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# INFRASTRUCTURE



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# Welcome

**T**heresa May memorably made “building a better Britain” one of the key hallmarks of her premiership when she succeeded David Cameron as Prime Minister on July 13 2016.

Most people listening to her maiden speech would have thought those words metaphorical, however, as she also pledged to “make Britain a country that works for everyone”.

But behind these oft-repeated policy positions lies concrete, bricks, mortar and all manner of other building materials, as transport infrastructure is a proven way to deliver the economic growth and equality of opportunity that May seeks to deliver.

That is because connectivity undisputedly boosts productivity, and makes this country an attractive place to invest. Meanwhile an impressive track record of healthy economic returns available on capital investments ensures that the numbers stack up for the Treasury on greenlighting the further enhancement of Britain’s transport infrastructure, including its railway.

The Government has thrown its weight behind this, and has therefore launched its Industrial Strategy to provide a joined-up view spanning all industry sectors.

The rail sector now has an opportunity to

respond to the Government’s green paper, to show how it can benefit from increased investment before final decisions are made, and so Stefanie Browne examines the strategy in more detail, and considers what it might mean for UK rail on p50-53.

In order to maximise the return on any future investment, Network Rail is currently looking to modify its procurement processes to better reflect the full life cycle costs of assets. We hear from global supplier Alstom about its range of intelligent solutions that do just that (p44-47), including its advanced signalling technology that offers higher performance yet much lower maintenance needs.

SNC-Lavalin is also looking to benefit from the increased emphasis on whole-life procurement and outlines to RAIL its ‘cradle-to-grave’ infrastructure offering that ranges from early financing and design, through to build, maintenance and operation (p48-49).

Finally, Carillion showcases its wide-ranging capabilities in the field of electrification, and an impressive ability to solve bespoke problems (p54-55).

**PAUL STEPHEN**  
Assistant Features Editor, RAIL

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# INTELLIGENT SOLUTIONS



The wiring train, running out contact and catenary wires for the ABC joint venture. ALSTOM.

## Wiring trains

The wiring train successfully deployed on the Edinburgh-Glasgow Improvement Programme allows wiring to be carried out around four times faster than a conventional process.

The advantage of the system is that the catenary and contact wire can be run out together at tension.

Also, the train splits and the registration activities can then be followed up after wiring, such that a complete wire run can be handed back avoiding multiple visits.

Additionally, the train can be used to install cantilevers and can run ancillary wires such as an earth wire or feeder, and as such provides a complete electrification wiring solution.

The Alstom wiring train is a significant step forward in high output electrification progress. The wiring train also contributes to Alstom's commitment to make railway construction safer by reducing the amount of workers trackside.

## PAUL STEPHEN finds out why Alstom is integrating its signalling and infrastructure operations in the UK and how this will help it bring broader benefits to the UK's railways

Alstom already has an enviable reputation in the UK as a global leader in the manufacture and maintenance of rolling stock.

The statistics speak for themselves; approximately one third of all daily rail journeys completed in this country are made on Alstom trains. The company has also built many of the network's most intensively used fleets, including Virgin Trains' Pendolinos, London Underground's Jubilee Line stock and the UK's first very high speed train - the Eurostar e300s.

But Alstom has many more strings to its bow, and it is now earning a growing distinction for its infrastructure design, build and maintenance capabilities, following its involvement in high-profile flagship projects, such as Crossrail, where it forms an integral part of the ATC joint venture currently fitting

out and commissioning the line's tunnelled central section.

Alstom is also a key player in the ABC Electrification joint venture, which is currently engaged in a wide range of multi-billion-pound electrification projects for Network Rail, such as the Edinburgh-Glasgow Improvement Programme.

In this area of its business activities, Alstom prides itself on having a firm commitment to a continuous cycle of investment and innovation, in order to deliver the next generation of sophisticated technologies and intelligent engineering solutions. All of these are carefully designed to improve the passenger experience while also reducing the cost and carbon footprint to the client of building and maintaining modern infrastructure.

This is perhaps best demonstrated by

Alstom signalling, which is contributing heavily to Network Rail's Digital Railway programme, that aims to establish in-cab signalling and automatic train control to boost capacity across the UK rail network within the next 25 years.

Under Digital Railways Early Contractor Involvement Framework, Alstom is continuing the development of its European Train Control System (ETCS, Level 2) and Traffic Management System for future delivery beyond its current Great Western Main Line Paddington to Heathrow programme. This will feature ETCS-controlled passenger operations in 2019, to support the incremental rollout of Digital Railway.

Alstom is also the primary contractor for conventional signalling renewals and enhancements in a large number of Network

Rail regions, and was responsible for introducing Alstom's Smartlock interlocking to the UK.

Smartlock, as a digital rail-ready computer-based interlocking (CBI), already

boasts native interfaces to ETCS and TMS and can form the heart of a modern digital rail signalling system.

This next generation CBI is a successor to the UK's current system of Solid State

**“ We're not just about delivering a standalone package, we want to make sure we offer the benefits across long-term service, continued maintenance and finally its decommissioning period.”**



Neil Warburton, Head of Signalling Engineering, Alstom UK & Ireland

Interlocking (SSI) first introduced by British Rail in the 1980s. Deployed previously to maintain compatibility with SSI installations, Smartlock supports the reuse of legacy SSI geographical data and data links.

CBI systems of this type utilise the trackside equipment associated with SSI and links with points and signals via TFM's (Trackside Function Modules).

Smartlock 400 is the latest version of this CBI technology offered by Alstom, which is also referred to within the company as Smart IO. It has been installed in Italy, Denmark, Turkey and Romania, but is currently undergoing a non-operational trial in the UK in order to demonstrate its value to Network Rail, and its multiple advantages over the increasingly outdated SSI system, such as faster and much higher capacity data transfer and acquisition.

Alstom's interlocking platform manager Don Hayward explains: "Smart IO is a new generation of control equipment that interfaces between our Smartlock central interlocking, which is managing train movements, and the trackside devices that control those movements.

"TFMs haven't changed much over the last 30 years, and are now legacy products. But with Smart IO we are able to provide new controllers for the points and signals that are faster in operation, lower cost, easier to maintain and provide better diagnostics.

"Smart IO also replaces the way TFM's



► communicate via older style networks with modern IP-based communication over fibre-optic cables. We're hoping this will give us a significant reliability improvement on existing communications arrangements, and it falls into line with modern industry practice.

"We're currently trialling it at Crewe Coal Yard, where we've put in a small installation adjacent to the track as a precursor to a first service deployment, after which we would hope to gain more general approval for its wider use."

Alstom Head of Signalling Engineering Neil Warburton reinforces the claim that Smartlock 400 would bring instant benefits to the network, including a reduction in points failures, more reliable data transfer, greater resilience to the effects of traction and a reduction in maintenance costs across the entire lifecycle of the assets. This will offer greater value for money in the long run, he stresses, than opting for lower cost or less modern signalling technology provided by alternative suppliers.

Through its ability to continue to use



**“ Integrating into one joined-up entity brings other benefits to the customer, such as allowing us to take more of the project risk.”**

**Ian Chapman, Business Development and Tendering Director, Alstom UK & Ireland**

existing SSI TFM installations, Smartlock 400 also offers a lower-cost alternative to a complete system replacement.

Warburton says: "It's not really a case of delivering projects cheaply, it is making sure we get the benefits across the whole lifecycle of the product, while offering NR significantly improved diagnostics. We're not just about delivering a standalone package, we want to make sure we offer the benefits across long-term service, continued maintenance and then, finally, its decommissioning period."

"It's also about using a lot of the technology that's already available to

us to deliver improved architecture that really addresses some of the historically weak points in the existing signalling system in use today. People will recognise points failure and train detection failure as particular issues, and we think they're two of the things we have significantly improved.

"Progressing through lab testing, we're doing the non-operational trial at Crewe, and now we're looking at the first live operational project, which will allow us to start checking its limitations.

"NR is as keen as we are to see this new technology trialled, as it is very much part of their strategy for the future to move to

## Appitrack

Appitrack is an automated tracklaying system for metros and tramways that, by eliminating human error, makes tracklaying safer, more accurate and up to four times faster than conventional methods.

It can lay 80 metres of track per day on

average, which can be increased to more than 400 metres in favourable conditions such as a straight alignment and dry weather.

It also offers lower noise and dust levels compared with conventional methods, reducing the disturbance

caused by tramway construction in neighbourhoods. Nine cities including Reims, Algiers and Nottingham have benefited from this innovative solution.

Appitrack high output track laying solution in operation. ALSTOM.



## Clever cantilever

**Steve Cox, Engineering and Technical Director S&I, Alstom UK & Ireland**



"Alstom has also developed a cantilever support system for overhead line electrification, named the CLEver Cantilever. It is compatible with Network Rail's Series 2 and Master Series ranges of electrification equipment, and has recently achieved full product acceptance by Network Rail for use on the infrastructure.

"The cantilever is lightweight, has a minimal part count, and is easily



CLEver Cantilever installed in the product acceptance trial. ALSTOM.

installed. As such it provides a safety benefit in manual handling, minimal maintenance requirements, improved

lifecycle costs and efficient installation times reduced from the conventional process."

an IP-enabled trackside communications structure, which our network would bring."

Hayward adds: "We're trying to keep the best of what we had previously with the TFMs, but in addition to that we're trying to make the system more compact, lower

cost and faster. Overall, we want to bring the cost of deployment down and push the speed of deployment up, so we can do more schemes."

As well as possessing an impressive armoury of intelligent technological

solutions, Alstom is also restructuring its operations in the UK to improve its customer offering. Alstom signalling (which was a 50/50 joint venture with Balfour Beatty until it was wholly acquired by Alstom in May 2015) is therefore being fully merged with its parent company, so that clients can benefit from a whole system approach. The intention is for Alstom to bring more of its expertise to bear on major projects, rather than specialising in delivering individual aspects, such as signalling or electrification, as part of a wider joint venture.

This means that clients who currently turn to the company for its skills and products in one area, for example ETCS or Smartlock 400, could also benefit from its wider portfolio of innovations in infrastructure delivery, such as its automatic track laying solution Appitrack, its high-output wiring train, or Hesop energy recovery system (see separate panels).

Alstom UK & Ireland Business Development and Tendering Director Ian Chapman explains: "The UK is currently a pilot for the merger of Alstom's signalling and infrastructure businesses. On a global level, Alstom is looking at what we're doing and is quite likely to follow suit."

"It's quite a change in culture and delivery, but we're starting to think more widely in the work we do. For future projects, we're looking at providing the whole systems package, including signalling and ETCS, tunnel systems, evacuation systems, overhead wires and track. We can put that together with our experience of delivering Crossrail (as part of ATC) to form a joint systems package that we will deliver ourselves."

"Integrating into one joined-up entity brings other benefits to the customer, such as allowing us to take more of the project risk, and delivering the whole system works as one to deliver outputs the client wants. But that requires clients to change how they specify work, and move from an individual element basis towards an output specification, which we can provide for them."

## Hesop

Hesop is Alstom's innovative reversible power-supply substation that is designed to optimise the power required for light rail and metro traction, while also capturing 99% of recoverable energy from regenerative braking.

By converting some of the energy emitted by trains during braking into usable power for station equipment such as lighting or escalators, Hesop increases the energy efficiency of these systems resulting in decreased carbon emissions.

Capturing this energy also removes a potential heat source, providing a cooling effect that is especially useful

to underground systems during warmer summer months.

Optimising the energy needed for traction also means the distance between sub-stations can be increased and their number reduced by 20%, thereby decreasing infrastructure costs.

Hesop is in commercial use across the world including on London Underground's Victoria Line and the Paris T1 tramway, while 32 Hesop units have been ordered for Riyadh Metro that is currently under construction.

Hesop energy recovery operating as a reversible sub-station. ALSTOM.



# THE ONE-STOP SOLUTION

**Network Rail will now be demanding long-term commitment from its contractors. But as SNC-Lavalin's MICHAEL GRACE and MATT PHILLIPS explain to PAUL STEPHEN, the Canadian firm has built its reputation on being 'in it for the long haul'**

The way rail infrastructure is procured, delivered and operated in the UK is set to undergo a considerable overhaul, as Network Rail continues to explore ways of encouraging and accepting private finance. This new approach was a key recommendation of the Shaw Report, when it was published in March 2016, as a way of increasing the number of sources available to fund enhancements and reduce reliance on the taxpayer, while also supporting innovation and growth.

Third-party funding has some precedent in the UK. The construction of High Speed 1 was privately funded, and it is now owned by institutional investors, while operated on an open access and concessionary basis.

This funding approach will be tested on a large scale once again by East West Rail, a shadow company set up by the Department of Transport in December 2016 to examine the optimum way to privately design, build, fund and then operate the former Varsity Line between Oxford and Cambridge over the next decade.

Now that EWR Chairman and former Chiltern Railways MD Rob Brighthouse has considered all the options and decided how best to proceed, he was due to present the findings of a three-month scoping report by the end of March, and before this issue of RAIL went to press.

The private sector will now be asked to step in, marking a step change from the conventional 'bid and build' tendering by the Network Rail of old.

This is where global construction and engineering group SNC-Lavalin comes in, with its worldwide experience of providing complete end-to-end project solutions. As well as engineering, procurement and construction, the company's 35,000 employees worldwide also provide financing, operations and maintenance services in a diverse range of industry sectors.

Besides power, mining, oil and gas, the company's market sectors include infrastructure, from roads, harbours, airports and bridges, through to rail and mass transit. But all share a common theme, as SNC-Lavalin specialises in addressing the full infrastructure life cycle, from equity investments and early financing through to operation.

The SNC-Lavalin Rail & Transit team was formally known as Interfleet Technology in the UK before its acquisition by SNC-Lavalin in 2011, and subsequent rebrand in January 2016. Now fully integrated into its parent company, SNC-Lavalin Rail & Transit also brings together its specialised teams in the UK with those based in the wider company's home nation of Canada.

"We are quite unique in that as well as designing and building infrastructure, we can also fund and operate it," explains Michael Grace, SNC-Lavalin's regional director, Rail & Transit UK.

"We're not yet doing all of that in the UK, but are we going to explore East West Rail or similar projects? Most definitely. We certainly have the capabilities to deliver it in full, but it will depend on the Government's

appetite for this new delivery model.

"The market conditions need to be right for us to compete with some of the other major contractors, who are perhaps better placed to just bid and build it (in the old way of infrastructure delivery) if that is how the Government decides to carry on doing it."

The company's footprint in the UK rail market also involves working in close partnership with other contractors and contributing discrete elements to a project, such as design or consultancy.

With 430 employees, spread across offices in Derby, London, Manchester, Birmingham, Glasgow and Edinburgh, the SNC-Lavalin Rail & Transit team has been able to advise clients on all aspects of rolling stock, infrastructure and rail control systems, including technologies related to high-speed rail, ETCS and electrification.

It has had high-profile consultancy roles on some of the UK's most iconic flagship rail projects including Crossrail, High Speed 2, and the Four Lines Modernisation Programme for London Underground.

But its longer-term strategy is also to play a wider ranging role and uphold the company's global reputation for providing end-to-end lifecycle services, which East West Rail could perhaps offer an opportunity to demonstrate.

This would also closely mirror the experiences of colleagues from SNC-Lavalin's Rail & Transit teams abroad, who continue to be heavily involved in major rail projects across Canada. These include the Canada Line on Vancouver's SkyTrain network, where the company deployed its



An artist's impression of Blair Station on Ottawa's Confederation Line, currently under construction and due to open in 2018. SNC-Lavalin is leading an international consortium to design, build and maintain the 12.5km light rail system, together with arranging capital for one of Canada's largest ever public-private finance deals. SNC-LAVALIN.

full range of capabilities to partially finance, design, construct, operate and then maintain the 19.5km line for a contractual period of 35 years.

The line opened in 2009 and, more than 100 days ahead of schedule, was the country's first rail project to be delivered under a public-private partnership.

On the back of that success, SNC-Lavalin Rail & Transit was able to secure contracts to help deliver a host of other large-scale rail projects throughout Canada, including forming part of the Joint Venture chosen to construct the 11km Evergreen extension to SkyTrain, which opened in December 2016.

SNC-Lavalin is also delivering the Eglinton Crossrail LRT project, for which construction began in spring 2016 to construct a 19km-long line beneath Toronto. The overall value of the project is £5.6 billion, including £3bn to maintain it for 30 years. There's also Ottawa's 12.5km-long Confederation Line, due to open in mid-2018, where a joint venture led by SNC-Lavalin is delivering all aspects of the £1.2bn project, bar its final operation.

Director of Rail Infrastructure Systems at SNC-Lavalin Matt Phillips adds: "Our strength is our cradle-to-grave solution, and all the individual elements of that. Supporting contractors in a more limited capacity is part of our key strategy in the UK, but our ambition is to grow our capabilities and the scope of what we deliver in this country towards what we do in Canada.

"The project I would highlight is the Vancouver SkyTrain, which opened up a

raft of other LRT projects for us, such as Evergreen, the Confederation Line, and the Edlington project in Toronto, plus there's another five or six that are currently entering the bidding stages."

Phillips also emphasises that the company has a strong track record not only in physical infrastructure, but also the digital modernisation of railways across the globe.

The UK's Digital Railway programme proposes the adoption of in-train digital signalling and automatic train control within the next 25 years, to increase capacity by reducing headways between trains, and squeezing out extra paths. This is expected to be a more cost-effective and less disruptive alternative to continuously building new infrastructure for the UK's fast-growing network.

Network Rail has invited suppliers to help shape the programme from its earliest stages by forming a cross-industry partnership it calls Early Contractor Involvement. NR hopes to shift the focus of procurement from short-term inputs to longer-term outcomes and performances, with suppliers investing more in developing technology and giving greater consideration to whole life costs. The timespan of contract delivery is also expected to be increased to cover the full lifecycle of digital assets, in some cases.

This is a *modus operandi* that SNC-Lavalin is already well used to elsewhere in the world, while the company's end-to-end philosophy is undoubtedly in tune with the new spirit of Digital Railway.

"We are already heavily involved in the

ETCS aspect of the programme in the UK," adds Phillips. "And we've provided a lot of technical support for ATO (Automatic Train Operation) in Canada, Australia and Scandinavia in moving it across from metros and light rail operations to the main line.

"The financing and addressing of full lifecycle costs is a key aspect of our business, so there's natural synergy there, and we're talking about ways of doing that for Digital Railway."

Finally, the SNC-Lavalin Rail & Transit team has another ace card to play which should give it an edge over competitors for Digital Railway contracts, when they are awarded. That is the company's origins in the UK as Interfleet Technology, which was formed in 1994 as part of the privatisation of British Rail from its former InterCity fleet engineering division. This gives SNC-Lavalin an unrivalled insight into not only deploying the trackside infrastructure needed for Digital Railway, but also integrating sophisticated in-cab technology into UK train fleets, many of which were inherited from British Rail and are still in service.

Grace concludes: "One of our USPs is our origins as a rolling stock consultancy, and modelling whole systems with contractors. The difficult challenge with Digital Railway is going to be moving away from conventional infrastructure and putting the intelligent systems on trains. This is where we can leverage our expertise in working with train fleets to integrate 21st century technology." ■

Michael Grace, SNC-Lavalin regional director, Rail & Transit UK (left), and Matt Phillips, director of Rail Infrastructure Systems.



“ We are quite unique in that as well as designing and building infrastructure, we can also fund and operate it.”

Michael Grace, Regional Director, SNC-Lavalin Rail & Transit UK



# What does the Industrial Strategy mean for rail?

As industry calls for better transport infrastructure, **STEFANIE BROWNE** analyses how the Government's long-term game plan for rail might look

**A**s a Chess novice, you will learn the moves of the individual pieces, analyse the possible options for tactical play and, after careful consideration, take a leap into the unknown by moving that first pawn. You know the rules, you've considered how you might respond to your opponent's reactions, but you have not yet mastered the art of strategy.

Your adversary has been playing this game for a long time. She came prepared. She has a strategy mapped out in her head and an end-game clearly in sight. She knows the part all her pieces must play to reach it and she has a backup plan, in case she makes a mistake.

Who would you bet on?

Everyone has to start with the tactical approach, responding to each opportunity as it presents itself. But harnessing long-term prospects for success requires a long-term strategy, whether you're mastering the game of Chess or running a country.

Our prospects and opportunities as a country changed significantly last summer, when the result of the EU referendum flung

**“ We will work with the Government on this, to strengthen the capability and competitiveness of the UK rail supply chain to grow business at home and abroad.”**

**Gordon Wakeford, Industry Chairman, Rail Supply Group**



Inside the redeveloped Birmingham New Street station. In conjunction with Atkins, Mace won Project of the Year in the 2016 National Rail Awards for its work on this project. Mace says that introducing mayor-led infrastructure zones as part of the Industrial Strategy would allow for more of these types of successes. NETWORK RAIL.

Britain into a period of uncertainty and, for many, fear. But whatever your views on Brexit, it is clear that the country quickly needed to make a positive step towards a plan for the future.

On January 23, Prime Minister Theresa May launched the Industrial Strategy. "It is a

plan for a nation that stands tall in the world and succeeds in the long term," she said. "And it is a critical part of the plan for a post-Brexit Britain."

The Green Paper she released provides a set of proposals for discussion and consideration, with an invitation for anyone

with an interest to respond with their thoughts - "it is not intended to be the last word, but instead to start a consultation".

Of course, this means that the Government is likely to be inundated with responses from all kinds of sectors, which could be counterproductive for those that do

not present a collaborative, joined-up view.

With that in mind, the Railway Industry Association is preparing to respond to the consultation on behalf of the Rail Supply Group and their members, and Rail Forum East Midlands and Rail Alliance will also be responding on behalf of their respective

members.

In calling for a joined-up approach, Rail Alliance said: "It is clear that the Government will listen most closely to those sectors which are consistent and coherent in expressing both their needs and the potential economic benefits throughout



**“ Good transport infrastructure does not just reduce delays; it can raise productivity by enabling towns and cities to achieve agglomeration effects.”**

**Building Our Industrial Strategy, HM Government, January 2017**

► the UK. Response to this consultation will be very important for the industry as a whole, and for the supply chain in particular, so the more that response can be informed by experience and expertise the better.”

Gordon Wakeford, industry chairman of the RSG, supports the view that we must get this strategy right: “We will work with the Government on this, to strengthen the capability and competitiveness of the UK rail supply chain to grow business at home and abroad. If we are clever with our approach, it’s not just the current UK rail industry that will benefit from increasing investment in the railway, jobs and opportunities can be cascaded across the entire country.”

So what will they be responding to?

The paper states that a modern industrial strategy must:

- build on its strengths and extend excellence into the future;
- close the gap between the UK’s most productive companies, industries, places and

people and the rest; and

■ make the UK one of the most competitive places in the world to start or grow a business. Ten pillars underpin the proposed way forward for the Industrial Strategy and form the basis of what the Government seeks consultation on (see panel, below). Several of those pillars could be of significance to the rail industry, but one in particular has attracted a public response from rail companies: upgrading infrastructure.

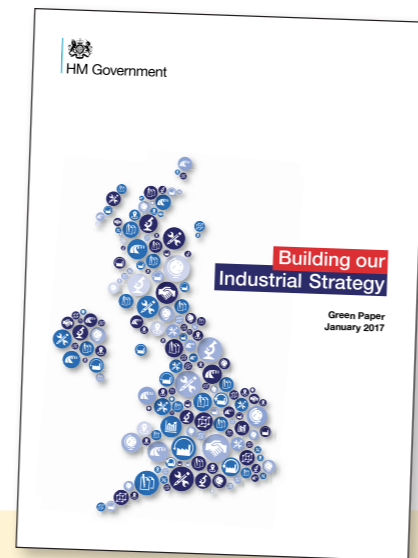
In a report released shortly ahead of the Government’s Green Paper, construction firm Mace describes the need to put construction at the heart of the Industrial Strategy, suggested as part of a series of policies to boost productivity and regional growth.

“Poor infrastructure in the UK, particularly in transport, is holding back our economic growth and the attractiveness of Britain as a place to invest,” says the report. Analysis by the World Economic Forum

recently ranked the UK 24th in the world for quality of transport infrastructure, meaning we’re behind countries such as Iceland and Portugal.

The same research showed that every pound spent on capital projects (including transport) delivers between 5% and 25% economic return.

Mace highlights that the Prime Minister’s goal, to create a more geographically balanced model of growth for the UK, is currently being prevented by the poor state of transport outside of London, and that better regional connectivity is vital to enable growth.



**THE TEN PILLARS OF THE INDUSTRIAL STRATEGY**

**INVESTING IN SCIENCE, RESEARCH AND INNOVATION** - we must become a more innovative economy and do more to commercialise our world-leading science base to drive growth across the UK.

**DEVELOPING SKILLS** - we must help people and businesses to thrive by: ensuring everyone has the basic skills needed in a modern economy; building a new system of technical education to benefit the half of young people who do not go to university; boosting STEM (science, technology, engineering and maths) skills, digital skills and numeracy; and by raising skill levels in lagging areas.

**UPGRADING INFRASTRUCTURE** - we must upgrade our standards of performance on digital, energy, transport, water and flood defence infrastructure, and better align central government infrastructure investment with local growth priorities.

**SUPPORTING BUSINESSES TO START AND GROW** - we must ensure that businesses across the UK can access the finance and management skills they need to grow; and we must create the right conditions for companies to invest for the long term.

**IMPROVING PROCUREMENT** - we must use strategic government procurement to drive innovation and enable the development of UK supply chains.

**ENCOURAGING TRADE AND INWARD INVESTMENT** - Government policy can help boost productivity and growth across our economy, including by increasing competition and helping to bring new ways of doing things to the UK.

**DELIVERING AFFORDABLE ENERGY AND CLEAN GROWTH** - we need to keep costs down for businesses, and secure the economic benefits of the transition to a low-carbon economy.

**CULTIVATING WORLD-LEADING SECTORS** - we must build on our areas of competitive advantage, and help new sectors to flourish, in many cases challenging existing institutions and incumbents.

**DRIVING GROWTH ACROSS THE WHOLE COUNTRY** - we will create a framework to build on the particular strengths of different places and address factors that hold other locations back - whether it is investing in key infrastructure projects to encourage growth, increasing skill levels, or backing local innovation strengths.

**CREATING THE RIGHT INSTITUTIONS TO BRING TOGETHER SECTORS AND PLACES** - we will consider the best structures to support people, industries and places. Some places and sectors may be in need of institutions, which we could create, or existing ones we could strengthen, be they local civic or educational institutions, trade associations or financial networks.

Source: Building our Industrial Strategy Green Paper, January 23 2017.

**SECRETARY OF STATE FOR INDUSTRIAL STRATEGY**

**“Our aim is to establish an industrial strategy for the long term - to provide a policy framework against which major public and private sector investment decisions can be made with confidence. It is therefore vital that the full development of our industrial strategy should take place with - and not just for - British enterprise. The full involvement of innovators, investors, job creators, workers and consumers in England, Scotland, Wales and Northern Ireland is the only basis on which we can produce an enduring programme of action.”**

**Greg Clark, Secretary of State for Business, Energy and Industrial Strategy**



Says Mace: “Our own research, conducted by a former Treasury economist, confirms this and shows that even modest improvement schemes, such as road widening or rail signalling enhancements, particularly at pinch points, would deliver huge benefits. The analysis shows that small interventions that made average journey times between major cities outside of London just 60 seconds faster would deliver economic benefits of £3.4 billion each year.”

Mace sets out four “essential policies that are needed to help kick-start the UK’s post-EU industrial renaissance”.

The first is to give the UK a competitive advantage by investing in research and development. Mace says that the construction sector is lagging behind others in regard to innovation and productivity, and that leaving the EU means we need to recognise the crucial role the sector has to play in making the UK an attractive place to invest. The firm also calls for policies to be put in place to incentivise innovation.

The second policy suggested is the creation of mayor-led infrastructure enterprise zones. Mace believes that the devolution agenda will help efforts to rebalance the economy geographically, but that more powers over the local economy should be given to mayors in areas where there is a proven case that devolving such powers leads to economic benefits. The report cites the redevelopment of Birmingham New Street station (for which Mace won a National Rail Award in 2016), London St Pancras and King’s Cross.

Says the report: “These show how infrastructure, retail and housing can combine to produce important local zones of new jobs and growth creation - but in many other areas a boost of financial incentives is required to kick-start the development of local markets.”

The third policy is about drawing talent to the north - and keeping it there. Mace says the “brain drain” to the south is stifling economic development in the north and must be tackled as an urgent priority. The suggestion is to set up a National Civil Service Fast-Stream College in a major northern city (such as Manchester or Leeds),

which would attract northern graduates and others with technical skills to begin a career in the senior civil service. This would then be used to work with regional employers to create industrial placements in the north.

The fourth and final policy is about devolved transport delivery bodies. Mace says: “London’s world-renowned public transport network is a direct result of power being handed to the mayor. This model has been replicated to some degree with Transport for the North, but we believe that body needs greater independent power, and the model should be replicated in every major region.”

Since publication of this report, Secretary of State for Transport Chris Grayling has given his support to Transport for the North’s independent statutory status proposal to become England’s first sub-national transport body, so some of this is already under way.

While the Industrial Strategy sets out that infrastructure is a supporting factor to the other pillars, it specifically refers to the role that transport infrastructure has to play:

“Good transport infrastructure does not just reduce delays; it can raise productivity by enabling towns and cities to achieve agglomeration effects, and so support the rebalancing of our economy. Better connected towns and cities have deeper labour markets, greater competition and greater economies of scale, leading to higher growth and living standards. This is one reason the Government is supporting the development of major infrastructure projects like Northern Powerhouse Rail and the Midlands Rail Hub - to join up towns and cities more effectively, and enable them to pool their labour markets and economic strengths. HS2 is driving major regeneration schemes across the UK, and has already played a role in attracting significant new investments.”

Mark Elsey, infrastructure partner at law firm Ashurst, is pleased to see the Government’s commitment to improve transport because it is key to business efficiency and growth. However, there are challenges.

Says Elsey: “Against a background of an investment backlog and continuing budgetary constraints, the challenge for the Government is to establish clear priorities and to create the requisite delivery capability. Bringing in private sector investment and innovation still requires careful planning and smart procurement by the public sector. The big question is whether Government Departments, the National Infrastructure Commission and the Infrastructure Projects Authority are properly resourced and empowered to respond to this delivery challenge.

“Delivering on an effective and wide-ranging infrastructure programme will be resource intensive at a time when the Government is already facing significant resource challenges in meeting the huge legislative and trade burden arising from Brexit.”

It is clear both from the words of the Industrial Strategy itself and those of people in the rail industry that Brexit represents both an opportunity and significant challenges in creating a strategy that will deliver the desired benefits. Consultation on the strategy closes on April 17 - it will be interesting to see how the Government reacts to the advice of the rail and wider transport and infrastructure communities in forging ahead with Britain’s Industrial Strategy. ■

**QUESTIONS FOR CONSULTATION**

The Industry Strategy consultation seeks answers to the following questions with regard to infrastructure. It states that these are intended to complement the work already under way by the National Infrastructure Commission, which issued a call for evidence earlier in the year.

- Are there further actions we could take to support private investment in infrastructure?
- How can local infrastructure needs be incorporated within national UK infrastructure policy most effectively?
- What further actions can we take to improve the performance of infrastructure towards international benchmarks? How can government work with industry to ensure we have the skills and supply chain needed to deliver strategic infrastructure in the UK?

Link to the Industrial Strategy: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/586626/building-our-industrial-strategy-green-paper.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/586626/building-our-industrial-strategy-green-paper.pdf) (or <https://goo.gl/3wSWXB>)



# PULLING IT ALL TOGETHER

**DAVID DISKIN** wears many hats - as operations director at Carillion's rail business, he's currently responsible for delivering a number of electrification projects. Each has its own challenges...

## Midland Main Line electrification

Under the Midland Main Line electrification contract, Diskin acts as the common denominator between the Carillion's rail business and Carillion Powerlines (CPL) teams working on the project - the former on the enhancements and civils and the latter delivering the electrification. While the whole project will involve wiring all the way from St Pancras to Sheffield, the current focus is on the section from London-Corby, due for delivery in December 2019.

The project has had a difficult inception - it was paused in 2015, then 'unpaused' last summer. But fortunately, Carillion's sheer size and capacity meant that it had the resources and experience to handle any setbacks.

Diskin is particularly proud of the way the business was able to transfer the available skills from MMLE to augment other projects across the business.

"We already had a significant number of people ready to do the electrification work back in 2015 and, when it was paused, it was a case of reallocating people across the business without any redundancies or loss of key staff. Retaining all that expertise was a real triumph.

"Many of those people were relocated

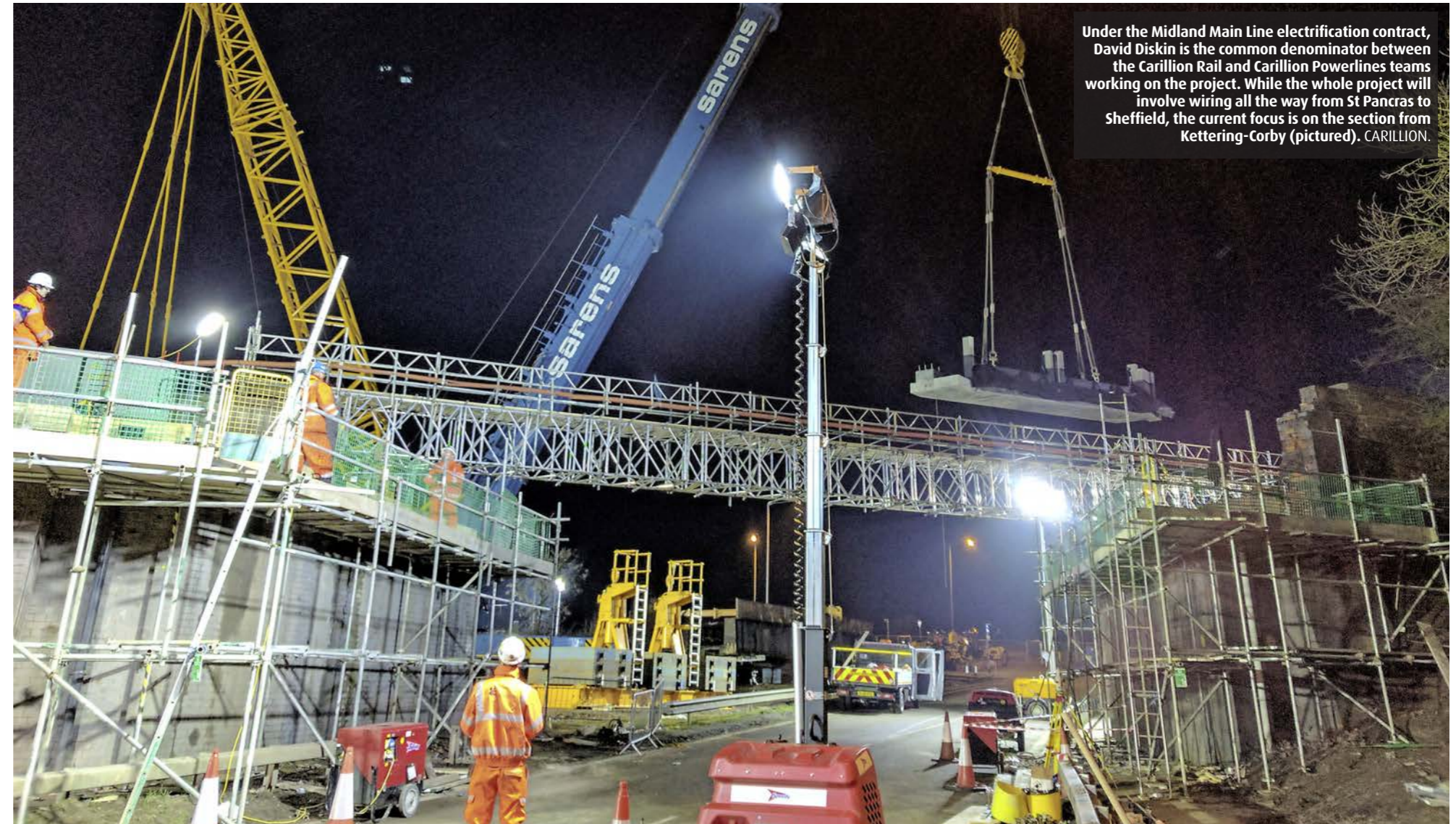
to work on the North-West Electrification Programme [see separate panel]. The speed at which we un-paused and re-mobilised everyone, so we are in a strong position to start work in the summer, was also a big achievement. This now means we can start getting the delivery plan in place for completion for 2019 (the end of CP5).

"The size of our operations meant that we were able to mobilise between 120 and 130 people in a relatively short time, and we forecast 130 people by the end of the summer. That's been a positive thing. And it's strengthened the relationship that we have with the joint venture partners, in terms of bringing people from across the UK and from abroad.

"Carillion is a huge global construction business, which gives us access to a much larger pool of personnel, and their skills can be transferred from other disciplines."

Adds Diskin: "We have people in power and distribution working for the National Grid, so we've brought people in from there. They've also spent time in other parts of the business. It is always good to develop those people further, and be able to redistribute them."

It is vital on this project that the two



Under the Midland Main Line electrification contract, David Diskin is the common denominator between the Carillion Rail and Carillion Powerlines teams working on the project. While the whole project will involve wiring all the way from St Pancras to Sheffield, the current focus is on the section from Kettering-Corby (pictured). CARILLION.

separate streams of work for Carillion's rail business and CPL are delivered in complete harmony, which is part of the reason why Diskin is the linchpin between the two.

"The scope of the two pieces of work completely complement each other. The enhancements works that we are doing align completely with the operational requirements of electrification and the rolling stock. Ultimately, the two scopes of works join together in terms of being a combined piece of infrastructure."

## North-West Electrification Programme

Diskin is also one of the people spearheading the Collaborative approach to delivery of phases 4 & 5 of the North-West Electrification Programme. This project is key to the Northern Powerhouse vision. This part of the programme involves £160 million of work and will need to be completed and ready for rolling stock - an extremely challenging task.

Says Diskin: The scheme has been in development for quite some time, with Carillion's involvement around 18 months thus far. There have been a number of changes along the way which Carillion has had to adapt to, and adopt, in order to focus on our primary aims - namely delivering the design to a programme and to a fixed budget.

"We're working closely with the client, Network Rail and all the other delivery partners in a new collaborative environment. To cement this unique

partnership, we are all working in the same office to meet the same standards and goals."

This is what makes the project stand out - the collaborative environment.

"We've established a close-knit team here with Network Rail that is, in many ways, the perfect example of a positive working environment."

With people working together in this way, is there any danger of complacency?

Diskin is convinced that they have found the right balance on the North-West scheme: "There is a good level of tension and challenge there, but it is balanced with curiosity.

"And there is always someone on hand who can give you the right answers. We believe we have found the right formula for success. Our unique, innovative delivery model keeps the working environment vibrant and

interesting and the experience gained here will enable us to lay the foundations to take the successful collaborative approach to other projects."

Diskin is certainly a champion of breaking down the traditional barriers to working collaboratively, and wants to use the lessons learned to break them down elsewhere.

... but each of these projects has one big thing in common - the need for seamless collaboration between and within teams.

They are all challenging in terms of timescale and budget, and having everyone work towards the same goal with no logistical barriers is the only way to successfully complete the work. People such as Diskin, with experience of collaboration across multiple projects, mean the benefit of that experience is transferred to all future jobs. ■

## Shotts Line electrification

A £50 million scheme, electrification of the 23-mile (35km) stretch of line between Holytown Junction and Mid Calder Junction in Scotland has just begun. Carillion is delivering the work as part of a joint venture with Powerlines (the CPL joint venture). Diskin is particularly pleased about winning the contract because it is a first for Carillion on the National Electrification Programme.



**“ We’ve established a close-knit team here with Network Rail that is, in many ways, the perfect example of a positive working environment.”**

David Diskin, Operations Director, Carillion





The **RAIL** 100 Breakfast Club

# The **RAIL** 100 Breakfast Club

## JOIN THE RAIL 100 BREAKFAST CLUB

Launched in 2003, the RAIL 100 Breakfast Club is a business networking club for the industry's senior managers. It helps members keep abreast of current topics within the industry and gives them the ability to discuss these with their peers.

Membership includes attendance at four breakfast meetings and a networking dinner. At each breakfast meeting, after enjoying a Full English Breakfast, a high-level speaker talks on topical issues in the industry.

Past speakers have included:

- **Mark Carne**, Chief Executive, Network Rail
- **Patrick McLoughlin**, Former Secretary of State for Transport
- **Peter Wilkinson**, Managing Director – Passenger Services, DfT
- **Lilian Greenwood**, Former Shadow Transport Secretary
- **Claire Perry**, Former Rail Minister
- **Sir Peter Hendy, CBE**, Chairman, Network Rail
- **Anthony Smith**, Chief Executive, Transport Focus
- **Nicola Shaw**, Former Chief Executive Officer High Speed 1
- **Geoff Hobbs**, Director of Transport Planning, TfL



Membership to the club is restricted in terms of numbers and type of company. If you would like to be considered for membership, contact [cristina.melenchon@bauermedia.co.uk](mailto:cristina.melenchon@bauermedia.co.uk)

### 2017 DATES

July 6  
October 5

### Dinner

Date and venue to be confirmed

### Venue

Regency Room  
Simpson's-in-the-Strand  
100 Strand  
London  
WC2R 0EW

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