future opportunities that might justify the development of new UK capability; and
- ▶ identify rail sector issues for prioritisation in discussion about new Free Trade Agreements.

To improve exporting capability industry will deliver an **exporting secondment and mentoring programme**. This programme should:

- ▶ improve exporting capability throughout the supply chain;
- ▶ facilitate better links between current exporters and non-exporting companies with which they might be able to collaborate on overseas opportunities;
- ▶ facilitate use of industry insights in government delivery of export and inward investment promotion work; and
- ▶ provide an industry element to government engagement with governments in key overseas markets

Places

The rail network connects people, places, goods and markets. It keeps people moving and therefore delivers a range of wider benefits: improving connectivity for workers, which is key to productivity; providing access to skills, health and leisure opportunities; and providing an effective alternative to the road network, helping to mitigate congestion issues.

Trains provide a cleaner, lower emission means of travelling for large numbers of people every day, and rail travel will continue to have a reduced environmental impact as we further decarbonise the railway.

Rail can also promote agglomeration benefits and other positive wider economic impacts. Regional proposals including Northern Powerhouse and Midlands Engine are based on harnessing the positive effects of agglomeration to help reposition the economy away from London and the south east. By providing fast, clean travel between and within these clusters rail can play an important role in driving productivity gains by bringing together labour, suppliers and consumers.

The rail industry is a significant element of the economies of the UK's strong regional clusters. In the Midlands Engine, the **east midlands is one of the largest rail clusters in the Europe**. The Rail Forum Midlands (RFM) represents over 160 businesses across the midlands and beyond, collectively employing over 25,000 people and contributing £2.6bn to the local economy.³⁸

The Northern Powerhouse, meanwhile, is supported by a strong group of devolved regional bodies, groups and representative transport authorities. These organisations are supported by a strong local rail supply chain, including 40 businesses represented by Northern Rail Industry Leaders.

The success of UK rail will owe much to the successful nurturing of these clusters. It was on this basis that the RSG's sector strategy made a commitment to apply its influence and initiatives to encourage further development, acting as a single voice for supply chain on issues such as skills and productivity and ensuring a continued close working with regional forums and groups. This has included working with groups such as the Northern Rail Industry Leaders in their efforts to join together businesses in the north to support the rail industry and the wider goals of the Northern Powerhouse, or through supporting skills growth in the Rail Forum Midlands.

The Midlands Engine

The Midlands is at the heart of UK rail. With a population of more than 11 million people creating £222bn Gross Value Added – more than 14 per cent of the total for the UK. It is also a high-export economy, with exports worth more than any other region in the UK – £49bn annually, 17 per cent of the UK total. The region is at the heart of UK manufacturing and advanced engineering, accounting for 20 per cent of UK manufacturing output through world leading businesses including Alstom, **Bombardier, Jaguar Land Rover, JCB, National Grid, Rolls-Royce, Tarmac and Toyota UK**. The unique expertise in the region spans global high-value sectors; from world-class transport technologies and engineering to renewable energy, medical and agricultural technologies and beyond.

The Midlands is also home to world class rail academia delivering leading rail R&D and innovation, including eight Midlands universities (including four in the Global Top 100) – Aston, Birmingham, Cranfield, Keele, Leicester, Loughborough, Nottingham and Warwick, as well as the Midlands enterprise universities: City, Coventry, De Montfort, Derby, Lincoln, Nottingham Trent and Wolverhampton. Meanwhile, three of the eight members of the UKRRIN are based in the Midlands (in Birmingham, Loughborough and Nottingham).

Building on these foundations, Midlands Connect (the transport arm of the Midlands Engine) recently announced the creation of Midlands Rail Hub. This flagship plan is a twenty-year strategy for future proofing the network for generations to come. By 2040, the Rail Hub could create space for 6m more journeys a year and shift the equivalent of 4,300 lorries a day from the roads. It aims to support an extra £649m of economic growth and investment annually, achieved by enabling faster and more frequent journeys across the Midlands and linking access to new HS2 services³⁹.

Developing a Rail Data Platform - Midlands Pilot

We will use an initial phase trial site identified in the East Midlands to begin mobilising the value of existing data. This phase one trial will seek to use existing open data sources from the rail industry to build a comprehensive picture of current and historic customer activity across the rail network and in time. This insight into the demographics and behaviour of rail users will allow the development of tools to connect with passengers, optimise capacity and improve customer experience.

The prototype platform with a train operator will include data currently available from multiple sources, predominantly Network Rail data and weather data. This data exchange and communication channel could facilitate more effective use of data by appropriate parties, including the Department for Transport. The pilot will develop our understanding of the data skills required for MaaS on rail, ensuring we are ready to replicate benefits on franchises outside the East Midlands. We anticipate that the concepts, approaches and lessons learned from the East Midlands pilot will be applied and scaled up to other station environments, including where stations cover multiple franchises.

Developing SMEs - Midlands Pilot

The Rail Sector Deal will provide a strategic blueprint for collaboration between industry and the government. Within this framework, we have developed practical activities and a Midlands-led pilot that will kick-start the change needed to make the deal a reality. These activities will bring meaningful benefits to supply chain companies and SMEs in particular. The Midlands pilot will support high potential SMEs to grow to the next level, providing strategic guidance and support to develop their people.

Building on strong foundations, the Midlands has the potential to deliver much more for the railway and for the UK. The challenge is to build on existing expertise whilst developing new technologies and products, becoming more efficient, attracting more investment and delivering a strong, sustainable and high-value economy.

The Rail Sector Deal recognises the **importance of collaboration between key stakeholders**, including SMEs, to address specific opportunities, resolve real issues and problems, and address the rail skills challenge. Bringing partners from across the Midlands' rail, aerospace and auto sectors together with data and digital companies from the UK and overseas will increase the number of SMEs in the supply chain and will result in greater levels of innovation and local employment. Through regular collaboration, the Rail Sector Deal can **develop skills within SMEs**, helping them grow their businesses and provide the opportunity to develop new products and services for future railways.

Developing Skills - Midlands Pilot

Building on existing work, the Midlands will pilot at least two **shared apprenticeship programmes** that bring SMEs together to jointly fund and support a group of apprentices without having to commit to specific recruitment of an individual. We will take the opportunity to explore whether there is scope to work cross sector with aero and auto suppliers to develop more rounded individuals but with the specific skills required to work in the complex transport technologies sector. In addition, we will aim to develop a long-term strategy and approach for Midlands schools engagement that aligns with Routes into Rail Board plans, previous relevant

HS2 Employment and Skills Strategy work and which takes account of Gatsby Benchmarks and other industry best practice (e.g. the Rolls Royce tiered approach). This will develop material for junior schools and post-16 education as well as additional skills routes.

This activity will increase the number of apprenticeships offered and increase the impact and co-ordination of regional schools' engagement activities, resulting in improved awareness of opportunities, increased quality and quantity of applications for apprenticeships, and improved knowledge and perceptions of the sector with young people.



Implementation plans

Date	Milestone
Jun 2016	Publication of The Hansford Review identifying steps to be taken to unlock rail investment through building confidence and reducing costs.
Jul 2017	UK Rail Research and Innovation Network launched, secured by £32m HEFCE funding and £64m of private sector investment over 10 years.
Oct 2017	Publication of the Rail Supply Group's proposals to government for a Sector Deal
Nov 2017	Publication of the Department for Transport Rail Strategy: Connecting people: a strategic vision for rail
Oct 2018	ORR approval of Network Rail's key R&D programmes budget for Control Period 6 (2019-2024) totalling £245m
Dec 2018	Publication of the Rail Sector Deal and publication of detailed delivery plans, which can be found at www.railsupplygroup.org
Feb-Mar 2019	RSG mobilise delivery organisations
Mar 2019	Phase 0 (mobilisation and set up) complete
April 2019	Commence Year 1 delivery, including core analysis of sector strengths an Annual review of the Rail Sector Deal d export opportunities, and launch of Shared Apprenticeship pilot
Nov 2019	Annual review of the Rail Sector Deal
2020 onward	Ongoing delivery of the Rail Sector Deal, including annual review of unit cost reduction, develop data platform, rollout of exports mentoring and secondment programme

Governance

Oversight of the implementation of the Sector Deal will be led by The Strategic Vision Industry Rail Board, a joint government and industry board, which will review and monitor progress quarterly.

The Rail Supply Group Council will have the overall responsibility for delivery and progress against objectives supported by the relevant sub-groups focusing on the implementation of different elements of the deal.

The governance model will be developed with the ethos of whole industry collaboration that has been at the heart of the Sector Deal development ensuring that suppliers to the sector, trade bodies and institutions, and key stakeholders are engaged and have appropriate accountability for delivery.

Key principles of the governance model include:

- ▶ A newly reshaped RSG Council to support delivery including new entrants.
- ▶ A dedicated and consistent sector deal team with common goals, objectives and delivery across all the different groups, trade organisations, private sector, client organisations into core groups delivering as 'one railway'.

- ▶ Different elements of the Rail Sector Deal will be delivered under the leadership of different industry bodies or appropriate industry groups to avoid duplication and to streamline activities. As an example, the Digital Rail Board will have a role in the delivery of the Digital Delivery Plan and the Joint Industry Data Action Plan Task Force will have a role in the delivery of the Data Delivery Plan.
- ▶ Aligned programmes of work where every organisation plays an important but vital role in improving performance, customer experience and driving efficiencies for rail collectively as 'one Sector Deal team'.
- ▶ Any resources or organisations delivering the Sector Deal programmes will work in a collaborative way under the guidance of the Sector Deal "Collaborative working framework"
- ▶ Industry Champions will be selected to lead each pillar supported by the core Sector Deal team.

References

1. Department for Business, Energy & Industrial Strategy, Industrial Strategy: Building a Britain fit for the future (November 2017) assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf
2. Department for Business, Energy & Industrial Strategy, The Allocation of Funding for Research and Development (July 2018) assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731507/research-innovation-funding-allocation-2017-2021.pdf
3. ONS, Gross domestic expenditure on research and development, UK: 2016 www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgrossdomesticexpenditureonresearchanddevelopment/2016
4. Enabling Innovation Team (EIT), 2013, 'Route mapping capability for GB and international rail markets', reported developed on behalf of EIT by AD Little, www.rssb.co.uk/innov-prog/Documents/2016-07-innovation-railway-supply-chain-capability-report.pdf
5. Railway Safety and Standards Board (RSSB), 2015, 'UK Rail Supply Industry, SWOT Analysis', www.rssb.co.uk/Library/groups-and-committees/2015-12-08-report-rssb-uk-rail-supply-swot-fourth-draft-submitted.pdf
6. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
7. Technical Strategy Leadership Group (TSLG), 2012, 'The future railway - The Industry's Rail Technical Strategy 2012 Supporting Railway Business.' www.rssb.co.uk/library/future%20railway/innovation-in-rail-rail-technical-strategy-2012.pdf
8. Technical Strategy Leadership Group (TSLG), 2017, 'Technical Strategy Capability Delivery Plan Brochure' www.rssb.co.uk/rts/Documents/2017-01-27-rail-technical-strategy-capability-delivery-plan-brochure.pdf

9. www.ons.gov.uk/economy/governmentpublicsectorandtaxes/researchanddevelopmentexpenditure/bulletins/ukgrossdomesticexpenditureonresearchanddevelopment/2016
10. Department for Transport, Connecting people: a strategic vision for rail (November 2017) www.gov.uk/government/publications/a-strategic-vision-for-rail/connecting-people-a-strategic-vision-for-rail
11. HM Treasury, Autumn Budget 2017 www.gov.uk/government/speeches/autumn-budget-2017-philip-hammonds-speech
12. Joint rail Industry Data Action Plan www.gov.uk/government/publications/joint-rail-data-action-plan
13. Deloitte / TfL, Assessing the value of TfL's open data and digital partnerships, (July 2017), <http://content.tfl.gov.uk/deloitte-report-tfl-open-data.pdf>
14. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
15. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
16. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
17. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
18. Department for Transport, Transport Infrastructure Skills Strategy: building sustainable skills Moving Britain Ahead (2016) assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/495900/transport-infrastructure-strategy-building-sustainable-skills.pdf
19. NSAR, 2017, 'Rail Sector Skills Delivery Plan' www.nsar.co.uk/wp-content/uploads/2017/02/Rail-Sector-Skills-Delivery-Plan_2017_V8.pdf
20. Digital Railway, Digital Railway Strategy (April 2018) cdn.networkrail.co.uk/wp-content/uploads/2018/05/Digital-Railway-Strategy.pdf
21. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
22. HM Treasury, Autumn Budget 2016 www.gov.uk/government/topical-events/autumn-statement-2016
23. Department for Transport, Connecting people: a strategic vision for rail (November 2017) www.gov.uk/government/publications/a-strategic-vision-for-rail/connecting-people-a-strategic-vision-for-rail
24. Digital Railway, Digital Railway Strategy (April 2018) cdn.networkrail.co.uk/wp-content/uploads/2018/05/Digital-Railway-Strategy.pdf
25. Digital Rail, Early Contractor Involvement Report, Delivering Digital Train Control Technology Efficiently - to drive capacity and performance on the railway, July 2016, <http://digitalrailway.co.uk/wp-content/uploads/2015/11/ECI-2-Brochure.pdf>
26. Digital Railway, Digital Railway Strategy (April 2018) cdn.networkrail.co.uk/wp-content/uploads/2018/05/Digital-Railway-Strategy.pdf
27. Network Rail, About us: A guide to the system operation System Operator (2018) cdn.networkrail.co.uk/wp-content/uploads/2018/09/System-Operator-about-us.pdf
28. Industry analysis in support of the Rail Sector Deal

29. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
30. Rail Supply Group, Fast Track to the Future Department for Transport A strategy for productivity and growth in the UK rail supply chain (Feb 2016) www.railsupplygroup.org/wp-content/uploads/2017/09/RSG-Brochure-Jan-2016.pdf
31. DfT, 2016, 'The future shape and financing of Network Rail' (Shaw Report), www.gov.uk/government/uploads/system/uploads/attachment_data/file/510179/shaw-report-the-future-shape-and-financing-of-network-rail.pdf
32. Hansford Review, The Hansford Review Unlocking rail investment - building confidence, reducing costs (June 2017) cdn.networkrail.co.uk/wp-content/uploads/2017/07/The-Hansford-Review.pdf
33. www.gov.uk/government/publications/a-strategic-vision-for-rail
34. Office of Rail and Road Regulation, NRT Data Portal, 'Private investment in the rail industry (excludes Network Rail investment)', dataportal.orr.gov.uk/displayreport/report/html/a1bcb53b-9914-4d7d-9d57-0187cd27e59b
35. www.rssb.co.uk/Library/improving-industry-performance/2016-05-rail-sustainable-development-principles.pdf
36. Network Rail, Statement of Funds Available (2017) assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/650998/railways-act-2005-statement-of-funds-available-2017-web.pdf and Transport Scotland Statement of Funds Available (2018) www.transport.gov.scot/media/41425/sofa-2019-24-25-jan-2018.pdf
37. UNIFE World Rail Market Study 2018
38. www.midlandsrail.co.uk/
39. www.midlandsconnect.uk/key-projects/midlands-rail-hub/



© Crown copyright 2018

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 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk. Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available from: www.gov.uk/beis

Contact us if you have any enquiries about this publication, including requests for alternative formats, at: enquiries@beis.gov.uk