

# Building Back Better...

**Industry leaders discuss rail's role in economic recovery and the vital part infrastructure investment will play**



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# RailReview

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# Michael Holden RailReview

## Editorial Board Chairman



# Q4 The future of rail

Our railway network is facing a crisis like no other, and one that is threatening to become existential - rather like the canals did during the railway mania. How the industry responds to this will determine whether or not our railway network is pruned back and services are slashed on its main lines and commuter routes.

We can see that changes in rail's core markets were already under way well before the arrival of COVID-19. Season ticket use, the bedrock of income for the London commuting area, had declined by 17% over the previous three years. And technological change was on a scale ready to cause significant disruption to rail - from the shift away from conventional retailing into digital, to the rise of the electric road vehicle.

It was clear at the beginning of 2020 that the rail sector needed to change its approach in a number of ways, to respond to the changing world around it. But even then our railway was struggling to adapt: its inability to drive reform of fares and ticketing, to determine a decarbonisation programme, to tackle its high cost base, to modify its franchising model, and to carve a niche in logistics to tackle the growth in road-based parcel distribution are just five relevant examples. There are more.

What's happened since March 2020 has made the need for change all the more urgent, while simultaneously disabling the industry from making positive change happen. Government has taken decision-making back in-house, and most of the industry's effort has had to go into managing the immediate impact of the pandemic. At the time of writing, this short-term focus continues - at least among the franchised train operators, as they each attempt to renegotiate their agreements with the Department for Transport in such a way that they can remain in the game.

Nine months into this crisis, and as we approach the turn of the year, it's time to take a quick pulse check of rail's competitive position right now, by noting some threats and opportunities.

First, let's look at some opportunities.

■ A new generation of trains is arriving, many of them with far improved accessibility, to enable a growth segment of the market to be much better served.

■ The reduced level of train services now being run has transformed punctuality and reliability for the better. Surely regularity is rail's biggest USP? It's a marketing opportunity too good to overlook.

■ A fast-growing staycation market offers opportunities for rail to grow its share of the leisure market, although it will need to adjust its approach to the timing of engineering works.

■ Just 60% of 'Generation Z' hold a driving licence today, compared with 94% of those aged 54. There's a growing youth market out there, ready to be tapped.

■ Developments in digital ticketing means that it is entirely feasible to move away from existing paper-based ticket products, move transactions largely online or self-served, and eliminate the traditional ticket selling architecture with its high cost base burden.

■ Straitened times, coupled with reduced trade union power given the weakened demand for commuting travel, means that there is a once-in-a-generation opportunity now to reset the pay and conditions package for rail staff, especially traincrew.

■ With road travel back up to over 90% of its pre-pandemic levels, there is a limit to how much more modal shift away from rail our conurbations can take.

■ With a long-term reduction in commuting now inevitable, the industry can divert most of its enhancements project capability away from expensive schemes designed to create additional peak capacity, and place it squarely into making a step change in infrastructure reliability through developing much better maintenance and renewal regimes.

But there are also a sizeable number of threats out there.

■ The Office of Rail and Road predicts 27% less commuting after the pandemic than before. Even if this amazingly precise value turns out to be not quite right, nobody now expects it to return to how it was before. A quarter less revenue from commuting is a sufficient reduction to break the pre-existing cost model of the industry.

■ The rapid development of electric cars that are able to travel much greater distances without charging, coupled with the imminent rise of the 'charging café', means that rail is fast losing its green competitive edge. Without an effective and rapid decarbonisation strategy being adopted and funded, rail will increasingly be seen as an environmentally toxic brand, and this will probably happen surprisingly quickly.

■ The rise of nimble, tech-based disrupters is accelerating. CityMapper, for example, can propose different routeings direct to customers, by-passing existing industry systems and causing potential loss of revenue allocation to rail.

■ Vehicle automation is on the cusp of a revolution. Not perhaps the 'no driver' scenario anytime soon, but car journeys that enable drivers to make much more effective use of their driving time are now imminent on our roads, and will undermine another of rail's existing USPs.

■ Developments in Artificial intelligence and Augmented Reality may further reduce the requirement for physical travel for work or business.

■ The same 'Generation Z' who lack driving licences is also increasingly driven by trust in brands as the key determinant of how and where its purchasing power is spent. Rail's 'brand' among this group is probably somewhere akin to estate agents just now.

*"What's happened since March 2020 has made the need for change all the more urgent, while simultaneously disabling the industry from making positive change happen."*



**Kennet and Avon Canal. Michael Holden points out that the railways superseded canals as the primary mode of transport for inland goods inside a single generation, and that if we're not careful, the same thing could happen to the railway... ALAMY.**

■ Devolution appears to be dead for the time being, meaning that the industry once again has to be able to work effectively at national level with a government which is overtly hostile to the railway's high fixed cost base, to its sluggish ability to adjust timetables, and to its general approach.

### An existential threat

The impact of the pandemic in 2020 has created a burning platform. I would argue that the railway needed a burning platform in order to create sufficient momentum for change. But unfortunately this particular burning platform has mutated into something more like a wildfire, sweeping everything before it.

The appalling tragedy of this wildfire for our railway is the seeming inability of the industry to create any sort of firebreak. In the meantime, to extend the burning metaphor just that little bit further, the flames have already consumed the buildings and are now destroying the foundations.

In my opinion, the extent of the damage caused to the railway industry's existing operational model is such as to pose an existential threat to it. Financially broken, the industry must learn to adapt fast if it is to survive at scale.

Most people working in today's rail industry have never had to cope with a problem of falling demand. I think it's fair to say that the industry is struggling to adapt. If we are to tackle the threats and exploit the opportunities out there, we must learn to become very much more agile and fleet of foot.

A two-year timetable development

timescale is no longer appropriate when timetables need to be re-written within days of changed circumstances. But at the same time, certainty of train times over an extended booking horizon is a basic requirement. Somehow the industry must square this circle, and I'm sure there are ways it could do so if someone took the lead.

It also needs to get much more agile in adjusting detailed resourcing plans such as fleet and crew diagrams, traincrew rosters, and deployment of key plant, to respond to short-notice changed requirements.

For a business dependent upon its own logistics, the industry displays a breathtaking degree of inflexibility to move quickly to adapt to changing circumstances. Compare this with how fast supermarkets adjusted their supply chains, delivery logistics and shop layouts to changing patterns of food consumption at the beginning of lockdown in April 2020.

Experience from other sectors and from history tells us that rail has no innate right to survive the changes going on around us. Canals were superseded by railways as the primary mode for transport of inland goods within a single generation. This could happen again once electric cars, semi-autonomous vehicles, truck platooning and electrified motorway lanes for trucks get a hold - and it could happen much faster than we think.

Look what happened to Kodak when it ignored the rise of digital cameras. Look how fast Amazon has stolen the market from the High Street. Look how fast Netflix has grown from nothing to its current position serving 190 countries, 130 of which were entered in just one six-month period!

Look how fast the tablet moved from 0% to 50% of consumers within just five years! And this was something that no one realised they needed until Bill Gates invented it.

### High cost base

It seems vital to me that the industry now moves to tackle its high cost base, which has become simply unaffordable. It's become clear in recent months that the Government has seized on its ability to occupy the driving seat to initiate such an attack.

A source inside government is quoted in an article by Andrew Gimson, published on the Conservative Home website at the end of November 2020, describing train drivers as "fantastically overpaid and inefficient".

The same article reveals that a rail reform committee, under the chairmanship of the Secretary of State for Transport, has been meeting weekly since March. This committee isn't just dependent on the civil service, however, it also includes Keith Williams, Sir Peter Hendy and Andrew Haines, so it's clearly being advised by experts. The Secretary of State has also been giving cross-industry review remits to both Sir Peter Hendy and Andrew Haines in recent weeks, so the direction of travel organisationally is becoming clearer, too.

The DfT is now issuing instructions to rail franchisees around their mandates for pay reviews across the industry. This will put an end to the years of inflationary pay increases being conceded with a gun to the head, but will most likely lead to some industrial strife. If not now, when?

There is probably a sweet spot to be found in industrial relations in 2021, by ►

► trading off superior pay deals for revised terms and conditions to make staff more productive and flexible. I trust the industry will seize this opportunity and not simply argue for pay freezes as the sole means of reducing the cost base in real terms.

There is also an opportunity here for the railway trade unions to step up to the plate to look after their members' long-term interests - protecting jobs through productivity and more flexible ways of working, rather than trying to further 'up' the hourly rate which will most likely lead to a smaller industry.

The railway in 2021 will need less rolling stock than it did in 2019. But during 2020, many new trains have been brought into service and some older trains retired. There is now a need to take some older stock off-lease, to reduce the costs of running franchises. This will require cross-industry collaboration to manage a suitable cascade, and for ROSCOs to 'take one for the team' in the process.

Engineering planning processes need to be adjusted to enable longer, regular, cyclical overnight possessions to reduce maintenance costs and improve asset reliability. To enable this, first and last services on chunks of the network need to be adjusted to create the maximum additional working time for the minimum loss of service. And the 19th century approach to workforce protection, using detonators, flags and short circuiting straps, needs to be overthrown with 21st century approaches that are much faster and cheaper to implement.

Finally, the industry is going to have to get better at working together to avoid waste and inefficiency. I think it has become inevitable of late to conclude that this will require some retrenchment from the principles of the 1993 Railways Act, so we are likely to see steps towards closer vertical integration.

Hopefully this will be accompanied by delegation of much of the 'doing' part of the Department for Transport's role to a new body, which will incorporate Network Rail and take responsibility for managing whatever replaces the old franchise programme. It also needs to take in house the cross-industry support systems currently sitting within the Rail Delivery Group.

### Adapting to changing markets

Adjusting to a future that has more leisure demand but less commuting and business travel requires a fresh approach to the leisure



**Walsall-Rugeley electrification work in 2018. Michael Holden says that we need a rolling programme of electrification... and we need it now! NETWORK RAIL.**

and staycation market. There is a need to review service patterns, the on-board offer, facilities for luggage and cycles, station facilities, connectivity with other modes for 'last mile' part of journeys, fares and the booking horizon. In short, rail needs to be able to compete with both air and coach, as well as becoming a viable competitor to the private car for leisure trips.

This also requires change to some long-held assumptions about when engineering works should take place. There is never an easy time to close the railway for renewals, but repeatedly interfering with weekend services is going to be another sacred cow that has to be abandoned.

### Decarbonisation

Enough of all the talk! We need a rolling programme of electrification - and it's needed now.

Standardised design and implementation, a reorganised supply chain, a strategic approach to grid feeds, and a long-term commitment to complete the programme by 2050 are all required in order to get unit costs to the point where electrification becomes affordable again.

Network Rail has done much of the hard work already, with its new strategy document. Now we need an injection of confidence and money to enable a fully integrated programme to be established. Only by doing this can rail hope to retain its

environmentally-friendly credentials, and fight off the threats from road transport.

We can be sure that roads will be steadily decarbonised over the next 20 years, and there is a risk that what's left of the railway industry will still be discussing it then.

### How to make this happen

We could perhaps summarise the immediate objective as: demand up, cost down. Rail needs to actively grab its old market back (to the extent that this is possible) and to develop new markets, while reducing its cost base.

But will this happen with the industry under tight government control? There is plenty of evidence all around us of the dead hand of government, but just a glimmer that the current Secretary of State recognises this and wants to do something fundamental about it. 2021 needs to be the year when government acts to adjust the industry structure, to create an organisation sitting outside the DfT which acts as the industry leader and co-ordinator.

There is also a need for the industry to help the Treasury to understand the need for change to the fares system, and to overcome its view (held strongly until now) that commuting will return to pre-pandemic levels and that this will solve the ongoing revenue challenge. I don't know anyone in the industry who still thinks this is a tenable position.

Now is the time to be bold on fares. Rail needs to put forward its most trusted leaders, backed by strong econometric analysis, to demonstrate that a better way forward is possible, and to argue the case intensively until the Treasury is persuaded.

If not now, when? If not you, who? ■

*"2021 needs to be the year when government acts to adjust the industry structure, to create an organisation sitting outside the DfT which acts as the industry leader and co-ordinator."*

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PAUL CLIFTON examines the Government's *National Infrastructure Strategy*, which details its intention to invest in transport, energy and industry to boost economic growth and meet decarbonisation targets, and asks...

# What's in it for rail?

The long-awaited *National Infrastructure Strategy* (NIS) was published in late November. But if the rail industry was expecting guidance on specific strategies for its sector, then it was sorely disappointed.

Subtitled *Fairer, Faster, Greener*, the document reads like a manifesto for transport, energy, broadband and construction, and for the Government's carbon reduction aspirations.

Most of the rail schemes mentioned within its 100 pages have been previously identified. Many have been planned for years. There is emphasis on getting shovel-ready projects off the ground. By definition, these are not new ideas.

For rail, there was little to see in terms of major policy announcements. But the Government's willingness to spend vast sums on new infrastructure can only be to rail's benefit.

## IS IT A "RADICAL IMPROVEMENT"?

That's what the Government calls it. It goes further, describing it as "an infrastructure revolution".

Perhaps 'radical' is stretching a point. It isn't a revolution. But if it eases the stop-start nature of transport investment, accelerates project delivery, and helps meet carbon reduction and 'levelling up' targets, then it is a change for the better. It reflects Project Speed (see pages 66-75).

Deep inside, away from the front-page rhetoric, the strategy is described as a "step change" in the approach to infrastructure. That has a greater ring of truth.

The most genuinely radical transport change is outside the control of this strategy, but it has been adjusted to reflect it. The NIS assumes that city centres will recover from the pandemic, and that aviation will return. But it states that the shift to working more from home is likely to endure.

In his introduction, Prime Minister Boris Johnson says: "Some of our infrastructure needs will change because of COVID-19."

Large sums will be spent on better broadband, which will have an impact on travel choices.

## IS IT LATE?

Yes, like everything else in this pandemic-ravaged year.

Chancellor Rishi Sunak had been expected to unveil this strategy document alongside his 2020 Budget back in March. The Treasury delayed it, saying it was aligned to outdated climate change targets and that it needed to reflect the 2050 net-zero ambition.

It was further affected by the need to create a new National Investment Bank to fill the role left by the European Investment Bank as the UK completes Brexit.

## HOW MUCH MONEY?

The Prime Minister claims this "new industrial revolution" will "create and support up to 250,000 jobs". Which is a remarkably imprecise statistical statement.

The NIS states that £27 billion will be spent on infrastructure in 2021-22. This is a "record level" of spending on strategic roads, rail, flood defence and broadband, and part of "the highest sustained levels of public sector net investment as a proportion of GDP since the late 1970s".

## WHAT IS RAIL'S SHARE?

It's not possible to say. This is a high-level strategy document, and it is short on specifics for the railway.

The NIS reaffirms commitment to HS2. We knew that.

It confirms pump priming funding for a list of ten 'Reversing Beeching' proposals. We knew about those, too.

In his foreword, the Prime Minister says: "We will restore many of the rail services lost in the Beeching cuts."

*Many?* Does the Prime Minister appreciate that nearly a third of the network, 5,000 miles of track and more than 2,300 stations were closed? Define "many".

Sources suggest that there is strong pressure to hurry along with a proposal to reopen the Fawley branch in Hampshire, because (despite the Prime Minister's bold assertions) it may be the only one of the 'reversing Beeching' schemes that can definitely be carrying passengers before the next General Election in 2024.

'Reversing Beeching' was actually an election manifesto commitment and came with a price tag of £500 million. Feasibility studies will "provide a basis for decisions on further development".

Ten schemes are covered. The Government will provide feasibility funding for a further 15 proposals, include Stratford-upon-Avon to Honeybourne, a station at Langport in Somerset, reinstating rail access to Cirencester, and "restoring services between Swanage and Wareham". That last one has been promised for the past five years, with funding given to the Swanage Railway and vehicles already restored for that purpose.

However, for roads, the information is a bit more detailed: £27bn for strategic roads, including the A66 between Penrith and Scotch Corner, the Lower Thames Crossing and the highly controversial A303 Stonehenge tunnel; £950m to improve grid capacity along key roads and motorways, to enable electric vehicle uptake; £90m for on-street charging points; £120m to deliver 500 zero-emission buses in the next year.

There's even £20m for maritime and £21m for aviation trials of low-carbon fuels.

## RAIL'S PLACE IN NET CARBON ZERO 2050

There's an entire chapter in the strategy document called 'Decarbonising the economy and adapting to climate change'.

But within it, there is no mention of (for example) a rolling programme of electrification to decarbonise what is already the greenest form of mass transport.

There's a promise of "significant investment" in offshore wind, £1bn for carbon capture and storage, £1.3bn for the aforementioned electric car charging infrastructure "to accelerate the mass adoption of electric vehicles", and just over £0.5bn to "bring forward" nuclear technology. There is plenty to read about promoting lower-carbon domestic heating. And there is an unspecified sum to scale up hydrogen production.

But what about electrification, accepted as the primary way to take carbon out of the railway?

Nothing. Not a word. Just a line within a single sentence buried deep at the bottom of page 57: "...the Government wants to increase the share of journeys taken by public transport, cycling and walking, and decarbonise buses and trains."

The strategy states that the Department for Transport is developing a "bold and ambitious" transport decarbonisation plan to achieve



Source: South Western Railway/Network Rail/Three Rivers Partnership.

**The Fawley branch is perhaps the only one included in the 'Reversing Beeching' schemes that could be carrying passengers by 2024.**

net zero emissions across all modes of travel - "the biggest piece of work the Government has ever done to tackle greenhouse gas emissions from transport".

It is, of course, unsurprising that the focus should be on road rather than rail. After all, it accounts for more than 90% of transport emissions and is a major contributor to poor urban air quality. There is plenty to say about buses, which represent more than 50% of all public transport journeys, and which remain overwhelmingly diesel-powered.

**RAIL'S ROLE IN LEVELLING UP**

"Many of the UK's largest cities have below average productivity relative to their size and population, in part due to high congestion and poor local transport," notes the strategy.

In regional cities: "Public transport lags behind continental peers. This is why the Government will invest in the North, Midlands and South West to help rebalance the UK economy."

It adds that stopping development on Crossrail 2 "frees up investment to raise the performance of public transport in the regional cities".

It then lists spending commitments. You have to be careful not to read these as new announcements, as most are repetitions of what has previously been agreed.

A further £4.2bn will be shared among eight city regions in 2022-23. Examples include a redevelopment of Sunderland Central station and work on the MetroWest rail services across Bristol. But it's fair to say that the majority of schemes listed are for road transport. The £27.5bn for strategic roads over this Parliament represents a 60% increase over the previous five years.

Hyperbole alert: "The railways helped to build modern Britain, so as well as building HS2, the Government is also boosting the classic rail network. Over the remainder of Control Period 6, the Government will invest £17.5bn to renew and upgrade the railway system."

How much of that was not previously committed? It avoids saying. Likewise, it commits only to "progressing the East West Railway". Define "progressing".

**WHAT HAPPENS NEXT?**

The Railway Industry Association has criticised the lack of specific detail in the NIS. We should know considerably more in the first half of next year.

HM Treasury is strongly encouraging all Government departments and their agencies to progress approved and funded projects into procurement and contract without delay. This includes publishing a comprehensive *National Infrastructure and Construction Pipeline*, with the next update in spring 2021.

This isn't the final word on the Government's infrastructure plans - it represents the first step of a multi-year process.

The NIS needs to be seen in the context of alterations to the 'Green Book', which sets out the way officials assess public spending plans.

By previously relying heavily on a scheme's Benefit:Cost Ratio, it was felt the guidance mitigated against investment in poorer areas of the UK, prioritising the South East.

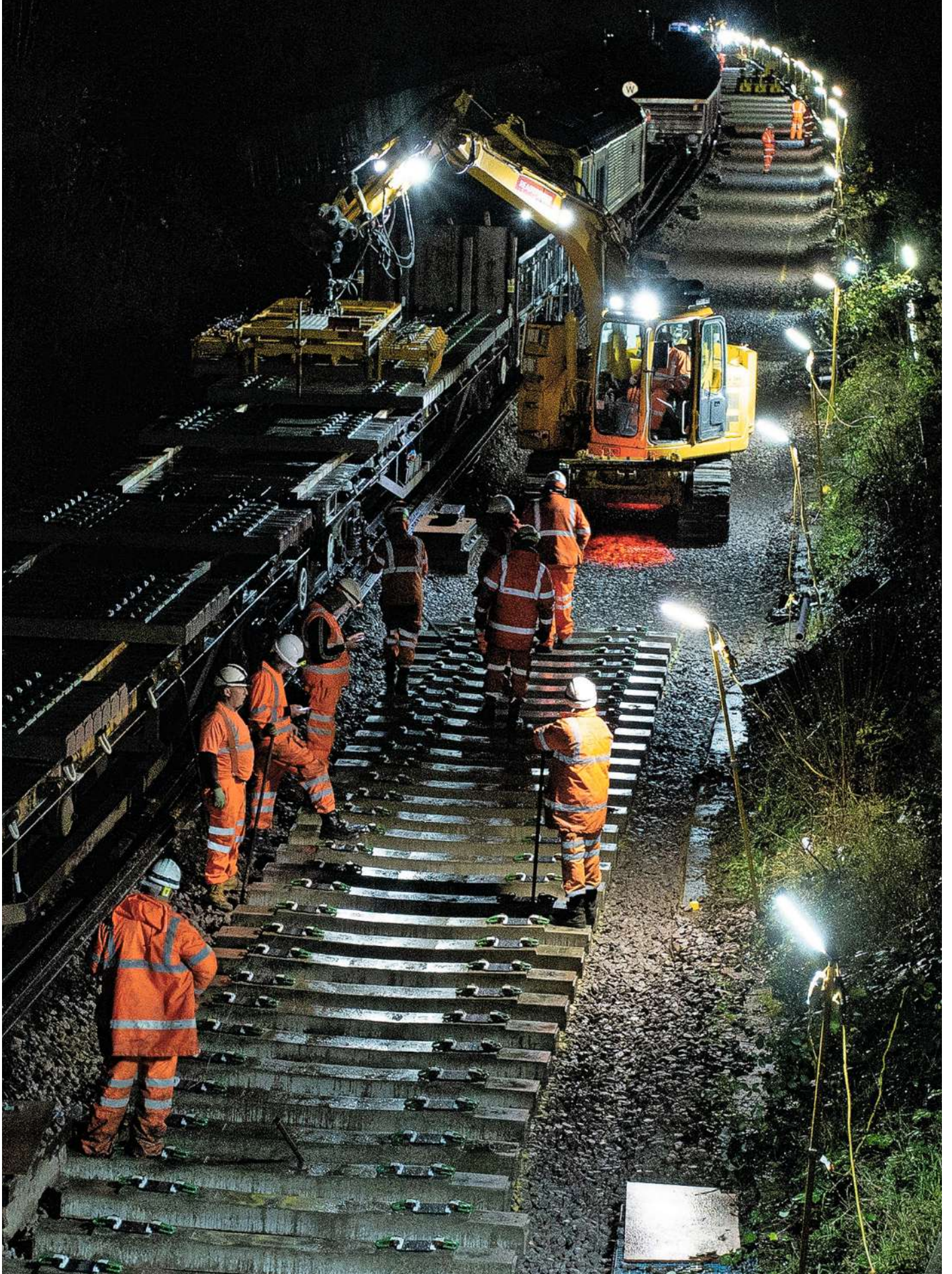
Taking greater account of other factors, including 'levelling up', may boost rail's case. RIA estimates an economic impact value of £2.20 is already delivered for every £1 spent on rail.

The NIS is one of a series of forthcoming important documents which will help to shape the transport sector. Sir Peter Hendy's *Union Connectivity Review* into transport links between England, Scotland, Wales and Northern Ireland will publish initial findings early in the New Year. An *Integrated Rail Plan* and further work on decarbonisation in the *Net Zero Review* will follow "in the next six months".

If we view the NIS in isolation, there is depressingly little in it to suggest that rail has a central role in the infrastructure "revolution". We will have to wait for next year's documents, fleshing out the specific details, to appreciate fully where rail stands.

For now, we just have this wider strategy document, filled with hyperbole and bold assertions - but backed by a great deal of promised money. ■

**Sleepers being laid in Whitstable in November. Investment in infrastructure is going to be vital to the UK's economic recovery from COVID-19. NETWORK RAIL.**



# How can the railway 'Build Back Better'?

Government wants to invest in infrastructure as a way to recover from the pandemic, with its 'Build Back Better' mantra. **PAUL CLIFTON** asks industry leaders what part the railway can expect to play in that

**B**uild Back Better. It's a fine slogan, but easier said than done. What substance can the railway pack behind it?

The pandemic has knocked the industry off its wheels. Passenger numbers fell to lower than at any point since the middle of the 19th century. Finances turned to dust. Renationalised in all but name - a structure ridiculed, but its replacement still a matter of conjecture.

Perhaps most serious of all: demoralised passengers and staff, unclear what the future holds, all of them knowing that the Government can't justify endlessly pumping up to £900 million a month into keeping largely empty services running.

It is grim. Even the most optimistic enthusiast could not argue otherwise. But nor is the outlook entirely pessimistic. Let's ask a man who has long had the ear of the Prime Minister - Network Rail Chairman, Sir Peter Hendy CBE.

"The Treasury - the Government - have been absolutely consistent in their support," he says. "Grant Shapps personally asked me to get the timetable back to as near 100% as Andrew [Haines] and I could recommend.

"Yes, the Government has paid a lot of billions to keep us going, but it is a fraction of what the Government is paying to support businesses of all sorts.

"I know the PM believes in infrastructure projects. Much to the surprise of many, he confirmed HS2, even though many voices were suggesting he shouldn't. If 'Build Back Better' is to be a reality, our job is to make sure we propose the right investment and the right costs.

"There is going to be increased economic pressure on the railway. We may have to manage the service differently. I suspect demand has been permanently altered by the pandemic.

"But the Prime Minister has shown an incredible vote of

confidence in us. It makes the reform of the railway even more urgent. We will get challenged about the money we spend. And we will have to be able to say that we have the best structure and the most efficient use of money to deliver the services needed."

It's a view shared by Hendy's chief executive, Andrew Haines.

"The fundamentals of the railway are still strong," he says. "We are one of the few countries in the world with a legal obligation to decarbonise our economy.

"We are going to face some restraint. Government funding could easily get to £10 billion this financial year - not paper money, but real taxpayers' money. Some of that gap can be filled by passengers coming back to the railway. Some will come by us having to be more efficient.

"The railway has relied on this inexorable growth, and it has not confronted or adapted when it has modernised its proposition. What I've seen is a government that is prepared to invest heavily in the railway. The Government sees a shift from capacity-busting schemes to decarbonisation schemes in the short term.

"We are fortunate that the true cost of borrowing for government at the moment is staggeringly low. The Government wants to invest out of recession. We have to persuade it that rail is a good place to invest, relative to other infrastructure. That is in our hands."

This chimes with what Rail Minister Chris Heaton-Harris is saying. Unusually, ministers and the rail industry are reading from the same page, without chastising.

"We are looking to spend money in rail at a time when our economy is shrinking," says Heaton-Harris.

"It means dragging projects that have been languishing in the planning process. It is exposing delay. We need to move faster. We have to 'sweat our assets', as the Treasury would put it. Ensure there are lots of people on our trains throughout the day."

## THE 'GUIDING MIND'

"The planets are in complete alignment," says Transport Focus Chief Executive Anthony Smith, elsewhere in this issue.

He's referring to the opportunity for fares reform, now that revenue risk is taken by government rather than private sector companies constrained by complex contracts.

But it's not true for the rest of the industry. Passenger services and infrastructure are still not in alignment, because the industry is not structured that way. Track and train managers are still charging each other large penalties for getting things wrong. Pre-pandemic, these sums could make the difference between profit and loss for a franchise. This will have to change.

"We all know it will," says Hendy. "There is no way any commercial company can take any revenue risk at all. The old methodology, leaving people to exploit the market, cannot survive.

"Some of the infrastructure investments we have made have not been matched by rolling stock plans or train service plans. The ►



*"The Prime Minister has shown an incredible vote of confidence in us. It makes the reform of the railway even more urgent. We will get challenged about the money we spend. And we will have to be able to say that we have the best structure and the most efficient use of money to deliver the services needed."*

*Sir Peter Hendy CBE, Chairman, Network Rail*



*“The Government wants to invest out of recession. We have to persuade it that rail is a good place to invest, relative to other infrastructure. That is in our hands.”*

*Andrew Haines, Chief Executive, Network Rail*

► Ordsall Curve in Manchester was not planned through to a better timetable or train plan, so it is less than optimum investment. Most of us think we could do better than that.

“This is not a bid for power by Andrew and me. We are not defensive about the organisation called Network Rail. The railway could be more coherently managed, and I think the Secretary of State shares our view. Without COVID it would be happening by now, with a White Paper.

“It was Chris Grayling who initiated the Williams Review because he got blamed for things that were our fault - the timetable change in May 2018 - and I think there is a better way.”

Haines goes further: “I think that for the Guiding Mind to work, it needs to encompass Network Rail. But it should not be a sub-set of Network Rail. The reason the Strategic Rail Authority did good work in the 2000s, but failed to deal with the structural issues, was that Network Rail sat outside it. Network Rail has not been designed to run the whole system. This needs strategic thinking that is not currently owned anywhere, and it needs a focus on the passenger.”

“The reason the Treasury has issues with transport projects is that we didn’t deliver infrastructure appropriately,” observes Heaton-Harris.

“We delivered a timetable that didn’t work. We created economic havoc for passengers. Control Period 5 was not a success for the rail industry.

“Pretty much every spending decision I take has to go to the Treasury for final approval. I want to get rid of that process by proving that the Department for Transport does deliver what it promises. The reason we have this issue is that the industry did not deliver - for years! That was down to everyone... to Network Rail... to the supply chain.

“We have to rebuild a Department that has a reputation for being able to deliver. We are getting there - the Treasury is giving us eye-watering numbers.”

What is striking about these three interviews, conducted separately and without prior consultation, is that they all follow the same trajectory. Advisors and decision-makers are in agreement, although what remains unclear is a sense of timescale. The emergency agreements under which passenger train operators continue range from a few months to a year and a half.

There’s less agreement from Labour. But the differences are in the substance, not the broad principle.

“We need a longer-term investment plan for the network, not one linked to the electoral cycle,” says Shadow Transport Secretary Jim McMahon.

“The Northern Powerhouse has not had its fair share of spending. The Northern Crossrail has not happened, half a decade after it was first proposed, and it has been re-announced many times since. While the capital gets £3,500 per head in transport spending, the North gets £1,200 per head.

“Now we hear HS2 may not reach Leeds. That could cut off one of our major cities. It would send out the wrong message on levelling up. Had the North had the same spending as London over the last decade, it would have received £66bn more. It would have fired the engine of growth.

“The Government can be very cautious and risk-averse. I would like a longer pipeline of projects. But transport has to be in the national interest and not in the short-term interests of shareholders.”



## DIGGING INTO DELIVERY DELAYS

Project Speed has been this season’s industry catchphrase. It’s a joint Network Rail and DfT initiative - and everyone has been talking about it.

“Network Rail standards, the way we procure, some of our design and methodologies - these have all added cost,” says Haines.

“I am spending a lot of time on Project Speed, which is looking at how we halve the time to develop infrastructure while slashing costs. I am hoping this pandemic is sufficiently challenging that the entire sector comes together to work at fixing that, in a way that it has not done in the past.”

Network Rail’s Eastern Region Managing Director Rob McIntosh leads on Project Speed. He explains: “Compliance has become more important than the passenger and economic outcomes. That has driven so much time and cost onto schedules.

“Now we have a unique set of circumstances that could allow us to turn all that on its head. That’s not to say we suddenly become negligent or disrupt passengers, but we need to focus unrelentingly on the passenger outcomes. We have to change the mindset of our people. The industry has to sort out its own issues and get on top of productivity.”



**Construction is under way at the HS2 South Portal site in June 2020. This is the launch point for the two Chiltern Tunnel TBMs (tunnel boring machines). Next to the M25, the South Portal site is the largest construction site on Phase 1 and HQ for the main works contractor - Align JV. Nick Smallwood says that the industry can learn from projects such as HS2 because on such a large project, it would be impractical to leave it entirely with Network Rail. HS2 LTD.**

“All we are doing is responding to what we can see. We are not getting projects into the ground on the timescales that we set out. We can also change things at the central government level to make it easier and quicker to deliver projects.”

Office of Rail and Road Chief Executive John Larkinson adds: “Three years ago Network Rail productivity was really poor. We were talking about what money to provide to an organisation that was working really inefficiently. There was a real lack of trust that it

could do its job. That has turned round.

“It is also about the interfaces between different organisations. We could all do it a bit better. This isn’t some general theoretical exercise. If we can show that we can act more quickly and more cheaply, that will change the decisions Government makes.”

Nick Smallwood, chief executive of the Infrastructure and Projects Authority, and head of the Government’s project delivery team, observes: “I don’t see leading-edge technology being developed on the railway.

“We will need to attract new skills and new talent. Not just craft skills, but professional skills - leadership and project management. Are you really shaping up for a future that is outside EU procurement rules and what might be possible?”

Haines thinks that is changing, although he admits that “R&D in the rail sector has not been a leader for some time”.

He adds: “We have to remove the barriers to new technology. In 2017, there were 150 new products waiting for approval on the railway - and waiting over a year. We now do 82% of them within 40 days. We are creating an organisation that is more open.”

Smallwood counters: “I think the UK is behind. And public sector projects in particular, because there has been uncertainty ▶



*“Pretty much every spending decision I take has to go to the Treasury for final approval. I want to get rid of that process by proving that the DfT does deliver what it promises.”*

*Chris Heaton-Harris, Rail Minister*

► about the level of investment coming down the track. We need a healthier long-term pipeline to build back better. Not just in rail - this applies generally to infrastructure."

Smallwood was previously a vice-president at Shell: "We had a deep-water project in the Gulf of Mexico. The cost estimate came in at \$11bn. The business simply could not afford it, but with dialogue we concluded that we could deliver 80% of the benefit for \$4.2bn. And that's what was built.

"It's about delivering what is acceptable. The railway gold-plates projects. No one takes ownership of the gold-plating, it just sort of happens over time.

"Look at Crossrail. The technologies employed during construction were mind-blowing. But some of the fundamentals were missing about how you measure progress, how you integrate commissioning and start-up - the sort of fundamental planning that is embedded in all oil and gas projects. There was a view that Crossrail was just a civil infrastructure project, when it was much more.

"The railway needs to be deeply curious about value management. It has lots of scope changes, then it is somehow surprised when it doesn't get the outcome it wants."

Smallwood warns: "Rail is not top of the pops in project delivery. Highways England is ahead. You will have seen delivery of the A14 - £1.4bn on budget, ahead of schedule, and really well managed by the supply chain. And the Department for Education is leading the way on modern methods of construction, with schools of limited designs: design one, build many -maximising off-site construction, minimising risk, speeding up the work.

"When it comes to what structure you want for an arm's length body, we can learn hugely from Crossrail and HS2. HS2 is so large, and so complex, that it would be overwhelming to dump that on top of an organisation such as Network Rail."

The railway must also find a balance between the requirement

*"We need a healthier long-term pipeline to build back better. Not just in rail - this applies generally to infrastructure."*

*Nick Smallwood, Chief Executive, Infrastructure and Projects Authority*



**Nick Smallwood says Highways England is ahead of rail in project delivery. He cites the A14 upgrade project as an example - on budget, ahead of schedule and well-managed by the supply chain. ALAMY.**

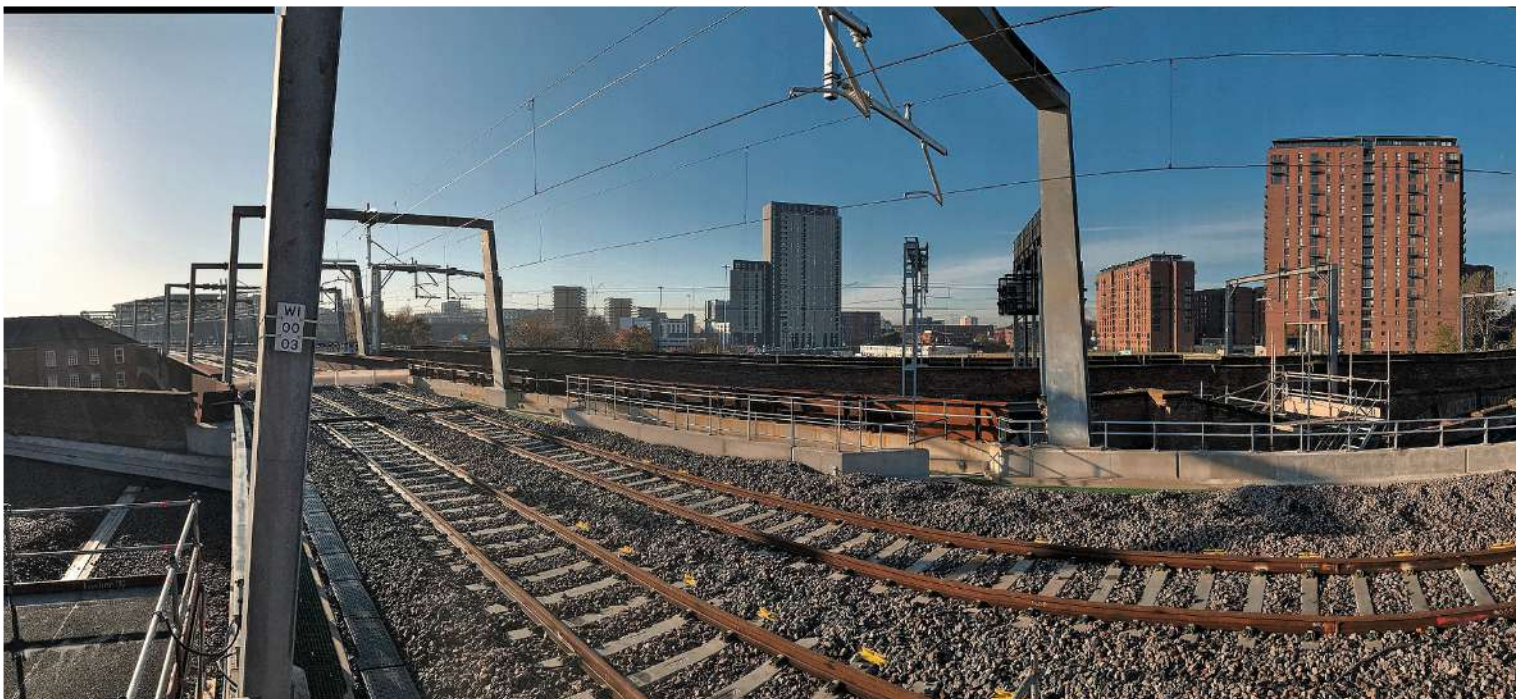
for affordability, while still driving towards a costly Carbon Zero agenda.

The Government is hurtling the automotive industry towards halting new petrol and diesel vehicles from 2030, a mere nine years away. Although the industry questions whether that target is achievable, there is no doubting the pace of change.

Yet on the railway, there remains an expectation that diesel will be around long after internal combustion engines leave the car showroom. No alternative power source for hauling intermodal freight throughout a terminal-to-terminal journey, or even for Network Rail's yellow plant, is yet a realistic prospect.

Says Haines: "In the late 2000s, the green agenda was real and live. We then lost a decade through the global financial crisis. We are now paying the price for that.

"The Carmont derailment is about whether some of our infrastructure is designed to deal with what are now becoming





*“The railway is part of British life. People adore train travel. They don’t like us when it goes wrong, but rail is an integral part of British society.”*

*Sir Peter Hendy CBE, Chairman, Network Rail*

more frequent weather events. The business case for doing that work was difficult to make in previous years. Now it will have to fight for space in the broader financial agenda.

“This is a real challenge. It is cheaper to build a diesel railway than it is to build an electrified railway. We have to work with the Treasury about their appraisal methods.

“Unless we value decarbonisation in a way that reflects its benefits, we are always going to hit this block. We have seen it with East West Rail, and I am talking to people in the Midlands about the same issue.

“There is a proposal currently for putting more diesel trains into the centre of Birmingham. That can’t be the right solution. In the long run it probably isn’t the right economic solution, because we know that a new fleet of diesel trains would have a short asset life.

“I think the Government accepts that electrification costs more. But it needs to know that we can do it at an acceptable cost. We have to grind through these issues.”

■ Read more about Project Speed on pages 66-75.

## LIVING WITH THE LEGACY OF LOCKDOWN

Have we reached ‘peak rail’? Andy Byford, London’s Commissioner for Transport, estimates it will take at least two years after the last lockdown to return to 80% of pre-pandemic passenger numbers. His teams are already modelling different recovery scenarios.

“We have looked at whether the major capacity schemes we have on the books still work at 80% of demand. They still get good business cases - things like the Brighton Main Line, which cannot carry any more trains,” says Hendy.

Haines adds: “The railway has to be attractive to users. A colleague suggested that now is the time to abandon the concept of putting passengers first. I said: ‘You’ve got to be kidding!’ This is exactly when we need to see what a consumer-driven railway will look like.

We have to fight for those passengers to come back. It has to be a fundamental part of our DNA.”

Whatever the numbers, the travel patterns will be different. Hendy believes the railway can soak up the changes.

“I’m as fed up as anyone that we are all locked up. We’re not working at home, you know, we’re living at work. This looks like a long haul.

“We know a lot of people in clerical, administration and management jobs can work at home. We know a lot of people in construction and operations have to travel, and therefore need a decent service.

“Are so many people going to go to the office five days a week? Probably not. Is there going to be a residue of reluctance to travel on very crowded trains? Yes. Are people going to demand the higher levels of reliability that we have delivered by running 90-ish% of the timetable? Undoubtedly.

“But on the other hand, are people going to flee the cities? I’ve read a lot of stuff about people moving to the Irish coast or to rural Dorset because they can work at home. But I’m sceptical. As long as cities grow, the long-term market for rail is good.

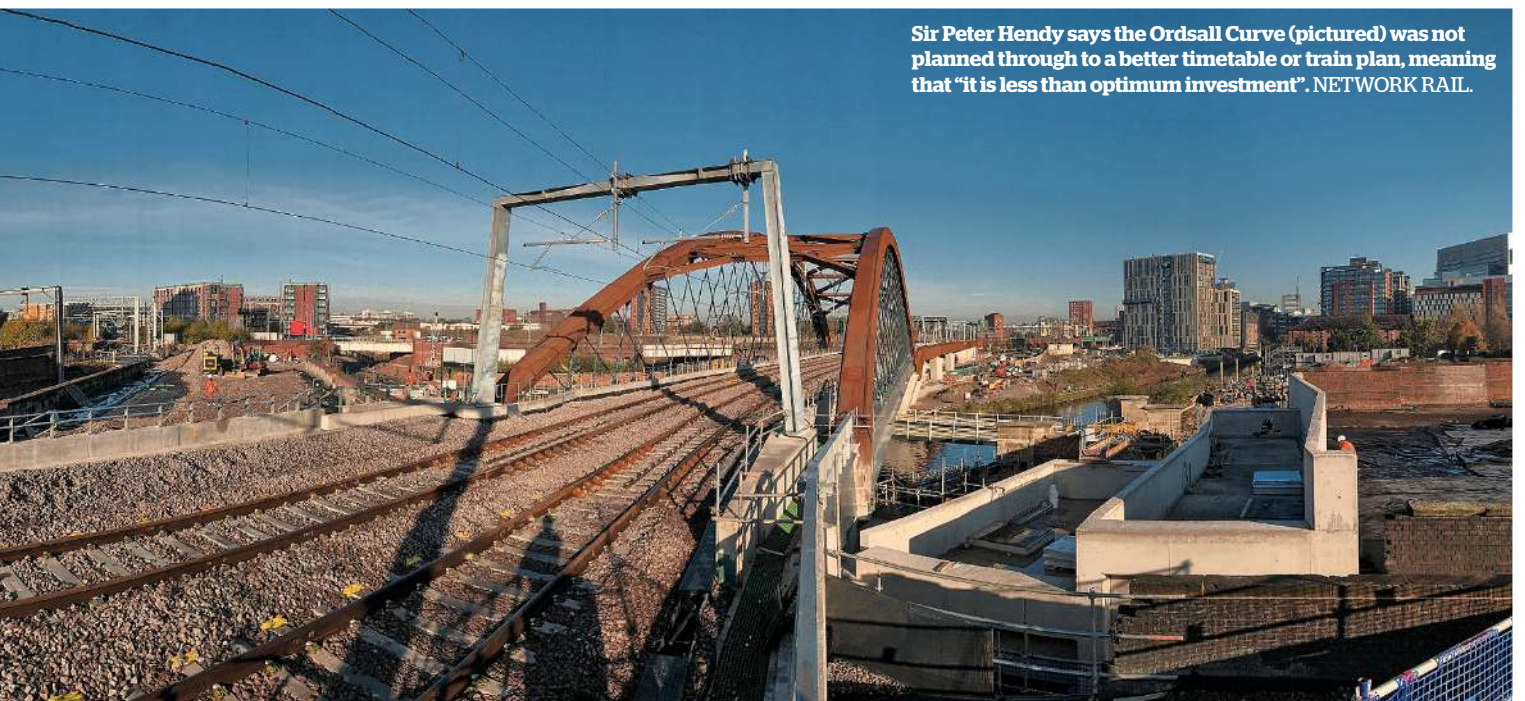
“What’s the frustration of lockdown? It’s that you can’t get out and see anybody. I can clearly do a lot of work like this. I can get up later yet start work earlier, because I don’t have a journey. But it’s not much fun.

“Maybe people will travel two or three days a week. That will leave us using the capacity we already have, and not adding more for a long time. But I think people will still live in cities. Some offices might close. Others think you will need more office space, because we might have social distancing for years.

“We know that people’s appetite for leisure travel is undimmed. In the summer, we had more crush loading on Saturday trains to the coast than we did on commuter lines.

“Within my lifetime, the highest passenger loadings were on summer Saturday specials. The railway peak was at the weekends. The railway can do that again. We might only have 30% of the normal peak traffic into central London at the moment, but the road network already has more than 90% of normal volume. We aren’t going to travel less overall. The only prospect for the urban future is mass transit.

“The railway is part of British life. People adore train travel. They don’t like us when it goes wrong, but rail is an integral part of British society. It means something to us. So the future may be different, but it is broadly secure.” ■



**Sir Peter Hendy says the Ordsall Curve (pictured) was not planned through to a better timetable or train plan, meaning that “it is less than optimum investment”. NETWORK RAIL.**

# Building Back Better



**Jim Steer**

**Founder and Director at Steer  
(formerly Steer Davies Gleave)**

**N**ow, towards the end of 2020, the rail industry needs a re-set. The Build Back Better mantra leads to a focus on project delivery, to questions of pace and efficiency, and to appropriate use of new technology. But an ungrounded focus on infrastructure investment itself risks wasteful expenditure. Meeting future customer needs must be paramount. Fortunately, key contributors Hendy and Haines both have transport operating backgrounds.

If you asked rail users, who are now “living at work” as Sir Peter Hendy cutely puts it, many would settle for 2020 train service characteristics: high levels of performance punctuality and no risk of having to stand - just without the Coronavirus, please.

They’d like simpler payments systems and fare scales, too. Post-COVID, Rail Minister Chris Heaton-Harris wants to see “lots of people on trains throughout the day”. If this portends dynamic pricing, then simplification of the current fares mess is essential, as well as ending the giveaway discount for peak travel with season tickets.

Passengers may be less concerned about whether the rail industry has “the best structure”, which Sir Peter Hendy says is a Government requirement: a second Strategic Rail Authority is on the way. The circumstances of the day demand a transformational response. We need an overall investment strategy that is incremental within a programme, and that rewards ingenuity. No doubt ‘Project Speed’ and the burial of the dreaded GRIP will help.

There are two key factors that create this pivot point for Britain’s railways: the need to address climate change (after 2030, the unelectrified part of the national railway will have lost its green advantage); and the need to respond to the shift in demand patterns. Hendy again: “I suspect demand has been permanently altered... we may have to manage the service differently.” Andrew Haines calls for strategic thinking which he thinks is missing in the current arrangement.

The virtue of a Guiding Mind perspective is that it looks across the whole piece. Haines, for instance, picks up on the need to revise investment appraisals to price carbon savings properly. Yes indeed: set carbon pricing at a level in project appraisals consistent with rail achieving net zero - or face losing large parts of the network.

If we look at (say) Germany, we would see a long-term transformational vision - a Swiss-style timetable plan being used to drive major investment projects (including in places new high-speed lines), major increases in services, TEE v2.0, a network of overnight services, as well as multiple branch line reopenings.

We don’t need to copy this - and probably couldn’t afford to. But we should allow the ‘Guiding Mind’ body to take a network view and come up with a vision designed to achieve better punctuality and value for money - for example, by cutting the highest levels of capacity utilisation and by allowing services to be diverted (when needed) to allow lengthy and much more cost-effective engineering track occupations. Or step outside the box, and realise rail is the heart of the national public transport system. But not its entirety.

It isn’t the time, in the face of unprecedented levels of public funding, to ‘keep our heads down’ in the hope that all will come good next year.



**Michael Holden**

**Chairman, RailReview Editorial Board**

**W**e are indeed fortunate that, in Hendy and Haines, we have two consummate railway professionals at the top of Network Rail who are able to work seamlessly together both in private as well as public. And that in Sir Peter Hendy we have someone with faultless political credibility and connections. And that in Andrew Haines we have someone who is clearly seen as the answer to a maiden’s prayer by ministers at the Department for Transport. Since the demise of British Rail, we have not been in such a fortunate position.

Because the industry is going to need them even more than it does today. It has become clear that the Government is intent on creating its new rail delivery body out of the foundations of the existing Network Rail. Only a year ago, I would have argued (and indeed did argue) that this would be the wrong thing to do for several reasons, but the seismic shift which has occurred this year means that I have now revised my opinion.

While I wasn’t a fan of the “track and train together” initiative which became fashionable in recent years, the collapse of franchising and the effective removal of the power of the private sector from train operations means that the advantages of vertical separation have all but disappeared. The fact that the Treasury is once again calling all the shots in the industry (as opposed to just ‘many’), and is likely to continue doing so for many years given the new financial order, means that government will exert itself as the guiding mind whatever happens.

Creating a Mark 2 version of the Strategic Rail Authority, with both Network Rail and the Operator of Last Resort within it, may now give the best hope of removing day-to-day interference in the rail industry’s activities from the clutches of government ministers.

Project Speed is a long-overdue initiative within Network Rail and it is commendable that, despite all the big issues causing his in-tray to overflow, Andrew Haines is still finding enough

time to drive this significant change home. Because it will take consistency of message, reinforced through appropriate appointments, process changes and procurement policy changes, to reverse the creep we have seen over the past 20 years in project scope, cost and timescale. It will also take firm

leadership to drive through the culture change necessary to tackle the high level of risk aversion that has become the norm in many parts of Network Rail over that same period of time.

We will need another Project Speed type of initiative to make a similar level of change to maintenance productivity. The tragic accident at Margam in July 2019, resulting in the deaths of two track workers, will result in a final push to eliminate red zone working everywhere. While this is of course desirable from a safety perspective, it will have further adverse consequences for trackside productivity. If rail is to make itself affordable in its new straitened circumstances then Network Rail also needs to find the golden key to unlocking possession efficiency.

**“It will also take firm leadership to drive through the culture change necessary to tackle the high level of risk aversion that has become the norm.”**



**Jason Chamberlain**

**Partner, Bryan Cave Leighton Paisner**

**I**n 2020, Build Back Better became a political slogan in the US, New Zealand, Singapore and (of course) in the UK. But the term is not new: “The financial resources... and openness to political and policy reform that often characterise a post-crisis period should allow us to build back better...”

Not the words of anyone in the current government talking about recovering from the impacts of COVID-19, but the words of former US president Bill Clinton in December 2006, in his role as Special Envoy to the UN, reporting on efforts to recover from the 2004 Boxing Day tsunami.

Clinton observed that disasters, while tragic, afforded societies an opportunity to build greater resilience afterwards. Slogan or not, the sentiment could not be more apt for the railways in recovering from COVID. But we are not in a post-crisis period yet, and the challenge is that the railway's fate is bound up with whatever is the pandemic's lasting impact on society.

It must be tempting for government to wait and see how much we drift back to the railway, and adapt its anticipated pre-COVID structural reforms to suit. This seems to explain some of the delay to the White Paper. But it also appears to be caused by a difference within government as to what 'better' should mean.

Paul's article highlights the Treasury's backing to stabilise the railway's finances, but it remains ambivalent to an industry that it sees as having consistently failed to get its cost base down, that cannot seem to deliver infrastructure on time and budget, and which now faces an existential question about its need.

That ambivalence explains why Andrew Haines believes the railway will face restraints, why Chris Heaton-Harris admitted at the recent Transport Select Committee, that “Treasury was being Treasury” about things (including requiring him to get approval for almost every spending decision), and why Treasury is the department rumoured to be an obstacle to meaningful fares reform.

The industry could simply await its fate. There is no question that politicians and civil servants will set the envelope. But there is still time to shape thinking.

Haines is right about the need to update appraisal methodologies to reflect what should be valued most in making infrastructure investment. Decarbonisation and levelling-up benefits must be given due weight in any future railway investment decision. That must put electrification at the top of the investment agenda. We should therefore be pushing for those updates and investment outcomes.

The industry does need to change its mindset when delivering new infrastructure. As the article highlights, there is simply too much red tape to cut before someone important gets to cut the red tape opening a new piece of railway infrastructure.

The number of timetable changes that the industry came together to implement during the first phase of the pandemic showed what collaboration could deliver. The Government wants both flexibility and collaboration going forward, calling the forthcoming Direct Awards 'change-hungry vehicles'. The industry must continue to show agility and cooperation.

Sir Peter Hendy does the railway means something to us. If that something is to be more than just nostalgia, if we are truly to build back better, Government and the industry must agree what 'better' means. The industry would do well to put across its definition now.



**Mary Grant**

**Chief Executive Officer, Porterbrook**

**B**uild Back Better is, of course, one of the political phrases of the last 12 months, along with 'levelling up'. In many ways, the two aspirations are interlinked because the Government's intention is to focus building back in the north of England and the Midlands, where so much of the historic underinvestment has been. Rail improvements both at a micro and macro level are very much part of the push to invest across the region.

Sir Peter Hendy is quite right to view the Government's support for the rail industry as a significant vote of confidence - not only in terms of how the railway came together and responded to the pandemic, but also the role it has to play in the future. We cannot be complacent about this. Indeed, that endorsement only heightens the urgent need for reform to ensure the whole system is fit for the future and is based on the right structure to effectively deliver the services needed.

The analysis astutely cites the importance of the new, national rail body in the all-important co-ordination of alignment between both the passenger and freight railway and the infrastructure they run on. Rail Minister Chris Heaton-Harris has alluded to this more than once - not least for the purpose of restoring the Treasury's faith in rail's ability to deliver on time and on budget.

The joint Network Rail/Department for Transport initiative Project Speed is a much-needed new framework for driving this, through quicker project delivery at lower cost. This is particularly important ahead of further electrification. In addition, the move to a route-based business model within the infrastructure operator provides a real opportunity to lower unit costs and improve performance by the regional benchmarking of economic regulation.

The preferred option for Northern Powerhouse Rail announced in November highlights the scale of the ambition in the North. I agree with Andrew Haines that connectivity will be the critical enabler of economic growth to help drive the post-pandemic recovery in 2021. The decarbonisation agenda will gain urgency as the Government mobilises ahead of COP26. Value for money and better use of data must also be demonstrated over the next 12 months.

Elsewhere, I strongly concur with the Rail Minister's assessment that the railway must use its assets more efficiently. Good practice in the industry over many years shows that greater focus on whole-life costs can generate productivity improvements in operations through fleet renewal and refurbishment.

It's clear that a key objective of the policy is the potential socio-economic return in terms of skills and jobs. However, the challenge in delivering this was highlighted in the National Skills Academy for Rail and City and Guilds report published in November, which suggests up to 120,000 additional rail workers will be needed over the next decade to alleviate the impact of a rapidly ageing workforce. A long-term workforce strategy should therefore be hardwired into the 'Build Back Better' agenda.

After many years of debate, it is positive that a consensus between government and industry has broadly been established on the future direction of the railway. The timescale for these changes remains uncertain and is clearly contingent on the evolution of the emergency recovery measures agreements.



# Building back better must serve passengers' needs

Writing in this column earlier this year, I explained how at Transport Focus we had started to survey attitudes and behaviours across Britain regarding how people might start travelling again, as lockdown restrictions are relaxed.

When and how quickly would people make journeys after restrictions on travel have been lifted? Would new travel patterns be established? Would they return to their old travel patterns? Would they travel less?

In the midst of a second wave and differing lockdown restrictions applying across Britain, but with the hope of a potential vaccine on the horizon, all these questions still apply.

COVID-19 has caused problems that will be with rail for many years to come. As we emerge from the pandemic, decision-makers must listen to the passenger voice as they grapple with those questions in these still-uncertain times.

At Transport Focus, we now have seven months of data from our omnibus travel survey, with more than 2,000 respondents each week. We have established Transport User Communities on bus, rail and road to provide further insight, looking at topics in a more deliberative and detailed way. This provides a greater context on how the rail industry might apply solutions to those problems.

## **SAFETY**

For example, our National Rail Passenger Survey asked about personal security and cleanliness (which was not seen as a safety concern). Neither was a main driver of passenger satisfaction. Today, it's a major concern.

The perceived safety of travelling by public transport continues to be a key concern for many people, particularly those not travelling at the moment. We know many are apprehensive about how thoroughly and frequently trains are cleaned, and whether other passengers

will be observing social distancing and face covering rules. But can scientific evidence showing that the risks are low be enough to encourage people back on board?

The rail industry has been working hard to demonstrate that risks are low, using scientific methods. Specifically, the RSSB has published the findings from a statistical model about the estimated risk of COVID-19 infection on rail.

The community was glad to see that scientific analysis of risk existed and appreciated that it was coming from an independent impartial body - a helpful contrast to the sometimes-confusing information coming from elsewhere.

The community also appreciated that the report did not make any recommendation about whether or not to travel based on the conclusions of the model. People felt informed, rather than being 'pushed' towards travelling.

*"This is interesting. I do feel that the calculations and conclusions are valid and presented in a reasonable way... I would have thought that the risk would have been higher than the estimates given here, and reading the information presented is generally reassuring."* **Female, 32, Newport**

However, people's pre-existing perceptions on the risk of travelling influenced how they interpreted the report, with some taking issue with aspects of the methodology or trustworthiness of the findings.

Some mentioned that the risk for each individual passenger could vary quite a lot depending on the circumstances - for example, the risk would presumably be higher in areas under local lockdown.

For a small group of people such as this person below, there is no tolerable risk

threshold for transmission.

*"The risk of infection is good odds if you're betting with money. But I'm not betting with money. Travelling by rail exposes me to a virus that could kill me and my family."* **Male, 57, South East**

Others do not feel they have a choice about whether or not to travel at the moment, due to personal circumstances, and have to accept the risk as it is without needing this level of detail to inform them.

While people felt it was important information and that it did provide some comfort, on its own the report does not represent a call to action. It did not change the mind of any passengers already predisposed against travelling. The transport industry must continue to demonstrate it is doing its utmost to ensure passengers are safe by taking visible, proactive measures to reduce the spread of the virus.

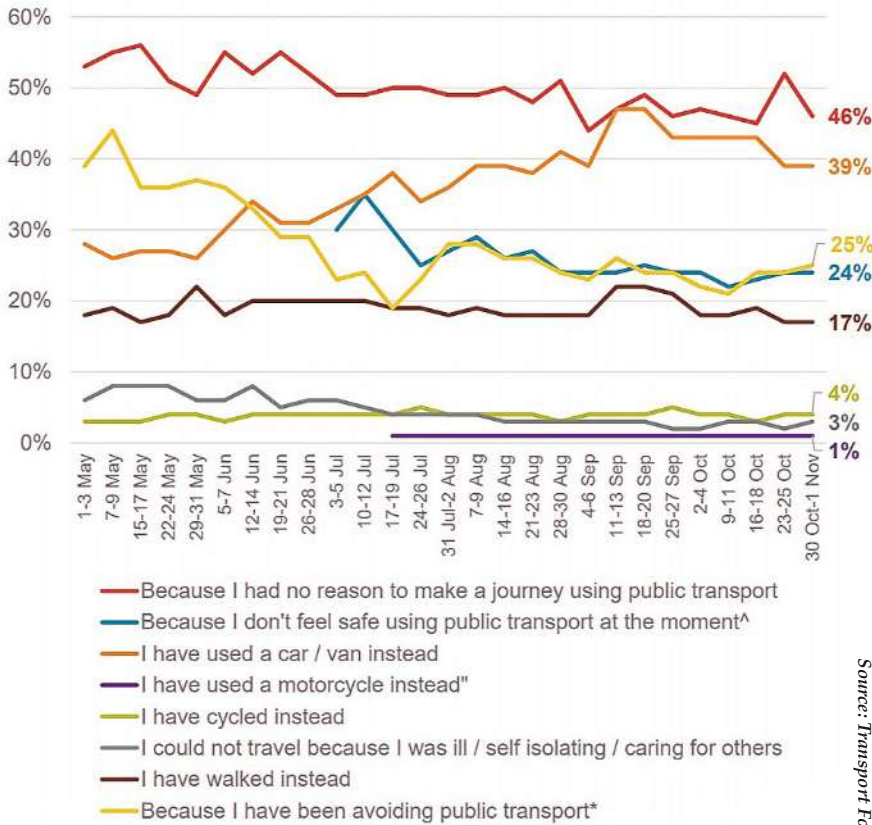
Throughout the 28 weeks of Transport Focus's *Travel during COVID-19* survey about current travel behaviour and attitudes to travel in future during the Coronavirus outbreak, the proportion of those avoiding using public transport, or not feeling safe doing so, has always been a prominent issue (see graph).

## **INFORMATION**

Providing clear and accurate information to passengers has always been a priority. Traditionally, it was about ensuring people had accurate information on fares and on services, especially during periods of disruption. But since COVID-19, it has also been about providing reassurance to passengers, so that they know what to expect - enabling them to travel with confidence.

*"The perceived safety of travelling by public transport continues to be a key concern for many people, particularly those not travelling."*

## Reasons public transport not used in the last seven days



\* Wording amended at week 10 ( 3-5 July) and at week 13 (24-26 July)

Source: Transport Focus.

*“Post-COVID-19, the railway is going to have to work hard to reassure and attract passengers.”*

community argues that home working allows for a greater work-life balance and better wellbeing overall.

*“I would like to continue a mixture of working from home and travelling into the office as I feel interaction is important. However, busy working life means working from home a few days a week will ensure more family time. We have shown that my business can function from home as a result of the pandemic.” Male, 35, Wales*

*“Commuting needs to change. Jobs and society need to change. There needs to be a bigger picture about the environment.” Female, 39, North East*

Their employers have been fully accommodating in enabling home working, and few (if any) had any complaints about this system. Many wonder why they hadn't adopted a home or mixed-working approach long ago.

The results from our weekly omnibus survey also point to a significant change in attitudes towards commuting. Most felt that their work would, at a minimum, become more flexible and that their use of the train will reduce.

Operators will need to adjust to this as well - not least by introducing new flexible tickets that offer an attractive alternative to traditional season tickets.

The railway needs a 21st century retail offer. Post-COVID-19, the railway is going to have to work hard to reassure and attract passengers. We are all going to need the railway to succeed in this if, as a society, we are to meet the challenge of climate change.

A simple, easy and trustworthy fares structure can unlock the railway's potential. In the understandable concern about the impact on railway revenues now, we should not lose sight of the opportunity to improve and build back better for passengers. ■

### About the author

**Anthony Smith is chief executive of Transport Focus. He has held the post at TF (and in its previous guise of Passenger Focus) since July 2005.**

Back in June, we published an assessment of train company websites, looking at the advice given on issues such as face coverings, social distancing measures and cleaning. This was seen to be useful, so taking account of our earlier findings we amended our questions and marking criteria to help pick up on some of the nuances we highlighted first time around.

We checked websites for the second time at the end of September (for the sake of completeness, we covered all train companies), and sent our findings to operators in early October. Train companies listened to our feedback and made changes.

The summary of what we found can be seen on our website. This represents a snapshot-in-time rather than an assessment of 'today'. So much has already happened since we did the checks - as well as train companies making improvements, we've also seen the changing of lockdown measures. It is a very fast-moving environment right now.

### FLEXIBLE WORKING

In June 2019, the Chartered Institute of Personnel and Development published *Flexible working in the UK*, which noted that despite successive governments introducing legislation to make it

more widely available, and despite it being strongly supported by employer organisations, trade unions and campaigning bodies, progress over the past ten to 15 years had been glacial.

Just over 12 months later, progress can be described as anything but glacial.

Previous research has shown that commuters feel 'hostage' to rail. Our rail user community now argue that COVID-19 has created a turning point where this is no longer the case. They noted that the post-COVID future is an opportunity to promote public transport as opposed to car use for a more sustainable transport system. Passengers want to see rail succeed and to some extent recognise that things 'must' return to normal, but they need their concerns to be addressed.

COVID-19 has demonstrated that home working (desirable even pre-COVID) is possible and effective. Commuters in white-collar professions almost universally expect to work from home permanently, at least for some of the working week.

Some argue that this arrangement is necessary for rail to deliver to its expected standard - they see no way for rail to be COVID-ready while dealing with pre-COVID levels of demand. Beyond the fear of a pre-COVID style of commute, our

Self-service ticket machines on the concourse at London Waterloo station, in July 2019. Fares reform has long been on the cards and is widely desired, both from passengers and from within the industry, but will the Treasury block it? ALAMY.



# Fares reform: time for another big push

Fares complexity remains a barrier to rail travel, even without COVID restrictions. The rail industry has called, yet again, for fares reform. But it looks as if the Treasury will, yet again, resist. **PAUL CLIFTON** reports

**"T**his is the golden opportunity to reform fares. The planets are in complete alignment," argues Transport Focus Chief Executive Anthony Smith.

That's true - partly. With all revenue risk for passenger services now in government hands, the obstacle of commercial contracts has been removed. Train operators, passenger representatives, the Department for Transport and the devolved administrations are speaking with pretty much one voice.

But is the Treasury listening? A government source tells *RailReview*: "In any restructuring there would be losers as well as winners. It is likely that in some areas, revenue would go down. And with income from fares already devastated, the Treasury isn't going to risk losing any more."

"It's still clinging to the belief that when the pandemic is over, the £10 billion revenue stream from fares will come back."

The evidence suggests that it won't. Several surveys have concluded that the Monday to Friday commute into a city centre office is gone for good. Travel patterns have changed. Working remotely for at least part of the week will be a permanent feature of future employment.

A Transport Focus study finds that 36% of people expect to be based at home, with limited travel to a place of work, and that more than 50% expect to work from home more often in future.

The implications for the season ticket are clear. But nine months into the pandemic, the rail industry has so far failed to introduce even a simple carnet of tickets across multiple operators. The barriers to change appear to remain insurmountable.



*"I had a group of officials helping me prepare, discussing what we might say. Halfway through this briefing, I said: 'The way we do fares is ridiculous, isn't it?' They replied: 'Well you're the Secretary of State. You can change it.' We set up a review body to work on fares. But the structure had grown up over so long. To tinker with it was just monumental. The Treasury wouldn't countenance anything that would cost money."*

*Patrick McLoughlin, former Secretary of State for Transport*

"As the user voice, we say reform is needed," says Smith.

"We have the evidence to back that up. The Department for Transport is sold on it. Ministers have issued public statements about flexi-season tickets and fares reform being part of the Williams Review package.

"COVID has brought all the train operators into nationalised units. Therefore, the barriers have been removed. The problem of allocating financial risk has been resolved. We should be talking about when we are going to do it, not whether we are going to.

"However, it has hit the tough rock of the Treasury, which is unconvinced. It has put forward three arguments against change: it's not clear what will happen in the future, so we can't make changes now; we don't want to make expensive changes that we get saddled with for ever; and we are not at all convinced these changes will generate revenue, rather than simply reallocate the current pot of revenue differently."

Everyone else agrees on the need to do it. And there is broad agreement about how to do it: single-leg ticketing should be the standard product, variable by time and demand, so that people can mix and match the best-value fares for outward and return journeys.

And this is nothing new. A Transport Select Committee report in 2006 called for almost exactly what is being asked for now. But during the intervening 14 years, the system of fares has become increasingly opaque. The Rail Delivery Group acknowledges that 55 million different fare combinations across the UK is wildly untenable. Even rail employees cannot follow it.

The rules date back to the 1990s and were aimed partly at ensuring people could continue to buy tickets between any two stations, regardless of which companies' trains they would be travelling on.

Since then, further regulatory requirements have been layered on top through individual franchise agreements. It has become increasingly difficult for rail companies to guarantee the right fare. Split-ticketing to exploit this has become a spin-off business in its own right.

"Post-COVID, we want to get more people travelling less stickily," says Henri Murison, director of the Northern Powerhouse Partnership.

"We want people to see rail as an easy option. Complex ticketing is a barrier, as is a pricing mechanism which disincentivises journeys that we would like to encourage.

"We want people to commute by rail across the Pennines, rather than drive on the M62. If you're a business traveller, it's actually cheaper to do that in your car a lot of the time. That is nuts - it just doesn't make sense.

"Walk-on walk-off, lowest possible fares on the rail network is what we need to achieve. At peak times, seat availability has to be rationed. Advance booking is a form of rationing. I don't think that is a barrier to what we need to achieve, which is to get more commuting people out of their cars in the North of England." ➤

► A Transport Focus survey in 2019 found that more than eight out of ten passengers want to see the fares system reformed. And eight out of ten also want to buy tickets through online accounts.

Former Secretary of State for Transport Patrick (now Lord) McLoughlin recalls the subject being top of his in-tray when he was appointed by David Cameron in 2012.

"I was Chief Whip. I knew I was going to be Secretary of State for Transport. The day before it was announced, the Opposition Chief Whip came to see me, to give me the debate subjects they had chosen. And the first one she mentioned was rail fare reform.

"I tried to persuade her not to. I needed a chance to learn my brief. It didn't work. I had a group of officials helping me prepare, discussing what we might say. Halfway through this briefing, I said: 'The way we do fares is ridiculous, isn't it?' They replied: 'Well you're the Secretary of State. You can change it.'

"We set up a review body to work on fares. But the structure had grown up over so long. To tinker with it was just monumental. The Treasury wouldn't countenance anything that would cost money. They wouldn't take a hit on the £9bn income, as it was then.

"That's why we have this system: it is deeply embedded, and nobody wants to touch it because there will be losers. As in any such situation, you hear a great deal from the losers and nothing from the winners.

"No government has been able to do it. We have so many special offers, and discount cards for under-25s to veterans - it is even more complicated now than when I was at Transport.

"The opportunity now arises, because the industry is completely at sea. Whether the Treasury will even consider it is another matter. With hardly anyone using the trains, they're not getting any money anyway. But they will want to kid themselves that it will return to pre-epidemic levels.

"I'm not sure the Treasury has the time to look at this. I don't criticise that, it's just a fact of life. The subject is not exactly at the top of the urgent problem list. You asked about flexi-tickets. I announced flexi season tickets in 2013! And they haven't happened yet..."

A senior rail source says: "We don't understand why the case for flexible season tickets has run into the quicksand. It's a spat between the Department for Transport and the Treasury. Treasury is resistant to taking the lid off the jar marked 'Fares Reform' because there will be some losers.

"They are not convinced by the argument that reform will be generative - that if you have a flexible ticket, it will bring in more passengers. All they see, using their pre-pandemic, outdated modelling, is a loss to the Treasury. We actually need to help the DfT with this. Our beef is not with them."

The Rail Delivery Group is more circumspect in its criticism, as its members do not wish to be seen to bite the hand that feeds them.

Robert Nisbet, Nations and Regions Director at the RDG, says: "The Williams process, which includes fares reform, has been changed within Government by other events.

"Williams was very much of the Theresa May administration. When the Boris Johnson administration inherited it, we made the case that it should be taken seriously. But with COVID, legislative timetables were disrupted. Our discussions became less about reform and more about delivering key workers, delivering fuel to power stations and stock to supermarket shelves.

"COVID drove a coach and horses through the Williams process.



*"Informed choice is a fundamental principle of consumer protection. It has become impossible for passengers to exercise well-informed choice."*

**Anthony Smith, Chief Executive, Transport Focus**



*"Smart ticketing based on the guaranteed lowest fare at whatever time you travel on whichever operator - simplicity at every point - is absolutely compatible with the industry's plans for reform."*

**Henri Murison, Director, Northern Powerhouse Partnership**

As an industry, we are pleased the Government has seen this as an opportunity to seize, rather than an opportunity to shelve.

"We believe the case for reform has got much stronger. We were already seeing season ticket sales declining, down from 5.3 million tickets sold in 2015 to 4.6 million in 2019.

"While we don't know for certain that COVID will change our working patterns for ever, we are seeing structural change in business. We are seeing hybrid working practices embedding. It's happening here at RDG, too. That would be difficult to dismantle. It is an accelerating trend, not a fad. We need a suite of options that can be applied in this new world."

David Statham, managing director at Southeastern, said in October: "We know lots of people are moving out of London to places like Kent because of flexible working patterns, and flexible ticketing would support that. The industry wants to do it."

The train operator and Kent County Council have jointly pressed the DfT to bring in part-time weekly passes.

Meanwhile, Southern is extending its own branded e-ticketing to more stations. It was available at 27 stations in October, with a further 29 to be fitted with barcode readers by the spring. It says e-ticket sales have increased from 25% of revenues before the pandemic to 33% now, as passengers choose ways to pay where they do not have physical contact with either tickets or machines.

Rail Minister Chris Heaton-Harris told Parliament: "The Government remains committed to modernising rail fares and ticketing and recognises that the pandemic has caused a fundamental change in working patterns which could have long-term effects on commuter behaviours. We are actively considering how we can modernise our fares and ticketing offer.

"However, these are unprecedented times and our immediate focus is on ensuring that we keep the railway available and safe for those who rely on it."

## MULTI-MODAL RED HERRING

"We are stuck in two ways," says Anthony Smith. "The Treasury is the real sticking point, but the other is Transport for the North. In October, it put out a call to tender for a data-led knitting together of all the information to enable multi-modal ticketing.

"This multi-modal thing can be a red herring. In London it makes sense, because the capital is genuinely multi-modal. But in Manchester, most people who go on a train never go anywhere near a bus - and vice-versa.

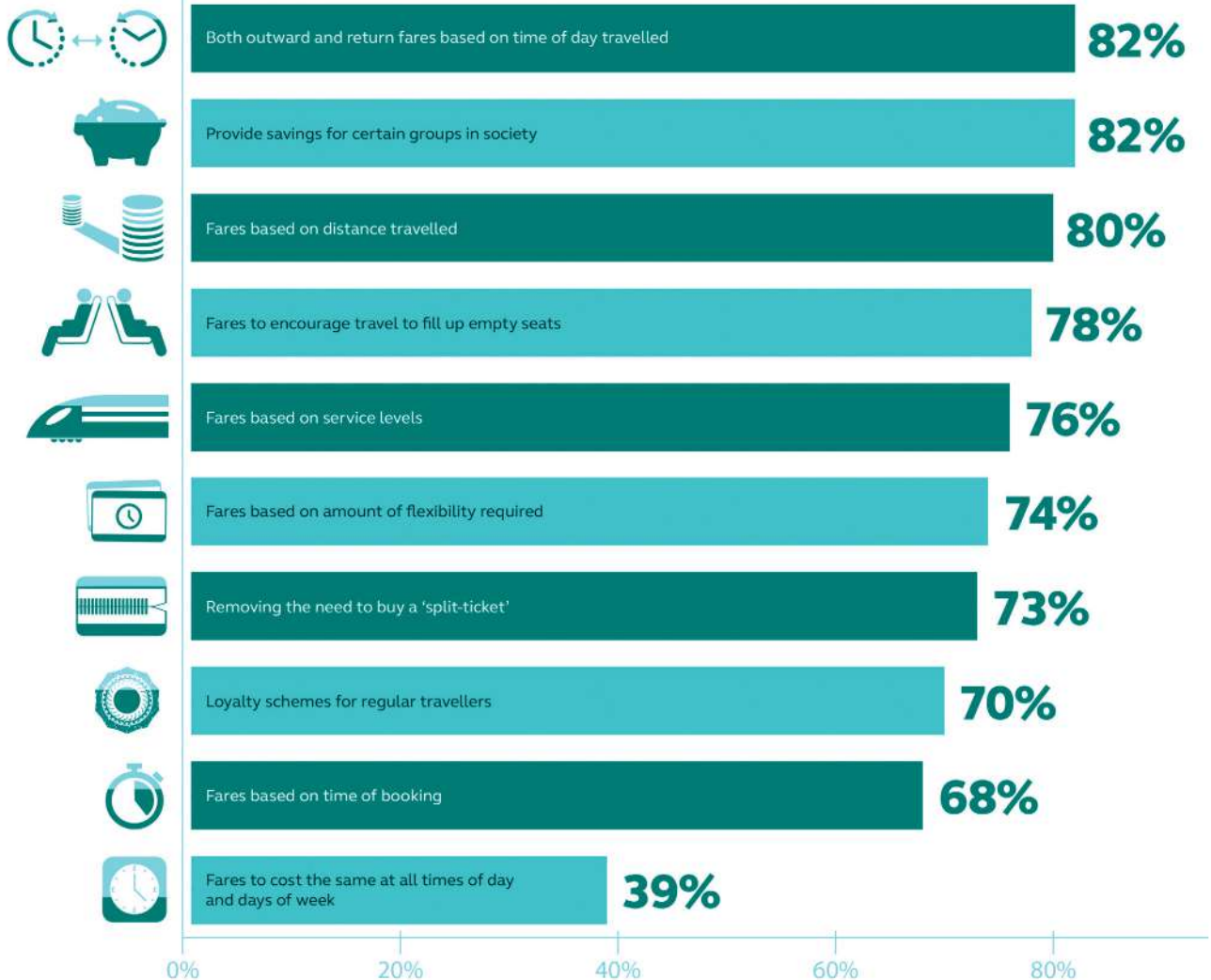
"There is a hyper-mobile view of the world that suggests you have to get from anywhere to everywhere on one ticket. Do you really? Is there a market? Politically it is attractive because it sounds good. I am not convinced it is warranted.

"Most people outside London who get a train either walk or drive to the railway station. That is a fact. If you really want multi-modal, you would have rail ticketing merged with car parking. That's the big one to crack, not the bus fare."

Jonathan Bray, director of the Urban Transport Group, disagrees: "We'd have an issue with national rail standing apart from the rest of the public transport network on fares, like they're in their own little world.

"Yes, sometimes people will want to go from Ilkley to St Ives.

## Percentage of people who believe the following scenarios should be considered in changing the structure of fares



Source: SYSTRIA Ltd, Easier Fares Consultation Summary Findings 2018

But more often they want to go from Ilkley to Leeds. That multi-modal dimension needs to be there. We already have smartcards that work across modes in some areas. The difficulty is that it often prices above what you can get by using one operator only, or one mode only. But people generally want what London has.

“Inter-city fares can be very complex and confusing. But inter-city can be simplified without having to touch the local services. There is a danger if rail goes insular. It is not standalone, not an end in itself - it is a means to an end.

“And much of the decision-making in city regions is devolved. Fares in some parts of the country have to be cheaper because of the state of the economy.

“Given the way working patterns are changing, the case for carnets or similar is an unstoppable force. A lot depends on whether the Government has the appetite to do something interesting with the control it now has over the railways.”

Henri Murison, of the Northern Powerhouse Partnership, says: “The industry that has made most progress on multi-modal ticketing is the rail industry. Northern, under Arriva, did a very good job in that area, within the limitations of their franchise.

“Smart ticketing based on the guaranteed lowest fare at whatever time you travel on whichever operator - simplicity at every point - is absolutely compatible with the industry’s plans for reform.

“We coined the term ‘Noyster’ - northern Oyster. The reality is that it was the bus companies that stopped us having Noyster, not the rail industry. Anyone who tells you that the North’s ambitions on smart ticketing were thwarted by the rail industry is telling

porkies. The rail industry does not have to move very far to enable good ticketing options across the North to become available.

“There are elements of the current ticketing framework that make multi-modal touch-in, touch-out fares very difficult to manage. That is where we need to work harder.

“In a post-COVID environment, when we will struggle to encourage people back onto the network, this will make particular sense. If we need to increase patronage in the North, to take advantage of the capacity we will create with the trans-Pennine upgrade, this is really important. We will have to battle harder - not just to attract new commuters, but to get the previous ones back.”

Much will depend on how the bus industry is reorganised, and the role that devolved government will have in future. Greater Manchester aims to have bus franchising, and other Northern cities have ambitions to follow.

“The Noyster was never about being imposed from above. It is about integration at a local level,” says Murison.

“People in Newcastle need to realise that it is easier and cheaper to get to Media City in Salford by public transport than it is to drive there. You need the Metro and the tram to do that. But as soon as you want to get a bus in Manchester - to go anywhere that isn’t on a tram route - you’ve hit a problem. And the ticketing on a tram in Manchester currently doesn’t interact with the local rail fares charged by Northern. If you can’t integrate two forms of rail in the same city, that’s not great.

“But it is solvable. It would be farcical to have a fares solution for the North that was just about heavy rail. First, we have to ➤

► include the tram plugging into a newly improved national ticketing framework for rail, so that when people get off the train from London at Piccadilly station, they can experience all the benefits that a local person gets - someone who catches the train in from Bolton every day. An integrated ticketing solution for Greater Manchester should be as good for the visitor as it is for the people who live there."

## THE VIEW FROM OUTSIDE

"Businesses and their staff have been surprised how productive they have been when working from home," says Tom Thackray, Director of Infrastructure at the CBI, speaking (appropriately) from home via Microsoft Teams.

"But there has been some productivity loss. There are good reasons why businesses congregate together. So, projections about the demise of the office, or claims that commuting is a thing of the past - these are not things the CBI or its members subscribe to.

"But companies are thinking about how they facilitate flexible working on a longer-term basis. The rail system has barriers to enabling businesses to fulfil that ambition. That is down to the ticketing that we have. Business would like a move towards more flexible ticketing sooner rather than later."

The organisation, which represents employers, has been making this case to Government. It has also been lobbying for the wider structural reforms expected in the postponed Williams Review.

"But letting the perfect be the enemy of the good is worrying business," says Thackray. "Hopefully we can encourage more people back to the workplace soon. Therefore, reforming fares ahead of any wider changes to the railway is something we encourage. There is no time to lose. We need this in place as soon as possible.

"The economic shock, and the acceleration of change in business, should push fares reform. A season ticket is unlikely to be value for money for many people now. Where there are regulatory or financial barriers to train operators making new flexible offers, they need to be addressed immediately. Interoperability with other forms of transport is a longer-term goal. We would like to see progress, but that is less immediate."

The CBI says its members are increasingly concerned about the negative aspects of home working: the effect on mental health; and the challenges of maintaining morale and team cohesion, especially with those who don't have a good domestic space in which to work.

Simple things are being missed, such as being able to overhear an unplanned office conversation, which helps people to perform their

*"Companies are thinking about how they facilitate flexible working on a longer-term basis. The rail system has barriers to enabling businesses to fulfil that ambition. That is down to the ticketing that we have. Business would like a move towards more flexible ticketing sooner rather than later."*

*Tom Thackray, Director of Infrastructure, CBI*

jobs more effectively.

"While there will be more flexibility, people will continue to find ways to congregate," says Thackray.

"There is a clear view that people have left the railway and switched to private cars. For emissions reasons alone, that is bad. CBI wholly supports Net Zero. And it is concerned about the productivity challenges that come with congested roads.

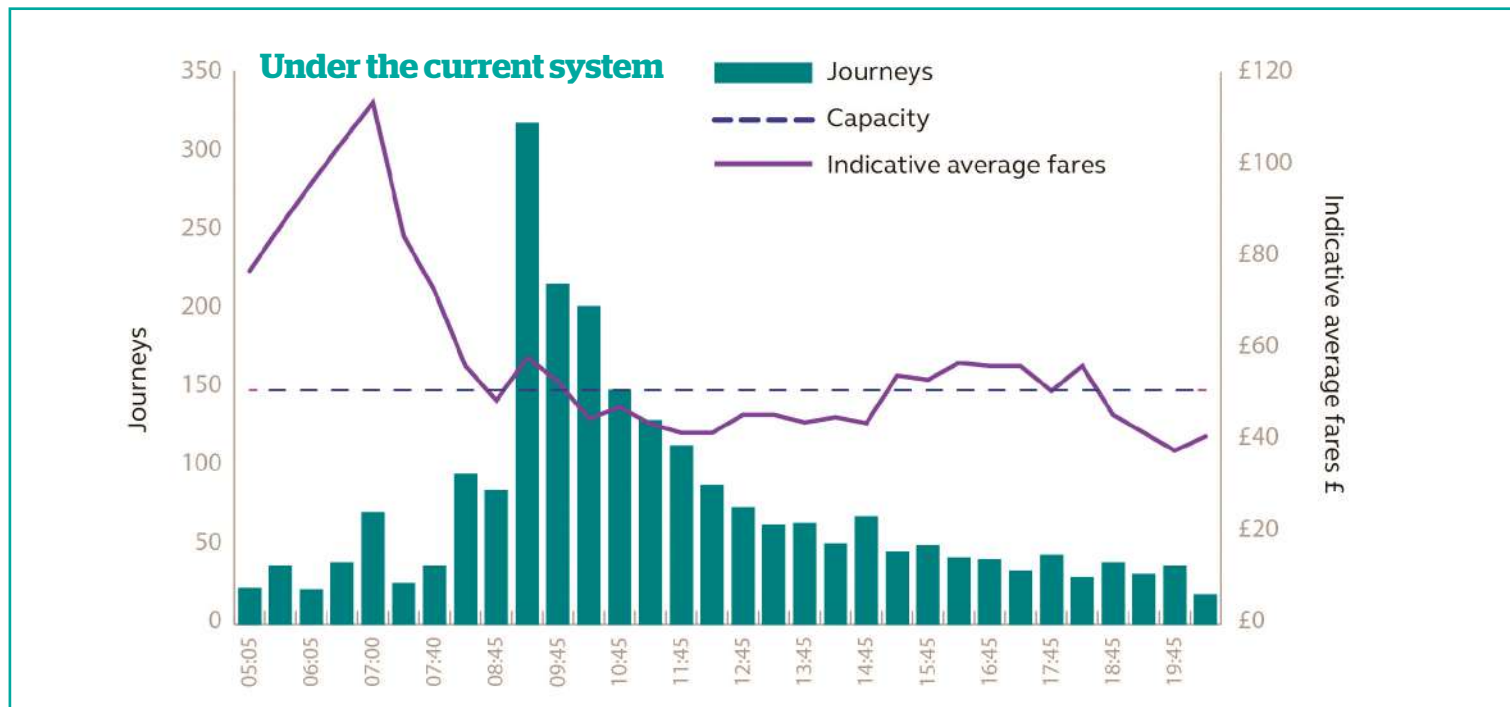
"Where the Government messaging was pretty clear about staying away from public transport during the first lockdown, there needs to be just as much effort in encouraging people back to public transport when that is allowed. We should use employers to help get that message across, just as employers were used to encourage people to work from home to flatten demand on public transport.

"Business now has much more interest in how to get staff to work - it becomes part of the risk assessment. There is a previously untapped opportunity to nudge staff to make the right travel choices. Clearly any barriers created by inflexible ways to pay for travel to work by rail need to be removed."

## WHAT NEXT?

In September 2019, the Rail Delivery Group put forward proposals for what it called a "once-in-a-generation reform of the fares system", by tearing up the Ticketing Settlement Agreement. It thought this would take three to five years, changing one operator at a time.

In its submission to the Williams Review, it said a tap-in, tap-out pay-as-you-go system should be rolled out across the country, with



local control over fares in devolved administrations. Commuters working flexibly and travelling off-peak could save money, it claimed. And overcrowding could be reduced by up to a third, with demand spread more evenly across the day.

RDG thought the scheme would be revenue-neutral. Events of 2020 changed all that. But the core proposition stands: customers should only pay for what they need, and be charged the best-value, single-leg fare for each part of their journey. Customers would no longer need to commit to a return time when buying the outward leg of a journey. A weekly capping similar to that used in London could be applied.

RDG thought last year that this would encourage over 300 million more journeys to be made by rail.

“Looking beyond the immediate next few months, rail is losing market share,” observes Anthony Smith.

“Regaining that is going to be difficult enough. Regaining it with old British Rail-based products is going to be even harder.

“The Treasury seems to think the old market will recover. And it thinks the old fares system will scoop up money because passengers won’t have a choice. It thinks we can go back to the good old days. I don’t know anyone in the industry who shares that view.

“A supermarket faced with today’s situation would discount heavily and promote special offers. Tons of baked beans if you want them, or one tin of beans if you want that instead - a flexible campaign based on getting people back through the door to re-try the products.

“At the moment, all the train company marketing managers are sitting at home doing nothing. Crazy! We have fares effectively dictated by the Treasury.

“You should devolve setting fares to the lowest possible level. The person who knows what the Exeter to Exmouth market will bear, and how to tweak it to capture a few more people, is never going to be someone who sits at a desk in London. We have to return to a railway that is incentivised to chase revenue.”

The RDG agrees. Nisbet says: “The rail industry has to play a key part in economic recovery, whenever it comes. This isn’t just a question of fares revenue, it’s a question of how we re-energise city centres. We believe fares reform is a way of unlocking this.

“The regulated fares system, with its 55 million fare combinations, is no longer fit for purpose. The collision of the old British Rail method with each new franchise that was offered heaped complexity onto an already old-fashioned system.

“It’s not just us asking for it now. It’s a clamour. The Institute of Directors says 74% of company directors expect to see homeworking



*“The rail industry has to play a key part in economic recovery, whenever it comes. This isn’t just a question of fares revenue, it’s a question of how we re-energise city centres. We believe fares reform is a way of unlocking this.”*

*Robert Nisbet, Nations and Regions Director, Rail Delivery Group*

increase. That’s three in four businesses - is there a bolder statistic to point out what needs to be done now?

“Eighty-three per cent of London business leaders support flexible rail options. These are big numbers and they are not a knee-jerk response to the pandemic.

“We argue that it would add money to the Treasury, not take it away. We would prefer to see more passengers paying less, rather than fewer passengers paying more. We need a suite of products that suits people’s lives.”

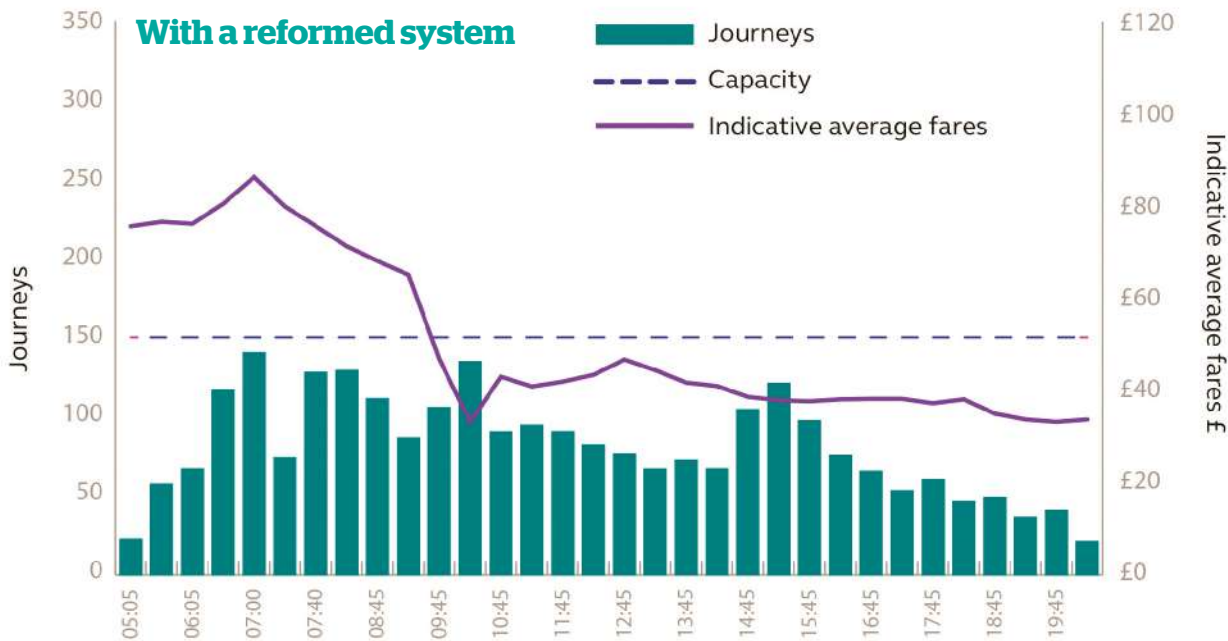
Smith adds: “The City of London Corporation is saying we need this. How much more responsible can you get than that? It has presided over the city being one of the most successful areas of commerce in the world. It wants to protect its future.

“Consumers need personalised, informed choice. That is a feature of modern retail. Informed choice is a fundamental principle of consumer protection. It has become impossible for passengers to exercise well-informed choice.

“The experiment with Oyster and pay-as-you-go in London was resisted bitterly when it was first tried. The moment pay-as-you-go was extended to national rail services in London, revenue went steeply up - partly because it was easier to pay. Simplicity generates traffic because it lowers barriers.

“The Treasury now owns all of the risk. We just have to keep wearing the Treasury down. The DfT is doing it. RDG is doing it. We are doing it. We just all need to keep on at this together.”

Murison adds: “The rail industry needs to get from Government the freedom to innovate. I think that will happen. The reality is ▶



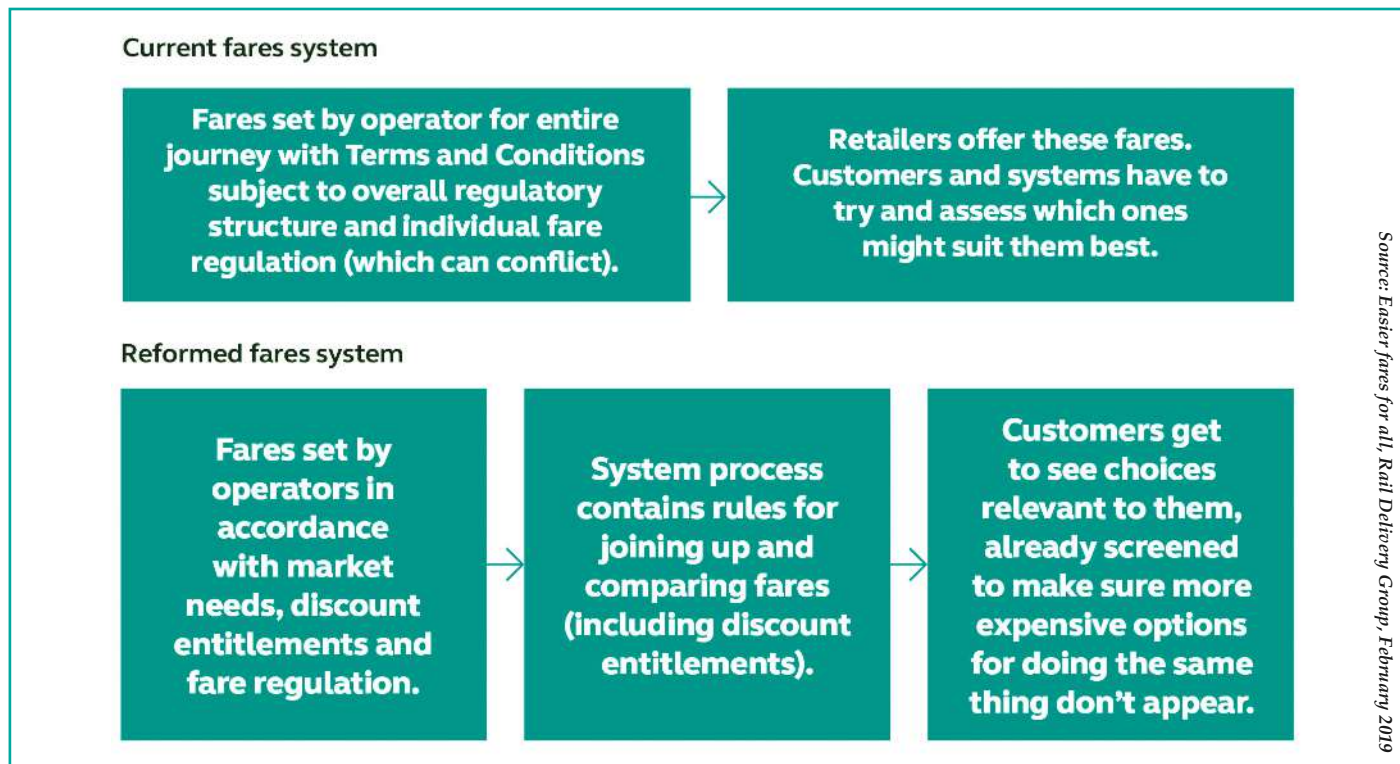
Source: Easier fares for all, Rail Delivery Group, February 2019

► the Government is going to have to move on a number of sticky issues to give the railway any hope of recovery.

“Anywhere that has devolved administration should be looking towards having multi-modal solutions as part of fares reform. Rail has pursued both these agendas: fares reform and devolution, both of which should help to get the DfT out of the detail of day-to-day

policy making on the railway and to avoid over-specification.

“These things all glue together. Heavy public transport users need encouragement that is not just in the form of a season ticket. Multi-modal fares where you are guaranteed the lowest price for the time of day are at the heart of that. But until the rail network reforms fares, it is not achievable.



Fares reform has been with us for some time, and while COVID-19 has clearly hit most intended deadlines this year, one can see that the delay in reforming fares is clearly more political than pandemic.

The industry as a whole, including the Department for Transport, has understood for some time that habits have been changing. Pricing people away from season tickets (the primary enabler for the long-term commuter) started some years back, but that started as a gradual process and was largely ignored.

The pandemic has created a working model that has broken down the barriers for change at a far more rapid pace than anyone could have imagined. And those barriers have gone for good. Companies have realised that large city rents may be an obvious cost saving at a time when austerity will clearly have to return and be with us for a while. Office workers, in turn, will have saved vast amounts of commuter costs, while finding that virtual meetings can actually be quite productive.

If we were to look elsewhere for similar analogies, it would be the future of road pricing with the [relatively speaking] imminent loss of fuel duty from the Treasury's purse. Again, no matter how much the Treasury doesn't want to listen, the golden rail revenue goose has caught a dose of the pandemic, and make no mistake - its most profitable years are behind us.

This hidden but bizarrely transparent tussle between the Department and the Treasury, that Lord McLoughlin refers to, is one that now needs to be resolved... and quickly. Hopefully, the Treasury will understand that ultimately passengers will dictate the outcome, with their travel habits and with their wallets.

It is easy to understand why this remains the Treasury's position, but just 'hoping' that the money will keep coming is usually a sign of an impending decline. While the rumoured hit of £1 billion to £1.5bn to the Chancellor's budget if single-leg pricing were to be implemented is clearly a substantial amount of money,



**David Pitt**  
Head of UK, SilverRail Technologies

a change in customer habits means that this revenue has already been lost. The actions from here on are what is important, so that the remaining revenue can be protected, which will only occur if passengers are persuaded that rail travel is both safe and good value for money. Train operators can work hard on the first of these, but do very little about the latter.

For the past five years, we have seen some fantastic customer propositions surface from the private sector, such as automated delay repay and disruption management, but the one notable area where reform has been lacking is around fares and ticketing. The ideas and the solutions have been there, but the lack of reform around such things as the Ticketing and Settlement Agreement (TSA) has meant that some transformational solutions have been left to wither on the vine.

The article also raises an interesting question around one of these propositions - multimodal ticketing. In Sweden, this has been around for some years and works extremely well, but only because the underlying systems and processes allow for it to work as it does.

The question of whether or not multimodal is a red herring is really down to what you are trying to offer the customer relative to their circumstances. This can be simply informational, leaving the customer to then take this information and make their own choices around individual ticketing. Arguably, having more information available to the customer is never a waste of effort provided it is

"The existential question is where this fits into the Williams process. We are waiting for a White Paper. As long as the DfT does not have the bandwidth to deal with this, it will be slow. All of Government is slow at the moment, because all of Government is dealing with the immediate problem in front of it.

"But fares reform is a key part of recovery. What we can't do is return to normal life, offering people the same proposition and product that was being offered before. If we do that, people will not return in big numbers.

"We have to make public transport easier, and that means not having paper tickets bought in ticket offices. Can we completely change the experience of travelling by rail? Yes."

RDG's Nisbet concludes: "This is the ideal opportunity. The cement is wet in the rail industry. The ability to re-shape it in a manner that is suited to the way we now live our lives has never presented itself so clearly. There is a business case. There is an environmental case. There is a multi-modal case. Everyone talks about the concept of 'mobility as a service.' Well, here it is." ■

*"The Treasury seems to think the old market will recover. And it thinks the old fares system will scoop up money because passengers won't have a choice. It thinks we can go back to the good old days. I don't know anyone in the industry who shares that view."*

*Anthony Smith, Chief Executive, Transport Focus*

useful information.

The other extreme is when Transport for London introduced Oyster to London, and what others have tried to implement since. However, there are a number of differences in London, the main one being a simple fare structure! Access to data is another issue, and one that has kept TfL and national rail apart from a systems perspective.

I would agree that outside of London, the customer doesn't yet expect to purchase a single ticket for their door to door travel, and until we see other urban communities grow there is likely to be little pressure for the single ticket approach. That said, with more city populations expanding rapidly a more pro-multimodal approach will be needed - if only to keep up the pressure on private car usage.

Jonathan Bray's response is correct. As a nation, we should be looking forwards and not backwards. Transport for the North's abandoned procurement around 'Abbot', due to a lack of interest by the bus operators (for sound reason, it has to be said), wasn't because of a lack of customer interest. Instead, some fundamental questions had not been answered before the procurement commenced. These included: 'Is it financially viable for all participants?' 'Are the incentives to participate sufficient?' 'What technology and therefore expense is each participant bringing with them?' And even 'who owns the customer?'

This all shows that public sector projects can't just dictate a solution. If the environment isn't right and it is the public sector that creates the environment in the first place, then that solution will likely fail. Planning and long-term national transportation strategy simply has to be taken more seriously.

So, from fares reform through to long-term transport strategy, the issues are all very tightly woven together. For this reason alone, I would hope that the Treasury views fares reform through this wider prism, steps back, and lets the industry finally deliver what the public are asking for.



**Darren Fodey**

**Partner, Rail team, Stephenson Harwood**

"Insanity is doing the same thing, over and over again, and expecting a different result." Now is the moment to take heed of this warning, grasp the opportunity, and do something different with fares.

Anthony Smith is right when suggesting that now is the "golden opportunity". There is a need to be innovative to draw people back to the railway as we emerge from the pandemic, plus revenue risk is currently taxpayer risk - one that we all bear.

What struck me in particular were the comments from Lord McLoughlin. Fares reform has been on the cards for some time, there have been a number of reviews, tinkering with the fares system is "monumental", and Treasury won't want to be a "loser" in terms of the amount of revenue generated. He is right that now is the time to engage - it is nearly 2021 and what has helped the industry shuffle along until now will not work going forward. We need more than "tinkering". We need real reform. We need to face facts.

**Fact 1:** Remember the Williams Review? Quite rightly, attention has been focused elsewhere in recent times, but Williams was widely expected to recommend a move to a concession-based system, with the DfT taking revenue risk. Events have now overtaken us. Both cost and revenue risk sits with the DfT (and behind it Treasury), perhaps accelerating some of Williams' ideas.

**Fact 2:** Treasury needs to consider the appropriate counterfactual. That isn't the £9 billion a year income that existed when Lord McLoughlin became Secretary of State, it's the post-COVID railway where travel behaviours may have been permanently altered. In September and October 2020, DfT data shows that passenger numbers hit 40% of the equivalent day a year ago just ten times.

**Fact 3:** Season ticket purchase was already on the decline - the article mentions 0.7 million fewer sales over the course of the four years to 2019. Already, the industry was experiencing a looming challenge posed by changing work patterns - one to which it has not yet responded.

**Fact 4:** Passenger demand forecasting has always recognised elasticities connected with the pricing of fares. Simpler pricing models and (in some cases) cheaper fares may attract more passengers and greater revenue than the counterfactual.

**Fact 5:** The Ticketing and Settlement Agreement (TSA) no longer delivers the outcomes the industry wants. It's time to tear it up and start again. Take a look at my previous Peer Review piece (*RailReview* Q2-2020) for some suggestions of how this might be achieved. Given the ticketing system is industry-wide, I am not yet persuaded by the suggestion that reform can be achieved one operator at a time. Let's be ambitious and put in place a replacement framework which is going to work for the industry both today and into the future.

It is incumbent on all of us as an industry to persuade Treasury that this is the right thing to do for both the farepayer and the taxpayer. Giving passengers flexibility to purchase the fares they need for the lives they want to live will attract people back to the railway and will maximise revenue for Treasury. The TSA is just an agreement (an important one, for sure), but agreements can change over time. Let's make these important changes now.

**GB Railfreight 66776 crosses Eckington Bridge in October 2020. GB Railfreight Managing Director John Smith argues that the pandemic has raised the importance of rail freight on the Government's agenda. JACK BOSKETT.**



# A strong voice arguing for rail freight's rights

GB Railfreight Managing Director **JOHN SMITH** examines the current state of the UK rail freight sector, and considers what must be done to secure freight's place on the network and to develop its future role

**T**he problem with rail freight is the lack of a benevolent controlling mind that has significant influence to develop both policy and investment, in order to use our industry as a key plank in the move towards the Government's decarbonisation target of zero emissions by 2050.

Of course, we in the industry all have a role to play. The freight operating companies, the Rail Freight Group, the Office of Rail and Road and the Rail Delivery Group all engage vociferously with those in power.

Sympathetic ears are many, but when it comes to actioning our requests, thoughts and demands, they sit within a passenger-focused environment where direction and leadership to encourage what we do is sadly lacking.

Politically, we are manna from Heaven, with politicians welcoming the sound bites and opportunities we offer. But when it comes to

strategic direction, the situation is unfortunately vacuous. So, what needs to change?

First, let's park one thought. There are those who argue that commerciality between the freight operators is part of the issue, and that the lack of a single unified voice, because of how we compete, is where the problem lies.

I couldn't disagree more. In the past 25 years, the freight operating companies have delivered labour productivity and utilisation of assets that can only be dreamt of in the passenger world. Ironically, even the unions recognise this fact and work positively with us to help our growth.

Arguably, we've done (and continue to do) our bit. Now it's time for others to step up to the mark.

The growth we have delivered in our markets is arguably the envy of the European freight operators. Where else would the demise of one of the key commodities we dealt with (coal) have been absorbed, with all of us coming out smiling on the other side? Our flexibility and ability to be fleet of foot has been key to this achievement.

In case anyone doubts my wisdom in this respect, I've experienced the delights of running private freight companies in both Sweden and Germany, where it was like stepping back into the 1970s. Because of the continued government ownership of the main freight operators, you compete with businesses that have no jeopardy in the ownership of assets (the taxpayer pays), and where pricing below cost is rife because they don't understand their costs.

Perhaps we hide our light under a bushel, and need to work harder at raising our profile?

I remember vividly the visit of a senior politician to Felixstowe, who marvelled at the huge ships on the dock and the cargos of stacked containers they carried. When they asked of me what was in said boxes, I pointed out to them that "it's the economy, stupid".

Equally, who knows that the deepest hole dug in Europe for the extraction of granite, producing six million tonnes of the stuff per year (one million tonnes is used by Network Rail - it's the pink ballast), and with over 50 years planning permission remaining, sits between Leicester and Loughborough?

A quarry served, God help me, by a single lead junction onto the Down Fast, where you run in the opposite direction of travel for over a mile at 5mph with no apparent plans to change this (the devil is always in the detail).

At this point, it's worth reflecting on COVID and its impact on what we do and can do in the future.

In the early days of the March lockdown, we were all watching our liquidity like hawks. No one knew where we were heading. We consequently needed to batten down the hatches.

Not for us the Emergency Measures Agreements that were miraculously parachuted into the passenger world at the drop of a hat. We survived on the strength of our balance sheets, our >



*"Nothing focuses political interest more than empty shelves in supermarkets and panic among their constituents. It suddenly dawned on those in power the importance of what we do, together with other parts of the logistic supply chain (road, ports, inland terminals, ships, warehouses) - all of which sat in a very efficient private sector."*



**Mountsorrel Quarry in Leicestershire produces six million tonnes of granite per year and is served only by a single lead junction onto the Down Fast, meaning that a train must run in the opposite direction of travel for over a mile at 5mph. DAVID JARVIS ASSOCIATES.**

► absolute focus on the bottom line, and (to be fair) some support from one of our key customers (Network Rail) and the Department for Transport. We also had to be sympathetic to most of our customers, who had their own liquidity issues and were seeking extended credit.

As March became April, suddenly the political focus shifted onto the importance of what we do in supporting key elements of the country's economy (hooray!). It all started with 'bog roll gate', where (for some reason) COVID made us go to the toilet more!

Nothing focuses political interest more than empty shelves in supermarkets and panic among their constituents. It suddenly dawned on those in power the importance of what we do, together with other parts of the logistic supply chain (road, ports, inland terminals, ships, warehouses) - all of which sat in a very efficient private sector. A private sector that had delivered material just in time (be it bog rolls or Mini car engines for BMW) for years, without fault. This dawning and subsequent seeking to understand what we do has been no bad thing.

This month, we see our trading coming back to something like normal. The Government's focus on construction and our desire to buy everything online has led to a return in demand. What we need to do now is ensure that the short-term focus on us that was generated by COVID is not lost.

One final outcome of COVID that offers some solace for GB Railfreight is the view of our owners. The business' robustness during a period where other 'safe haven' assets such as airports

have suffered makes us a good bet for investment and development - not least as we are definitely seen as a green asset and one for the future.

So, how do we facilitate a benevolent controlling mind? Arguably NR could help. Its freight team is always supportive on a day-to-day basis, but is buried deep in an organisation with other diverse responsibilities. As a consequence, strategic direction is not seen as a priority and influence is limited.

Equally, the devolvement of power is a curate's egg, depending on who is in charge and where their priorities are most focused. It also gives us the problem of having many more individuals to influence, as most of our services cross numerous of NR's imaginary borders.

At a strategic level, the problem is most easily described by focusing on one key freight corridor - Felixstowe to Nuneaton (colloquially termed F2N, it always pays to have a catchy term to describe something).

Understanding the necessary piecemeal nature of freight infrastructure investment, I'd ask: "What is F2N when it is finished and when will it be complete?"

The need for this clarity of thought should be obvious. As already highlighted, we are a trading nation that buys and sells across borders which all involve water. And Felixstowe is our biggest container port by some margin (I'm told it is the fifth biggest such port in Europe).

So, is the strategy for rail infrastructure serving Felixstowe seen (by anyone) as an electrified four-track, four-aspect line heading across the Fens? Probably not. But equally, it shouldn't depend on traditional block signalling which was built in the 1800s!

The lack of any strategic mind asking such questions and setting policy within NR is palpable. Arguably, the Head of Railfreight

*"Arguably, the Head of Railfreight within NR should be the top devolved job. It involves the entire rail network, as well as engagement and an understanding of economies and industries that are far more cosmopolitan than the small niche in which we exist. It is arguably a more complex job than a simple geographic route. (I'll get complaints about that comment!)"*

within NR should be the top devolved job. It involves the entire rail network, as well as engagement and an understanding of economies and industries that are far more cosmopolitan than the small niche in which we exist. It is arguably a more complex job than a simple geographic route. (I'll get complaints about that comment!)

Perhaps the Williams Review and its outcome offers solace, in the form of a devolved body with a team of people solely focused on exploiting rail freight to help achieve the decarbonisation agenda. A team of people which will need strong leadership, a clear budget and legislative powers to instruct and direct.

Perhaps I've stuck my rose-tinted specs on, but it might work. Certainly, we will need protection from the other issues the Review is set about achieving. So, a strong rail freight voice on the board of a devolved body will be vital.

In terms of the detail of what's needed for this august body to get stuck into, I'd offer the following key objectives:

■ The protection, security and development of our access rights over the next ten years.

All freight operating companies have become past masters at maximising our utilisation of the available capacity on the network. Arguably, it is a key element of our business models.

We deliberately seek out the best planners and timetablers. They are a key element of our efficient use of rolling stock and are manna from Heaven when it comes to finding new paths on a congested network.

The protection offered to us by the ORR, and the rights enshrined in our Track Access Agreements and the Network Code, must not be lost as the passenger railway moves towards a national operation.

More importantly, it is a vital element of our ongoing security as a

business and will encourage us to invest private money into our assets and people, enabling us to take the next big step of decarbonising our traction fleets.

■ The speeding up, encouragement and authority to progress obvious and simple rail freight infrastructure investment.

It's sad to reflect that a mile of double track on one of the most congested single-track railways in Europe (Felixstowe to Ipswich) has taken me and our industry almost 15 years to lobby for and finally get built.

I once joked that all my politicking and lobbying efforts on behalf of rail freight generally were actually just focused on getting this one bit of track laid. The current lack of a focused pot for rail freight investment, and the bureaucracy of the DfT's involvement and the NR GRIP process, is frankly no longer fit for purpose. We crawl towards the smallest investment schemes.

■ A focus on key rail freight corridors and infrastructure, together with the protection of strategic track capacity.

Rail freight is not complicated. We serve a number of key supply points such as quarries, ports and steel works, and deliver to congested cities, factories or to export.

Most of these corridors are familiar to most: limestone from the Mendips and Peak District to the Midlands and London... sand and gravels from East Anglia for glass manufacturing in Yorkshire... hard stones from Leicestershire... containers from ports to key distribution hubs... biomass from ports to power stations... the list goes on.

There has to be a focus on the longevity of these flows and on the consequent infrastructure improvements needed to drive efficiency for freight operators and our customers.

Equally, we are often pressurised to give up track capacity for the benefit of performance and ever-increasing passenger services >



**The Port of Felixstowe. John Smith argues that as the UK is a trading nation that relies on buying and selling across borders (and given that Felixstowe is our largest container port), a clearer strategy for its rail infrastructure is imperative. ALAMY.**

# New vision for freight

*“There is a key role to influence and encourage businesses handling commodities no longer transported by rail that they need to look closely at their decarbonisation agendas, and to consider how their future capital investments might include rail freight.”*

► (perhaps this will now wane?). Our demand ebbs and flows.

We'll shortly be flat out delivering aggregates to HS2 in the Midlands and taking muck away from tunnelling machines at Old Oak Common. The network capacity to facilitate such flows needs to be protected going forward.

■ Engagement with the wider economy and the encouragement of migration to rail freight.

It's pleasing to see new planning permissions for logistics parks requiring developers to build substantive (not the odd siding) rail freight facilities.

Sadly, this is where the joined-up thinking seems to end. The current development of two new large rail freight facilities on the Northampton loop, with the associated traffic it will generate, is not particularly evident to those planning our rail infrastructure.

The oiling of rail freight's wheels via these planning decisions cannot end with £20 million worth of private sector investment for a 30-acre site. It has to lead to an integrated plan that maximises the use of such facilities, or at least to an understanding of what else is required outside of the developers' gates to maximise such use.

Similarly, there is a key role to influence and encourage businesses handling commodities no longer transported by rail that they need to look closely at their decarbonisation agendas, and to consider how their future capital investments might include rail freight.

The noughties rush to pure road logistics hubs (look at Royal Mail) has cost our industry dear. Encouragement to change this with future investment will be key to a reversal of the trend.

■ The maintenance and development of our competitive environment and economics.

A general catch-all, but our industry is clearly going to go through some dramatic change in the next two years. We must be protected from perverse outcomes.

It is also vital that the economics within which we exist are protected and developed. Lateral thought needs to be applied to ways that make rail freight more attractive within the logistics market.

The current trauma being faced by the passenger railways and the time it has taken to destroy a very buoyant market would be remarkable if it weren't so depressing. The logic of making people scared of the safest, most environmentally friendly form of transport has been, quite simply, bonkers!

As an industry, in the early stages of COVID we failed to push back hard enough against the Government's very general messaging that public transport was dangerous. This is now set in people's minds, and it will take many years (if ever) to recover from. That said, it offers an opportunity for rail freight to step into the freed-up capacity.

The importance of rail freight and its green credentials is now high on the Government's agenda. Perhaps for us, every cloud (and this was and is a bloody big one) has a silver lining. ■



**Martin Fleetwood**  
Consultant, Addleshaw Goddard LLP

John articulates well a number of the frustrations of the freight sector, while also pointing to some of the solutions that should be considered as part of the Williams Review.

Within the UK, there still appears to be a remarkable deficiency (particularly at a political level from national government downwards) in the understanding of how many of the logistic chains work, and the inter-connectivity between the various parts of that chain and the choice of transport mode. Certainly a lot of work behind the scenes by the transport sector, assisting the UK Government to understand freight flows in the context of Brexit, has helped. But there is much left to be done.

A concern of mine is that we still have parts of the freight and passenger sectors competing for track space and seeming to be looking inwards, rather than trying to find a way to provide better competition for non-rail transport options. This is where the post-Williams 'Guiding Mind' needs to be able to look outside of the



**Nick Gallop**  
Managing Director, Intermodality Ltd

There is much to commend in John's piece. The historic and at times overpowering passenger focus for the rail network has, for many years, provided the new clothes for the emperor - while the little boy in the crowd of outsiders points to the fact that on average (and pre-COVID), the emperor's franchised TOC services were 60% fresh air.

As for the equally passenger-focused Rail Delivery Group, I've yet to see any real passion in the organisation for promoting freight, beyond marketing soundbites and generic reports generated by external high-end agencies with no real understanding of the issues, opportunities or target audiences (prospective end users in the real world of logistics, rather than the Twitterati).

John is also right to call out the difference between a largely state-controlled continental rail freight network and here in the UK. Our 2015 report on intermodal freight for the European Commission concluded (with a shameless plug):

“North America has seen a dramatic turnaround in fortunes since the 1980s, transforming a virtually bankrupt and dysfunctional rail sector into a key player in the overland freight market, where legislation is now focused on limiting its scope for market dominance, rather than to try and stimulate the market to make more use of it. The opposite applies in the EU.”

Twenty years have passed since 'open access' liberalisation appeared, and while the European industry would hopefully

rail industry and engage with those bodies that support or work with the wider transport sector. This includes those local authorities responsible for granting planning permission for freight facilities but who are not fully connected with the wider transport picture.

I agree with John that there is a strong, collective understanding within the freight sector of how freight operations should be progressed, and the logistics networks that form part of this. The freight operating companies are part of this network, but they are one of a number of transport choices that can be used for the movement of freight.

The selection of a route and a mode is subject to many factors. While rail may be able to offer a fast, sustainable and environmentally friendly service between two points, the transfer time moving the freight onto a service, the waiting for the booked path, and the location of the destination transshipment depot can destroy any advantage it may have. I know of logistics companies who express their frustration that while they would like to use rail more, the overall journey time is such that the delivery time for the end user just does not fit with their business needs. As a result, they continue to rely on the road network, despite the uncertainty of delays caused by traffic jams and roadworks.

Balancing the operation of passenger services during the commuter peaks with the need to run a number of freight services because of their required destination arrival times is something that needs to be reviewed, whether as a consequence of the Williams Review or as

part of the COVID recovery plan for industry.

We can and should be factoring in how opening up some additional freight routes would provide real competition to road services. With the increase in logistics parks with rail links, more potential routes become available, slowly making it easier for these competing rail flows to be established. However, this won't happen overnight and there does need to be a real commitment within all of government to support rail alternatives.

Pressure from the 'Guiding Mind' for all of rail would hold greater sway than just the freight side. Linking it to the UK's already challenging targets for sustainability and the reduction of carbon usage to net zero is another part of the jigsaw which should be explored.

Currently there is a Union Connectivity Review being headed by Sir Peter Hendy on behalf of the DfT, looking at the inter-connectivity of the four countries which make up the UK. The freight sector, in all its guises, is looking to make strong representations that freight routes need to be the backbone of any inter-connectivity strategy going forwards. It should certainly be making as much noise as it can as the leading long distance freight mode.

With Sir Peter's involvement in the review, there is the opportunity for the freight sector to provide him with compelling evidence of why freight is so important and the need for freight to be moved up the priority scale within the rail industry, as well as viable competition for other freight modes.

by now have been similarly mature and as successful as in North America, it instead appears at times to remain in adolescence and (at worse) at risk of heading for obsolescence. Rail freight has a 22% market share - almost half that achieved in North America.

This is then the fundamental challenge facing the Channel Tunnel: most policy-makers wish to see it play a much greater role in addressing the freight-related issues of transport in the EU; many end users would like to see it become much more commercially attractive; but relatively few customers actually use it, and often without any great enthusiasm.

What then for the post-Williams, post-lockdown, post-franchising, post-retro-Beeching, post-massively-indebted rail industry?

From all I can gather from the outer branches of the industry grapevine, no one honestly knows whether the grapes will return again in such abundance. If not, will this then promote a sensible blank-sheet, bottom-up review of how many passenger trains are actually needed on the network? If the Treasury further slashes the available budget, then probably so.

Getting back to John's script, access rights do need to move away from "TOC first, everyone else fight for the scraps". Compare the equivalent road vehicle traffic from a poorly-patronised passenger path on the Felixstowe branch against a well-loaded freight path carrying 40 articulated lorry loads. Is that a sensible allocation of access rights?

On infrastructure, HS2 and some of the large rail freight interchange projects of late suggest that the mood among the general public is waning away from mass-marching, Packham-promoting protests. There is certainly no shortage of investors, developers and occupiers wanting more rail-linked distribution parks, with every single one built to date generating new rail services. The Development Consent Order planning process and the National Policy Statement on National Networks have together made a significant difference in elevating nationally significant infrastructure projects to Ministerial rather than local authority determination.

Perhaps people have seen the likes of HS1 and DIRFT bed in and decided that it wasn't as bad as they feared (or were led to fear by those seeking a local platform for rabble-rousing publicity). Granted our country is more densely populated than others (both numerically and sometimes in other respects), but it would be a positive step for the next major rail corridor to not be so much about HS3, but more about F1. North America successfully runs 3km-long double-stack intermodal trains up to 6.15 metres high, so how about doing the same between Felixstowe, the Midlands and the North West for starters?

At the other end of the spectrum, we look forward to the demise of Network Rail's GRIP process and its replacement by PACE, in the hope that the project development process can be scaled up and down, such that small projects in particular don't get overwhelmed by bureaucracy - Network Rail's award-winning triumph this year with reactivating a railhead at Newhaven demonstrates what can be done quickly and cost-effectively.

Echoing John's closing comments, the rail industry is peppered with perverse outcomes - not least the stop-start, long pause-pause-unpause cycle of post-war modernisation and electrification. Scaring people away from trains onto Teams (myself included, and very happy with my new low-travel lifestyle) may have simply accelerated the inevitable, but care will be needed to avoid a knee-jerk response to the piles of public funds injected into the industry's arteries of late. Cold turkey is coming, and it may be very cold indeed. I'd love to anticipate a white-hot tsunami of innovation rather than yet more public policy platitudes, but expectations on this remain somewhere towards the lower levels of the Mariana Trench.

And to quote a certain actor and Brexit-baiting movie classic, it would be nice if the rest of the freight operators would follow John's lead and "blow the bloody doors off" the mass media, which remains utterly oblivious to the critical role that rail plays in the supply chain and in daily life.



# A strategy for freight: how to deliver growth

Despite the real and obvious difficulties of the year ahead, there is a sense of optimism that rail freight can not only survive, it can benefit from the structural shifts engendered by COVID-19 and Brexit.

New global supply chains, growth in online sales, and the pressure to decarbonise are already bringing new customers to rail and increasing the volumes from existing businesses. Expectations of further increases remain strong as we move into the new year.

Delivering sustained growth does not require magic. It requires every train to be loaded to the maximum and new services to be added - train by train, month by month. Each new service has to be contracted, timetabled, resourced and operated by people who know what they are doing and who care about the outcome.

This is the bread and butter of freight operators' businesses, and it can be made easy - or hard - by the way the railways are organised and by the wider policies and regulations which underpin business decision-making.

With rail reform now under way, alongside Brexit and COVID-19, the opportunity is here to help freight thrive and to address the barriers to growth. So, what are the key parts of a strategy to grow rail freight? And what should the industry, and indeed Government, prioritise?

### A JOB FOR THE PRIVATE SECTOR

With the passenger railway seemingly ever more entrenched in the public sector, it is important to remember that rail freight remains firmly rooted in private business.

New terminals, warehouses, wagons and locomotives are financed through the investment markets, and the majority of the freight operating companies are in private ownership, too. Even the state-owned operators, DB Cargo and Direct Rail Services, operate on the UK railways as open access operators and invest in the

equipment, technology and systems needed to keep their customers happy.

This private status comes with many benefits. Genuine open competition between operators has driven productivity improvements and brought customers who are used to the commercially facing road haulage sector into rail.

Private sector pressures have driven innovation and enabled partnerships to evolve between rail hauliers, logistics companies and end customers, thus bringing greater integration with other freight modes.

This has been recognised by Government, which has also noted how the sector responded to recent challenges with resilience and adaptability. This is good news, but even so, freight is a poor fit for the emerging model for UK rail.

Greater integration of passenger contracts and Network Rail seems possible, perhaps as part of a new guiding mind, and could lead to fundamental changes in regulatory and indeed legal processes. How freight fits into this remains of concern, in particular how any changes will continue to harness private sector investment.

Long term certainty of access, national co-ordination and a freight-friendly governance structure remain key asks, along with strong independent regulation which could be different in nature for passenger and freight. This will be an essential underpinning for future growth.

### A CAPABLE NETWORK

While the private sector needs to lead the commercial aspects of investment and growth, the rail network also needs to be fit for purpose. Like the road network, that is a job for Government.

To be fair, the UK rail network has a lot

going for it. Compared with many countries, its reliability for freight is excellent and many of the core corridors provide good levels of freight capacity. Enhancements in recent years means that much of the core network is cleared for container gauge, with only a few notable gaps (Trans-Pennine in particular), and train lengths have been gradually increasing.

But there are still many issues with providing capacity for the long term, and with the capability of the network today.

The immediate challenge is to improve the capability of the paths that we have, and to add capacity where the network is genuinely full. Well-loaded trains are more productive, and trains with fewer stops and starts are much better for the environment, emitting less carbon dioxide and air-quality emissions on non-stop journeys. Faster journey times also means that we can improve asset use, getting more productive time out of wagons and locomotives.

On a mixed traffic railway, this is not always straightforward. But with passenger reform under way, there is the potential to improve freight pathing for existing trains and new paths.

Such measures do not replace the need to expand network capacity at bottlenecks, whether through specific projects, digital signalling or the released capacity from HS2 and Northern Powerhouse Rail, so it is essential that such projects continue. Some electrification wouldn't go amiss either! And freight capacity does need to be safeguarded across the network, to make sure that paths are aligned end to end and available for use.

### TECHNOLOGY AND CHANGE

Across the industry there has been progress in implementing technological change, but

*"If customers have the security of tenure on their land sites, they can start to make the necessary investments for growth and modernisation."*



- both the handling equipment and the terminal operations, particularly where the future locomotive might be electric. There are already exciting developments in battery shunters, and the first electric reach stackers are being prototyped by manufacturers.

## THE CUSTOMER

Putting the customers last in this article may seem strange. But with the right framework and strategy in place, the sell to new customers and growth of existing trade should be easier.

However, reaching new markets and bringing new companies to rail is challenging. In my opinion, the absolute key to this is in understanding how rail fits into company supply chains, and not vice-versa.

The 'sweet spot' that makes rail work for a business will not only be dictated by road and rail's direct costs, but by understanding their strategies for warehousing, returns handling, and the depth and breadth of their own customer network.

To bridge this gap, rail freight businesses have to partner with others, or expand their operations to gain a wider understanding of supply chain need. There are already excellent examples of this in the partnerships between freight companies and 3PLs such as Maritime Transport, Russell Transportation and Malcolm Logistics. And several ports, including PD Ports, are taking on a role brokering between parties to achieve new trains and enhanced loading.

And while this is absolutely a matter for business, Government can support by its advocacy and (where it is right to do so) by setting targets for modal shift, as we have seen to good effect in Scotland. This sends a strong signal of intent and helps bring parties together to deliver.

What is clear is that the partnership of the private sector and Government remains critical for rail freight, but it has to be articulated in a different way now to the passenger railway. With the right framework, rail can really deliver on growth. ■

**A DB Cargo Class 66 heads across Horsfall Viaduct on November 5. Maggie Simpson says that even state-owned freight operators such as DB invest in the equipment, technology and systems needed to keep their customers happy. TOM MCATEE.**

there is much more to be done. Innovations such as digital coupling (now on trial in Europe), remote monitoring sensors in locomotives and wagons, and better management systems in terminals will help improve productivity and are better for staff and customers.

Innovation can drive a competitive edge for those businesses who take the lead, and the private sector is well-placed to take this forward where benefits accrue to the operator or their customers.

It is more complex when technology spans the interface of track and train - for example, in traffic management or digital signalling. Network Rail is at last making real progress in implementing new systems and replacing legacy systems in timetabling and elsewhere. Yet in doing so, it must make sure it works for all customers and recognises the different technologies of each mode - freight trains do not have their own WiFi, for example!

If (as many expect) funding for rail enhancements will be reduced over the coming years, the exploitation of new technology will be even more important as we look to sweat the assets and drive growth, so this will need to be a key focus for business.

## A PLANNING SYSTEM FIT FOR PURPOSE

Capacity on the network is no use unless there are terminals to load and unload trains. Whether a port, rail-linked warehousing, a construction railhead or any of the other locations we serve, those sites also need to be equipped for growth and decarbonised.

Although Network Rail is the freeholder

for many of the sites in the bulk sector, the task of operating and building terminals is most certainly one for the industry - most often, in fact, the customer, port or property developer.

There is already significant investment taking place, particularly in strategic rail freight interchanges (SRFIs) such as the newly open East Midlands Gateway, the Daventry International Rail Freight Terminal Phase 3 which is in construction, and at other locations which now have planning consent. These have been helped by a strong planning framework provided for nationally significant infrastructure.

Elsewhere, however, it can be harder to obtain consent for planning change, and many sites are finding difficulties when they do look to develop.

Government's recent consultation on reforms to the planning system did little to add comfort. Across its 80 or so pages, the White Paper contained almost no references to industrial uses of land, and the proposals to accelerate housebuilding came with some significant risks to other users.

The proposals have been sent back to the drawing board by MPs, but whatever emerges must do a better job of safeguarding rail terminals, providing assurance about adjacent development and recognising that our towns and cities simply cannot work without the right land available for logistics.

If customers have the security of tenure on their land sites, they can start to make the necessary investments for growth and modernisation. This includes considering how to decarbonise terminals

## About the author

Maggie Simpson is executive director of the Rail Freight Group.

■ Previously she worked in a range of passenger and freight roles at the Strategic Rail Authority and Office of Passenger Rail Franchising, including freight strategy development and franchise management. She has also worked in consultancy.

Capacity is being increased on the branch line to Felixstowe port, to yield a further 14 train paths each day. The £60.4 million scheme is being funded by Network Rail with a contribution from Hutchison Ports, and will enable the movement of the equivalent of 840 lorry loads from road to rail. ALAMY.



# Building the future by bringing down barriers

Network Rail's Open for Business Programme Director David Ollerhead gives **PAUL STEPHEN** the latest on reviewing standards, embedding new behaviours and encouraging third parties to invest in Britain's railways

**T**he start of any New Year is invariably associated with feelings of fresh hope. Amid the celebratory haze of the customary fun and frivolity it is usually a time to reflect upon the year that has passed and to look forward to what lies ahead.

This New Year's Eve will, of course, be very different as the continuing Coronavirus public health crisis precludes any large gatherings. But there will surely be no shortage of optimism for 2021 as the anticipated arrival of effective vaccines begins to loosen the grip of this dreadful pandemic.

Restrictions are likely to remain in place for a little while longer, but thoughts have inevitably begun to turn towards a life without enforced social distancing. And as the immediate threat to the nation's physical and mental health hopefully recedes it will be the economic cost to the country of tackling COVID-19 that is thrown into sharper focus.

The railway will not be immune from this shift in emphasis as the Government looks to reduce a biting rate of public borrowing that has swollen to levels unseen since the end of the Second World War.

Industry leaders including Network Rail Chairman Sir Peter Hendy CBE are already warning that the Treasury is unlikely to continue shelling out up to three quarters of a billion pounds a month to keep services operating that currently carry so few travellers.

With widespread uncertainty over when (or indeed if) passenger levels and revenue will return to pre-pandemic levels there is bound to be much speculation over whether cuts to investment or service reductions will now follow. But there does seem to be general agreement that some cost reductions will need to be delivered by the sector as part of any expected government efforts to balance the books.

One of many avenues available to Network Rail to play its part in cutting costs and boosting efficiency will be its Open for Business programme. Established in the summer of 2017 in the aftermath of

the Hansford Review, it commits NR to attracting some £2.5 billion worth of third-party investment by the end of Control Period 6 (up from £1bn in CP5) alongside making it easier for third parties to engage with NR to deliver more works on the network, through a contestable approach.

Underpinning this programme is an overarching ambition to turn NR into a more customer-focused and commercially minded organisation while also reducing its reliance on central funding.

As well as securing external investment the prevailing view is that by engaging with third parties to secure these funds NR will become more outwardly facing and responsive to local stakeholders. Meanwhile, enabling more third parties to deliver works and focusing more on end outcomes ought to encourage innovation and creativity and consequently deliver increased value for money for those works.

Commissioned by former Network Rail Chief Executive Mark Carne in December 2016, the Hansford Review identified the barriers that prevented third parties from investing in and building on the railways - such as the perception that NR is too large and bureaucratic for smaller organisations to deal with.

A total of 15 recommendations were subsequently made to assist NR in bringing down those barriers and eight workstreams created to help implement them (see panel, page 38).

Open for Business Programme Director David Ollerhead was appointed in September 2017 to mobilise a transformation programme around the workstreams to ensure that 22 individual commitments were fulfilled in a range of areas. These include the creation of a project finance team to explore opportunities for third party investment and the publication of a pipeline of schemes where NR is seeking third party funding and that are open to contestability.

Business development directors have also been employed within NR's devolved regional and route businesses to act as de facto account managers to help guide external funding partners through the process and to help encourage third parties to more collaboratively generate ideas for investment opportunities.

Hansford also encouraged NR to review its standards - particularly where they are deemed to increase cost without comparable benefit, and often applied indiscriminately.

Suppliers were to be incentivised to challenge these standards so that they may be improved, contain more innovative thinking, and potentially create significant cost savings.

Asset protection agreements were also identified as a barrier to third party delivery and NR's existing access procedures to ensure that train services are not disrupted, and that equipment or structures are not damaged, deemed to be excessively risk averse.

The Open for Business team went on to hit its first key milestone in March 2019 when NR announced the completion of all 22 commitments and the end of phase one of the programme. ➤



*"The opportunity for organisations to challenge our standards has made a huge difference. We still need standards to underpin the safety and delivery foundations of what we do, but we don't want them to be a barrier."*

*David Ollerhead, Open for Business Programme Director, Network Rail*

► “In the early days, we published a list of investment opportunities for third parties and put business development teams into each of our routes,” Ollerhead explains.

“Every region now has an investment director, and at the centre there is a dedicated project team headed by Harriet Hepburn.”

There is also a strong theme around challenge. “Andrew Haines [who replaced Carne as NR CEO in August 2018] has told us that he wants us to be ‘revolting’ and to challenge the status quo in a positive and constructive way,” says Ollerhead.

“The opportunity for organisations to challenge our standards has made a huge difference. We still need standards to underpin the safety and delivery foundations of what we do, but we don’t want them to be a barrier.”

He says NR has had more than 120 challenges to its standards and that about 70% have been accepted as good challenges where there is a case to be reviewed.

He adds: “We’ve also put the O into our ASPRO [asset protection and optimisation] teams in the routes because we’re talking about removing barriers - the ASPRO teams are vital in making this happen. We’ve put in a new professional head of ASPRO, Mona Sihota, and a new national framework which pulls it all together and gives more consistency in how we deal with our customers.”

Network Rail has also published new service level agreements so that it can be held to account by other organisations. It also publishes customer feedback scores on its website.

“But this is only the start of the piece and they are the fundamental building blocks. These enabling commitments are all very important and I don’t underestimate our achievement in completing them, but

*“We had our moment in the spotlight and delivered our initial commitments but now is the long burn where all the benefits and transformational changes will happen.”*

*David Ollerhead, Open for Business Programme Director, Network Rail*

## Open for Business Phase 1 workstreams

- Create a national asset protection framework and accompany with appropriate service level agreements.
- Asset protection organisation change in each route.
- Create a project finance team.
- Create appropriate governance, incentives and reporting processes (internal and external) for third party opportunities.
- Develop and maintain a pipeline of schemes that are open to contestability.
- Update NR’s engineering standards, adopting a risk-based approach. Create a process that enables industry to challenge existing standards with the appropriate incentive to do so.
- Ensure each element within the Open for Business programme completes the necessary NR and industry safety validation.
- Develop and implement principles, responsibilities and processes for contestability.

we need to try to build on them and drive them forward,” Ollerhead says.

Following the completion of the first phase of Open for Business, NR is now able to point to an expanding portfolio of projects that have been part-funded or fully third-party-funded. These include new stations at Kenilworth and Maghull North that opened in 2018, through to the double tracking of the Felixstowe branch and the construction of a 2.5-mile extension to the Gospel Oak-Barking Line to Barking Riverside that is expected to open in 2021.

Now into its second year, phase two of Open for Business is in full swing to fully equip NR’s route and regional businesses to be autonomous in the various workstreams - which have been condensed from the original eight to a core of four key themes.

Ollerhead says that this second phase of the programme is scheduled to run until March 2022. It will be far less about achieving tangible outputs from NR but more in deeply embedding new behaviours and automating processes so that they become second nature.

He adds: “It’s now more about incremental progress. We’re constantly updating the pipeline of opportunities and the

## CASE STUDY: Newhaven Marine aggregate terminal

In July 2020 freight services began running to a new aggregate terminal opened at the site of the former Newhaven Marine station in East Sussex.

Following the closure of the station to passengers in August 2006, NR invested £340,000 in trackwork and resignalling to

reinstate derelict sidings while Brett Aggregates invested £10 million in a new wharf-side offloading facility. Currently the aggregate terminal and processing plant generate three trains per week to mainly serve the construction industry in London.

David Ollerhead says: “Newhaven wouldn’t have happened without third party investment and is an important case study for a number of reasons. First, freight is increasingly important when you consider COVID-19 and the necessity to get freight rapidly around the country and more integrated with the national network. Second, it’s a big carbon win as each freight train takes the equivalent of 76 heavy goods vehicles off the road which has to be a good thing for reducing congestion and protecting the environment.”



**DB Cargo 66113 leads the first freight service out of the newly refurbished Newhaven Marine aggregate terminal on June 18. It is carrying marine-dredged ingredients to produce concrete and other construction materials for the building sector in London.**  
STEVEN NEWMAN/NETWORK RAIL.

## CASE STUDY: Solar-powered trains

In August 2019 100 solar panels were installed on redundant railway land near Aldershot as part of a trial to help power electric trains, lights and signals.

Developed by the 10:10 Climate Action charity with research input from Imperial College, London, the Riding Sunbeams project represents the first time that solar energy has been directly connected to a DC third rail power supply anywhere in the world.

With the solar installation paid for through third-party funding and Network Rail buying the power it produces, the trial aims to prove the business case for similar renewable energy projects to follow.

It is estimated that up to 10% of power needed to run third-rail

trains could come from solar power. Riding Sunbeams has also received additional funding from the DfT and Innovate UK to install a solar array that connects to an AC overhead power supply.

Ollerhead adds: "This is a great case study on the ASPRO side of things as the ASPRO teams in Wessex played a critical role in enabling multiple organisations to work together effectively.

"There's obviously a strong sustainability theme here as NR has masses of unused land that could be used to generate renewable electricity to part-power the network. The pilot has been very successful, and we will be doing a second one shortly as we continue to think outside the box to open up and encourage third parties to work with us."



**The 100 solar panels located close to Aldershot station represent the first-ever solar farm to directly feed electricity to a railway. ANDY AITCHISON/10:10 CLIMATE ACTION.**

website with standards challenges rather than making any big announcements. It's a long-held mantra but in any change or transformation programme the job is to make sure you can walk away from it with the changes comfortably embedded in the organisation.

"We had our moment in the spotlight and delivered our initial commitments but now is the long burn where all the benefits and transformational changes will happen. We have a small business change team in the centre, but we want to put the emphasis on the frontline."

He says that bringing in a new professional head of ASPRO was a very positive step but warns that actually changing the way people work will take time. Ollerhead believes the wider devolution agenda will massively enhance what Network Rail is trying to do.

The first of the four Phase 2 workstreams focuses on securing the target of £2.5bn worth of third-party investment in CP6. To facilitate this the Open for Business programme team is looking to publish a revised *Investing in the Network Guide* by the end of the year.

Although technically correct, Ollerhead describes the existing document as "very difficult to read" and in need of simplification

and amendment "so that it doesn't put people off and we can be easier to engage with".

NR is also putting in place a Customer Relationship Management system and developing staff competencies to help improve its stakeholder engagement when dealing with potential third-party funders.

"One of the benefits of devolution is being closer to our customers but unfortunately not all of our customers sit neatly within our route structure. Making sure that we're not needlessly repeating the same message from different parts of the business or giving out different messages to those organisations is a really important part of how we grow," says Ollerhead.

"We also have lots of people who work for NR who are extremely technically competent and know the railway and its processes really well. It's relatively easy to also find business development people and bring them in, but those two skills sets don't often overlap, and we therefore want to find ways of developing and encouraging people internally or externally that have those two skills sets."

The second workstream surrounds value for money engineering. As well as re-promoting the external standards challenge NR >

► is increasingly looking to its own frontline staff to identify opportunities.

According to Ollerhead third-party access to standards is also being made much easier through the creation of a new online standards portal that has a more user-friendly search function and by decreasing the fees that third parties currently pay to access it.

"This is really important, particularly for SMEs," he stresses. "One of the bits of feedback we had from people was around how difficult it is to access standards in the first place.

"We've also done some work around prioritising the areas where we spend the most money and where our own staff are telling us there is an opportunity to incur less cost. We are at the stage of trying to marry those two things together and to take it forward into cost innovation reviews, but I'm a big believer in focus and pace here.

"Clearly any challenge also needs to be safe, so we aim to pilot it region by region and then try and spread the learnings across the organisation as appropriate."

The third workstream concerns contestability and providing further support for existing small scale contestability pilot schemes at regional level. Capability is also being built up to undertake larger on-network pilots by addressing any issues that have arisen from the existing pilot schemes that have hitherto focused on less complicated off-network 'high street' environments.

Ollerhead explains: "We've got some great learnings from the existing pilot schemes and we've put a contestability guide on the Network Rail website. Through our devolved structure our capital work, procurements and commercial teams are all closer to the

*"We need to be enabling innovation by focusing on the end outcomes of what we're trying to deliver rather than being very prescriptive during procurement."*

*David Ollerhead, Open for Business Programme Director, Network Rail*

end customer and our job is to help them to apply some of these principles to achieve cost savings.

"We need to be enabling innovation by focusing on the end outcomes of what we're trying to deliver rather than being very prescriptive during procurement, unless there is a major safety reason for doing that."

He says the team has completed several high-street pilots - in particular the procurement of new accommodation for maintenance delivery units [see case study] - where the work is not directly in the railway environment and where many of NR's standards may not apply.

"If you're building a car park or a bike shed, then the default option has often been to just apply the NR standard. We are trying to get some clarity on which of these standards should and shouldn't apply in these environments."

He adds: "What we are also finding through contestability is the close relationship between how we deliver value for money

## CASE STUDY: Stoke Maintenance Delivery Unit

The Maintenance Delivery Unit at Stoke-on-Trent within Network Rail's North West and Central region is in need of larger and more fit-for-purpose office accommodation.

Typically, a design would have been offered to the market for contractors to tender for on price, but contestability has encouraged greater innovation and existing working practices to be challenged instead.

The Stoke project team ran an open competition that told the market what outcomes and performance levels were required but not how suppliers were to deliver them.

Bidders could challenge standards while other barriers were removed including the requirement for contractors to hold the NR Principal Contractor's Licence. Bidders were also allowed to suggest an alternative project management methodology to Governance for Railway Investment Projects (GRIP).

Two contractors have now been selected for their innovative, low-carbon and well-priced conceptual designs that contain

features such as solar panels and rainwater harvesting.

NR reports that the winning bid for the design and build contract gives it a target total price that is 30% lower than the original baseline.

Ollerhead says: "A lot of MDUs are often basically a portable building stuck in a car park - not a great environment for staff to work in. We have about 30 to 40 of these across the network but how can they be replaced using a more outcome-based requirement? We spoke to suppliers to see what they could suggest rather than being really prescriptive about what we wanted.

"One of the great things about the design we've gone for is that it has solar panels and rainwater collection which would not typically be specified in our requirements or standards. If you start from the end point instead, which is to have fantastic new accommodation for our staff that is green and sustainable, and then work from that point with the end in mind, you have an opportunity to deliver some fantastic new pieces of accommodation."

**An artist's impression of the proposed new accommodation that will replace the sub-standard cabins which currently house Network Rail's maintenance delivery unit at Stoke-on-Trent. NETWORK RAIL.**



## Open for Business programme - Phase 2

Bringing investment into the railway



Value for money engineering



Increased contestability



*"Ramped-up third party investment that supports regional and national priorities"*

*"Reduced costs from challenging how we do things: our standards, practices and processes"*

*"Work put out to market at an early stage with a focus on long term outcomes: to improve value for money, remove barriers and benefit from creativity"*

Underpinned by customer-focussed asset protection and optimisation

*"More customer-focussed culture, easier to work with, a more efficient and dependable partner"*



Source: NETWORK RAIL.

and other items coming onto the agenda like decarbonisation and sustainability. We are seeing that when you reduce costs you often reduce carbon so the two are not mutually exclusive pieces of work.

"We've moved from two contestability pilots in Phase 1 to 11 pilots now across the whole network and it is definitely starting to gain momentum within the Regions."

The final workstream revolves around achieving excellence in the ASPRO service that Network Rail offers to third parties while also supporting NR's frontline teams to adapt to the new delivery culture within a more customer-focused organisation.

To achieve this the Open for Business team is focusing on rolling out a competence framework and is also implementing a business support system to automate as much of the ASPRO process as possible. Customer service training is also being delivered to team leaders and frontline staff.

"This is another long-burn activity because the challenge here is how we help support colleagues on what being really customer-focused actually means," says Ollerhead. "I believe that the competence framework we've put out is the first ever for engineering colleagues that has some of the softer skills in it - not just technical skills. Putting that front and centre of what we expect from engineering staff is vital.

"This will be a game changer if we can get this right and put in a business support system to automate ASPRO from end-to-end

*"I strongly believe in the Open for Business concept and that the vision will last way beyond the official end of the programme."*

*David Ollerhead, Open for Business Programme Director, Network Rail*

that releases our teams to spend more time in front of the customer having those conversations about contestability and funding."

What happens to the Open for Business programme beyond the scheduled end of Phase 2 in March 2022 is currently unknown although Ollerhead believes most of the individual workstreams will continue in some guise over the years to come.

In some ways the end of the programme could be interpreted as the ultimate benchmark of its success if the business transformation it is currently spearheading has been fully put in motion and the workstreams established as a permanent fixture within NR.

The legacy of Open for Business is also likely to be amplified by the recent launch of complementary programmes that also focus on driving efficiency and lowering costs including Project Speed >

## Funding v finance

When interviewed by *RailReview's* sister title *RAIL* in August 2018, David Ollerhead made it clear that as far as investment is concerned, the focus of the Open for Business workstreams would be third-party funding rather than finance.

According to him, the former can be defined as a transaction whereby a private sector business or public sector organisation invests in a piece of infrastructure for their own benefit, while the latter comes with an expectation that there will be a return on investment paid to the third party.

This makes the Open for Business programme distinct from other initiatives to increase third-party investment in the railway such as the DfT's call for Market-led Proposals in early 2018.

Looking to emulate notable successes across Europe in rail, public-private partnerships such as the 302km (188-mile) high-speed Tours-Bordeaux line (built by VINCI and opened in 2017), the DfT sought proposals for largescale schemes from ports, train operators, freight companies, housing developers and other infrastructure investors.

Proposals were submitted for a range of projects including the

restoration of the High Peak Line from Buxton to Matlock and the Heathrow Southern Rail Link, but MLPs have so far failed to gather any momentum as the Government continues to grapple with the inherent difficulties of placing private finance onto its balance sheet.

A suitable mechanism to provide a return on investment must also be found while government must also consider the attractiveness of accepting private finance at a time when the cost of borrowing remains at an historic low.

Chancellor of the Exchequer Rishi Sunak announced the creation of a National Infrastructure Bank on November 25 which will use private capital and may yet yield answers to some of the questions.

Ollerhead says: "The £2.5 billion third-party investment that we seek in CP6 is primarily about funding. The finance side of things has inevitably been trickier and some of the challenges around that has meant the Treasury has been more cautious in many ways. We have created a corporate finance team and run pathfinder projects to try to explore that complexity, but we need to follow overall government guidelines."

► and the call from government to restore lines that fell victim to the Beeching cuts.

Ollerhead concludes: "I strongly believe in the Open for Business concept and that the vision will last way beyond the official end of the programme. Stuff like contestability will have a long tail but whether we need a full programme to sit around it or a third phase, I don't know.

"It's topical at the moment because we are supporting a lot of areas in the business that aren't strictly part of the remit or scope of the programme, but people naturally want to ask us for help and assistance.

"These are not part of our remit and are separate areas of focus but some of the things we are looking at, for instance challenging standards, might be a big emphasis for Beeching but it's not part of what I've been asked to look at.

"One of my core themes is to challenge the status quo. Project Speed and Open for Business both do that and the Beeching opportunity is likely to do so too. There is a lot of commonality and we have a huge amount of knowledge, particularly around the contestability side that we can all link into."

Ollerhead and his team will no doubt be examining the medium and long-term effects of the Coronavirus pandemic on the Open for Business programme's prospects of success. On one hand it is easy to see how the known economic multiplier effect of new infrastructure schemes could make rail an attractive target for public sector third-party funders, in particular.

The mood music from the Comprehensive Spending Review on November 25 suggests that rail will play a significant role as the country looks to 'build back better' as part of the national economic recovery.

## David Ollerhead

David Ollerhead joined Network Rail in January 2012, having worked as a programme director and management consultant and having held senior director roles in sales, operations and business development before owning his own consultancy.

After leading the delivery of the Post Implementation Review into devolution, Ollerhead became NR's Head of Business Change Practice in March 2013, accountable for business change resources, and advisory and business change capability across the company.

He held the role for four-and-a-half years before switching to the Open for Business programme in September 2017.

Ollerhead has an MBA from Henley Business School, a degree in engineering and business studies from Durham University and is currently studying for an MSc in Innovation and Change at Brighton University.



On the other, crucial funding decisions on big ticket items such as Northern Powerhouse Rail and HS2 Phase 2b have yet to be made, and any lack of ambition from Westminster is unlikely to inspire confidence among external organisations to embark on smaller scale projects.

Any lack of central funding may also reduce the likelihood of part-public and part-third-party funded schemes going ahead. Only time will tell but the arrival of 2021 might just make Open for Business more relevant than ever. ■

It is really refreshing to read about the successes of Network Rail's Open for Business programme. In these troubled times, we need some good news about the costs of carrying out railway infrastructure projects going down and alternative sources of investment being found.

At CECA (Civil Engineering Contractors Association), we represent most of the contractors who carry out the civil engineering, building and track renewal work to the railway infrastructure. The costs of carrying out this work on the railway are very high, but the work - in percentage terms - is no more profitable than the other sectors and we all encourage measures that will allow us to be more efficient.

The work on standards is very welcome. Our members often identify areas where savings could be made, but the complexity of the standards regime makes the prospect of applying for a change difficult to justify, given the prospect (real or imagined) of delaying the project which stood to benefit from the change. The whole regime seemed more suited to the very complex, and rail-specific, worlds of signalling and control, but less appropriate for the construction-type materials and processes that our members would like to use.

For many of our members the new devolved world offers the best opportunity to offer an alternative, locally and on a small scale, to people who bought into the outcomes required. Once something can be seen to work on a small scale, rolling it out more widely and then nationally will be relatively easy.

External investment in the railway is always good to see. Prior to these initiatives, this was generally being achieved by organisations such as Chiltern Railways and Transport for London, who had a lot of in-house railway skills. It is good to see local

**“It is good to see local authorities and those moving freight by rail being encouraged to step up and initiate their own work”**



**Bill Free**  
Rail Director, CECA

authorities and those moving freight by rail being encouraged to step up and initiate their own work.

Our members, however, generally see the initiatives around Project Speed as offering the best opportunity to improve efficiency, especially if this is linked to getting better access to do the work.

Looking at civil engineering work, a fairly typical item on many sites is a 12-tonne excavator - in a typical civil engineering site, this might be (conservatively) digging and loading 60 tonnes of material in an hour, working full shifts in daylight with 'overheads' (management) adding around another 20% to its final cost.

Move this to carry out similar work in the lineside environment, and it would: have (optimistically) half the output due to the physical restrictions; cost twice as much to buy because of the modifications; have several people watching over it; be working short shifts at night; and be working in an environment where as much money was being spent on management as in doing the work (due to the bureaucracy and planning involved in the railway processes).

Project Speed offers the opportunity to address many of these factors and, although rail work will always be more complex/expensive, the cost of doing work will come down significantly if the initiative is a success!

Notwithstanding this last point, it is good to see Open for Business making a start in driving efficiency.

# Open for Business

The Open for Business agenda is an important one - and one that the Railway Industry Association has always supported. The Hansford Review was ambitious in scope and covered private funding, financing and third-party access on the network for the delivery of infrastructure improvements. For large public bodies such as Network Rail, the challenge is how to stay efficient when you have monopoly power - and enabling contestability from the private sector is a key way it can do so.

The Open for Business programme has delivered on its commitments to review the approach to asset protection, to challenge standards, and to empower Business Development Directors to work with local funders. The target to secure £2.5 billion in funding and the live case studies are impressive. However, arguably Hansford was about much more than this - as David Ollerhead acknowledges, it is about culture change.

At the time the report was published, some projects which had local funding had run over budget (leaving local authority funders exposed), and a number of high-profile, complex and inadequately developed programmes (notably Great Western Electrification and the Edinburgh-Glasgow Improvement Programme) had significantly damaged the delivery reputation of the entire industry. In its submission to the review, RIA noted that "the cost and delivery efficiency of Network Rail Infrastructure Projects as Delivery Agent has not been competitively tested and demonstrated".

Andrew Haines has remained committed to this agenda and true to that original challenge. Putting Passengers First led to the abolition of the Infrastructure Projects model - the devolved regions are closer to passengers, suppliers and local communities.

The Network Rail Project Speed agenda, which seeks to halve the time and reduce the cost of infrastructure delivery, is a clear example of NR seeking to embed culture change and challenge inefficiencies - working collaboratively with suppliers to reduce costs and improve the pace of delivery.

Network Rail is on track to deliver CP6 efficiency targets and is ahead on Operations Maintenance and Renewals delivery, despite the challenge of Coronavirus. The NR *Traction Decarbonisation Network Study* starts to develop the case for the rolling programme of electrification that RIA has been calling for, and sets the stage for rail to become a leading player in the decarbonisation agenda.

This year has brought many new challenges for the railway, and the impact of COVID-19 has put the rail industry in a tough financial position. The article is right to suggest that industry needs to reduce costs, balance the books and boost efficiency. Governments, passengers and taxpayers rightly want to ensure that the large sums of money required by the railway are spent well as the country begins to 'build back better'.

The pandemic has also exposed the need to accelerate the improvement of standards to keep pace with new technology and processes, so that people remain competent to deliver and drive down costs. The Open for Business programme is a good example and is driving Network Rail improvement through its competition with third parties and via contesting work.

Network Rail has been successful in targeting the removal and updating of its standards. In addition, the company must continue to share lessons on standards with the wider industry to help push down costs.

An area of concern is that we often see sponsors, project managers and consultants follow a standards library and avoid assessing and managing risk optimally. This often means that higher-cost solutions are the go-to options, instead of detailed work on appropriate lower-cost solutions which would deliver



**Kate Jennings**

**Policy Director, Railway Industry Association**

Finally, the rail industry is collectively proud that Network Rail investment represented 25% of all infrastructure investment during the first Coronavirus lockdown earlier this year. Say it quietly, but we are starting to see a restoration of confidence in the industry's ability to deliver efficiently and effectively.

RIA members welcome the opportunity to collaborate with Network Rail - we helped develop the Standards Challenge Process and more recently have been running joint workshops to review the NR project management (GRIP) process.

As David notes, the Government's Restoring Your Railway initiative presents opportunities to trial new approaches to project funding, technology solutions and standards. RIA members will be hearing from the Restoring your Railways team at our *Unlocking Innovation: Light Weight and Low Cost Rail* event in December.

There is more to do. Both the Hansford Review (published in 2017) and the Department for Transport *Market Led Proposals Call for Ideas* (published in March 2018) arguably suffered from the fact that in October 2018, Government made it clear that it no longer considered private finance models value for money.

The *National Infrastructure Strategy* recognised rail infrastructure as critical to 'level up' the country and to achieve net zero emissions. It finally resolved the uncertainty created by the Infrastructure Finance review, and it is welcome to see the development of new models for co-investment and the launch of the National Infrastructure Bank.

In this context we would encourage Government to publish the Rail Network Enhancements Pipeline, and Network Rail to continue to build on the Open for Business agenda by publishing an updated pipeline of opportunities for investment, and giving the private sector more responsibility for direct delivery. By doing so, together, we can work to reboot the economy.



**Steve Fletcher**

**Deputy Director, Engineering and Asset Management, Office of Rail and Road**

required outputs more effectively.

It has never been as important as it is now to deliver projects competently, using best industry practice to deliver the same outputs via a proportionate, pragmatic approach and lower-cost solution - through assessing and managing risk from the start to drive down costs.

We're working closely with the Department for Transport and Network Rail to tackle this challenge and to provide valuable support to help drive down costs. ORR is uniquely placed to continue to press Network Rail and industry on raising and sustaining higher levels of competency, especially at a local level to deliver successfully.



# How climate change law affects the rail sector

Climate change is the most pressing environmental challenge of our time.”

This is the first line of the Department for Transport’s *Transport Decarbonisation Plan* (March 2020). It aligns with wider government policy and is reflected in a suite of legal obligations which, realistically, are only likely to get stronger and more specific over the next ten years and beyond.

The legal obligations on the UK arising from the climate change agenda, and the litigation that arises from these obligations, will have (and is already having) a direct effect on transport in general and the rail sector in particular.

UK Government is subject to core legal obligations arising from the climate change, both nationally and internationally. These have been building momentum for some time.

In 1992, the Earth Summit in Rio established the *United Nations Framework Convention on Climate Change* (UNFCCC). Signatories to this international treaty (of which the UK was one of 154 states) agreed to the goal of “preventing dangerous anthropogenic interference with Earth’s

climate system” and to meet annually at Conferences of the Parties (COP) to move this agenda forward.

In 1997, following COP-3, the Kyoto Protocol (in force from 2005) bound the signatories to a mechanism to control global emissions of greenhouse gases. Differing targets were allotted to developed and developing countries.

By enacting the Climate Change Act 2008, the UK became the first country to introduce long-term, legally binding national legislation to tackle climate change.

The Act included a commitment to reduce carbon emissions by 80% (as measured against a base-line level set in 1990) by 2050, and introduced a mechanism of setting five-yearly ‘carbon budgets’ to monitor progress. These are set by the Secretary of State, based upon the recommendations and advice of the Committee on Climate Change (CCC) - an independent, non-departmental body created under the Act.

The Act also created a system to ensure that Parliament and the wider public can track progress and to ensure that successive governments are held accountable for its

progress. The CCC provides independent oversight, and the Secretary of State is obliged to take its advice into account when determining the greenhouse gas emissions reduction target.

At COP-21 in 2015, in Paris, a further agreement was reached (the Paris Agreement). This has the objective of reaching a net zero greenhouse gas emissions level during the second half of the 21st century, and Article 2.1(a) contains the central target of ensuring that the increase in global temperature is well below 2°C, with the ambition to limit the increase to 1.5° above pre-industrial levels. The UK ratified the Paris Agreement on November 17 2016.

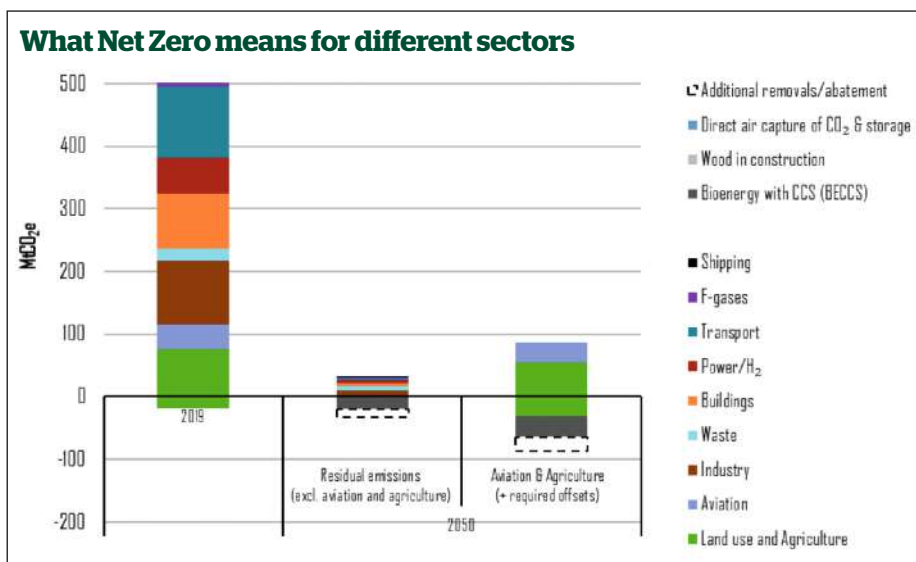
In light of the raised ambition of the Paris Agreement, the UK Government asked the CCC to advise it on the UK’s long-term emission targets, in order for the UK to achieve its Paris Agreement commitments. The CCC recommended a new emissions target of net zero by 2050.

In one of the last acts of Theresa May’s government (but possibly one of the most significant), the UK passed the Climate Change Act 2008 (2050 Target Amendment) Order 2019, becoming the first major economy to legislate for net zero greenhouse gas emissions. The target is ‘net’ zero, as residual emissions which are still necessary in 2050 will be balanced out by offsetting schemes such as carbon sequestration or carbon capture, use and storage.

The UK is due to host COP-26 next year in Glasgow (having been postponed this year due to the pandemic). Government wants to be seen to be taking an international lead on this issue.

While the targets above are not always in the forefront of everyone’s minds, they are increasingly being used to challenge policies that are seen as incompatible with the UK’s legal obligations.

The most high-profile of these challenges is the challenge to the UK Government’s designation of its Airport National Policy Statement (ANPS), the policy foundation



Source – Committee on Climate Change

## Summary of the UK's climate obligations

	Key provisions
Rio Earth Summit and establishment of the UNFCCC (1992)	To stabilise greenhouse gas concentrations in the atmosphere at a level to prevent dangerous anthropogenic human-induced interference with the earth's climate system
Kyoto Protocol (1997)	To reduce Greenhouse Gases by 12.5% over the period 2008-2012
Climate Change Act 2008	To reduce carbon emissions by 80% (as measured against a base-line level set in 1990) by 2050
Paris Agreement (2015)	To reach a net zero greenhouse gas emissions level during the second half of the 21st century and to ensure that the increase in global temperature is well below 2°C, with the ambition to limit the increase to 1.5° above pre-industrial levels
Climate Change Act 2008 (2050 Target Amendment) Order 2019	To reduce carbon emissions by 100% (as measured against a base-line level set in 1990) by 2050 (Net Zero)

for the expansion of Heathrow Airport and the building of a third runway.

The Government had designated the ANPS in 2018, after the Paris Agreement had been ratified by the UK but before the domestic legislation to bring the net zero target by 2050 into law had been passed.

A number of interested parties challenged this, due to common concerns that a third runway would facilitate further air travel and (by extension) increase carbon emissions.

On February 27 2020, the Court of Appeal handed down its judgment (R (on the application of Plan B Earth and others) v Secretary of State for Transport [2020] EWCA Civ 214), upholding the challenge on the grounds that the UK Government had failed to take account of the Paris Agreement and its own climate change policies in making the ANPS.

This precedent is extremely important, particularly in the transport sector. Subject to an appeal judgment currently awaited from the Supreme Court, it demonstrates that government policy (including transport policy) going forward must take into account emissions impacts. The Government indicated it would accept this judgment, but the claimants appealed to the Supreme Court anyway.

The stark question for the Supreme Court is “whether the Government’s failure to take account of the United Kingdom’s climate change commitments (as represented in the Paris Agreement), when deciding whether or not to build a new runway at Heathrow Airport, rendered the decision unlawful”. This appeal was heard by the Supreme Court on October 7/8 2020, and we are currently awaiting judgment.

There have been two other cases in the

transport sector following the Court of Appeal judgment in the Heathrow case.

The first of these is Chris Packham’s claim relating to HS2 (Packham v Secretary of State for Transport [2020] EWHC 829). One of the key grounds of this claim was that, in continuing with the HS2 project, the Secretary of State had failed to take account of the project’s effect on greenhouse gas emissions in light of the Paris agreement and the net zero target in the Climate Change Act. In particular, this related to the carbon emissions which would be caused by the construction activities.

The claim was unsuccessful, and the court held that it was impossible to infer that the Secretary of State had failed to have regard to the Government’s relevant statutory and policy commitments on climate change. As such, permission for the Judicial Review was refused and permission to appeal was also refused.

The second case is Transport Action Network’s (TAN’s) challenge to the second Road Investment Strategy (RIS2) - (R. on the application of Transport Action Network Limited v The Secretary of State for Transport v Highways England Company Limited (Interested Party)).

The main ground of challenge in this case was that the Secretary of State had failed to take account of the impact of RIS2 on achieving climate change objectives (including the net zero target under the Climate Change Act and the Paris Agreement), contrary to his duty under Section 3(5)(a) the Infrastructure Act 2015. The High Court has already granted permission for the case to proceed on this ground, and it was fast-tracked for a hearing in November 2020.

The question is: what does this all mean

for the rail sector? Pending the decision of the Supreme Court, it is clear that the legal obligations relating to climate change in both the Paris Agreement and the Climate Change Act need to be considered by government and other public authorities when making policy and consenting projects. If these are not taken into account, legal challenges are likely.

However, regardless of the outcome of the Supreme Court hearing, the net zero target is going to affect the transport sector directly.

The transport sector as a whole produces 28% of the UK’s domestic emissions of greenhouse gases. That is going to have to be significantly reduced by 2050.

Admittedly, most of the focus in the DfT’s *Decarbonising Transport: Setting the Challenge* report is on aviation and road use. However, it also emphasises the importance of rail (both passenger and freight) as a form of low-carbon transport and sets out the vision for investing in rail to support both its continued growth (“to maximise the shift of users to rail from more polluting modes”) and its reduction in carbon intensity (by improving infrastructure and rolling stock and supporting the deployment of low-carbon technologies such as electrification, hydrogen and battery solutions).

In its 2020 *Progress Report to Parliament*, the CCC included recommendations for each Department. There was a specific recommendation to the DfT that it needed to “support Network Rail in developing plans to deliver the target to remove all diesel trains by 2040”.

It is also likely that the rail sector will be subjected to continuing encouragement and pressure to maximise more carbon-efficient procedures, including hydrogen and the continuation of electrification. This may also feature (and legally have to feature) in policies coming out of COVID for changing the way in which rail services are delivered and the focus of those services.

The challenges thrown up by the net zero target will be felt in all sectors across the UK. The transport sector, in particular, has some significant targets to meet. However, the rail sector as a lower-carbon alternative also has real opportunities to benefit from prioritisation and investment, where it can make the case that doing so will limit its operational and development greenhouse gas emissions. ■

### About the author

This issue’s column was authored by Burges Salmon Partner and Head of Energy Sector Michael Barlow.

**Big data is getting even bigger. It is now possible to anonymously track the movements of passengers via their smartphones and produce analysed data about their travel patterns, for example. ALAMY.**



# It's not the size of your data, it's how you use it

Increasing digitalisation means more and more information is available to today's rail managers. However, **PHILIP HAIGH** warns that the data gathered is only useful to those who know how to process and analyse it

**W**hen celebrated US mathematician John Allen Paulos wrote in 2007: "Data, data everywhere, but not a thought to think" he was reprising the words of Samuel Taylor Coleridge's *The Rime of the Ancient Mariner*: "Water, water, every where, Nor any drop to drink."

Rail companies aren't short of data. Their challenge is to use it effectively, to make their operations more efficient or their product more attractive.

It's worth briefly looking at definitions for the word 'data'. Google comes back with "facts and statistics collected together for reference or analysis", while my 1978 Pocket Oxford Dictionary says 'See Datum' and defines 'datum' as a "thing known or assumed as basis for inference or reckoning".

In its National Data Strategy, the UK Government says that data means "information about people, things and systems", although it admits: "Data is notoriously hard to define - and it means different things to different people."

Data needs analysing to be useful. Travel app Citymapper made this point in 2017: "Back in 2016, ours was the only transit app to factor in realtime arrival data to journey time estimates. Now we're the only one to account for realtime traffic. As they say, it's not how big your data is... it's how you use it."

And data is getting bigger. There's a proliferation of sensors, with the main one from a transport perspective being the smart phones that many people carry. On an anonymous basis, they act as trackers. Their data can be processed and analysed to produce information about travel patterns and the realtime congestion that Citymapper and others use.

When Transport for London introduced free WiFi at its stations, it wasn't being entirely altruistic. It stood to benefit, as Chief Data Officer Lauren Sager Weinstein explained in 2019. She noted that on a typical weekday, TfL collected 19 million smartcard transactions. They provided useful information about the journeys that passengers were making, but not the whole story.

Weinstein asked: "After they tap in, how do they travel? Which route or platform do they use? Do they take the first train or wait for a less crowded one? Do people choose the fastest route, or the most comfortable? How do customers move around our most complex stations?"

*"WiFi data could power analytical tools and services that can improve the way TfL runs and plans its network, and can give passengers much more detailed information."*

*Transport for London*

Analysing WiFi data, TfL concluded:

- WiFi data can help understand the paths customers take in stations, the platforms and lines they use, which route they take when many options exist and where they interchange.
- The aggregated data can show which sections of the network are crowded, at what times, and how this changes in response to events and network alterations.
- This data could power analytical tools and services that can improve the way TfL runs and plans its network, and can give passengers much more detailed information.

The information TfL gathered sheds light on passenger numbers such as at Oxford Circus, where three lines meet - Victoria, Central and Bakerloo. WiFi showed a sharp increase in crowding between 0830 and 0900 as passengers switch between lines. TfL's Oyster smartcard recorded lower figures because it only accounted for passengers leaving or entering the station.

When, one morning, a signal failure halted the Waterloo & City Line between 0800 and 0900, TfL could see 4,000 passengers using the Jubilee Line to London Bridge and then the Northern Line to Bank, while 3,000 used the Bakerloo to Embankment and then the Circle/District to Monument as alternative routes.

TfL's review of this WiFi trial notes: "This data is valuable from both a customer and operational perspective as it enables a more informed response to changes in network conditions. It may help customers plan their journeys and allow us to look at the advice we give them, how and where we support them as they travel across the network, where we deploy our staff to offer assistance, and how we operate our stations and trains to ensure the quickest and most comfortable alternative journeys."

Staying with TfL but looking at different data provides a tighter operational focus. CPC Systems analysed what it called a typical day on the Jubilee Line, using January 16 2017. The day had a good service overall, running 30 trains per hour on 120-second headways. There were three reported service delays amounting to 11 minutes.

CPC recorded 5GB of train running data during the day. When analysed using a two-minute threshold, delays over the day reached six hours. Plotting trains being delayed and recovering time showed the most gained time at Stanmore, with delays confined to a succession of trains heading west from Baker Street to Stanmore at around 0800, just after the first service delay.

Increasing the visibility of delays by reducing the threshold to 60 seconds showed most trains passing Canary Wharf westbound between 1700 and 1830 being delayed. A reduction to ten seconds left CPC's chart littered with red and blue dots, representing trains delayed or early. It showed that almost every train was late approaching West Hampstead when heading west. In the other direction, most trains were early at Willesden Green but late at the next station, Kilburn.

These examples come from applying the ten-second delay filter to running times between stations, and show that the timetable >

► doesn't match real running. When it's applied to dwell times at stations, it shows that peak dwell times are not sufficient to account for the number of passengers in the central section between Baker Street and Canary Wharf.

With skilled analysis, the charts could be used to identify where timetables gave insufficient time for a train to enter a reversing siding, or the effect of interlocking release times, or of doors opening too slowly.

CPC Operations Consultant Paul Naylor cautioned that analysts needed good system and operating knowledge to effectively drill into the detail of delays, but with this they could find problems at junctions and sidings, power faults or poorly performing trains. By finding the problems that cause delays that are otherwise invisible to staff or passengers, an operator could increase capacity or improve performance.

The conclusion from this is that the more detailed the analysis, the more useful insights can be gained.

Data is one of the five pillars of the new *Rail Technical Strategy*. Published in October, it includes an overview from Siemens Mobility Chief Executive Will Wilson. He writes: "Data is the rail industry's primary growing asset: the amount and speed of data being generated by running the railway is growing at a very steep trajectory thanks to increasing digitalisation. But can we say the same for our collective ability as a sector to access and exploit it, with the ultimate aim to make better-informed decisions?"

"Many studies have shown that when businesses have better access to data and have the capabilities to exploit it, new ideas emerge faster, and can be translated into successful products and improvements more easily and successfully. More than ever before, access and clever use of data underpins the success of any company or sector."

## MORE DATA, MORE SPEED

Data is not new. It's been the lifeblood of business since business first started. Today's rail data is stored in computing clouds where once it was scribed in ledgers.

Researchers can visit York's National Railway Museum and pore over the rise and fall of passenger or freight traffic from wayside stations, for example. They can see the effect all those lorries

released from military service after the First World War had on the railway's freight traffic.

Today's data is no different. Train operator directors can pull up 'dashboards' onto their computer screens and see how many passengers passed the gates of their stations this morning. They can compare those figures to the same day last year and see the impact of 2020's pandemic.

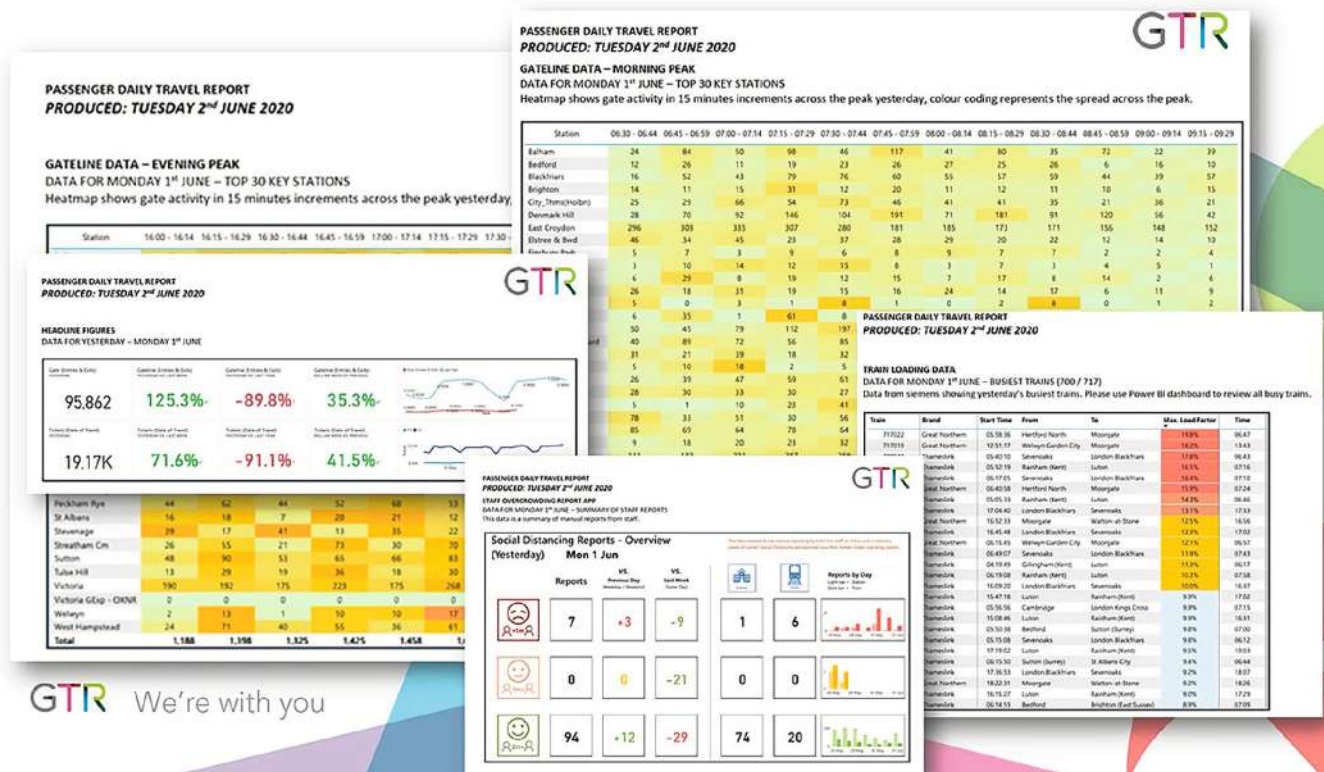
The difference between now and 1920 is the volume of data and the speed with which it can be used. When British Rail Chairman Richard Beeching proposed cutting large swathes of track from the network in 1963, he had gathered data about freight use at stations for the week ending April 23 1961. Other surveys produced passenger numbers. He melded them into one set of conclusions.

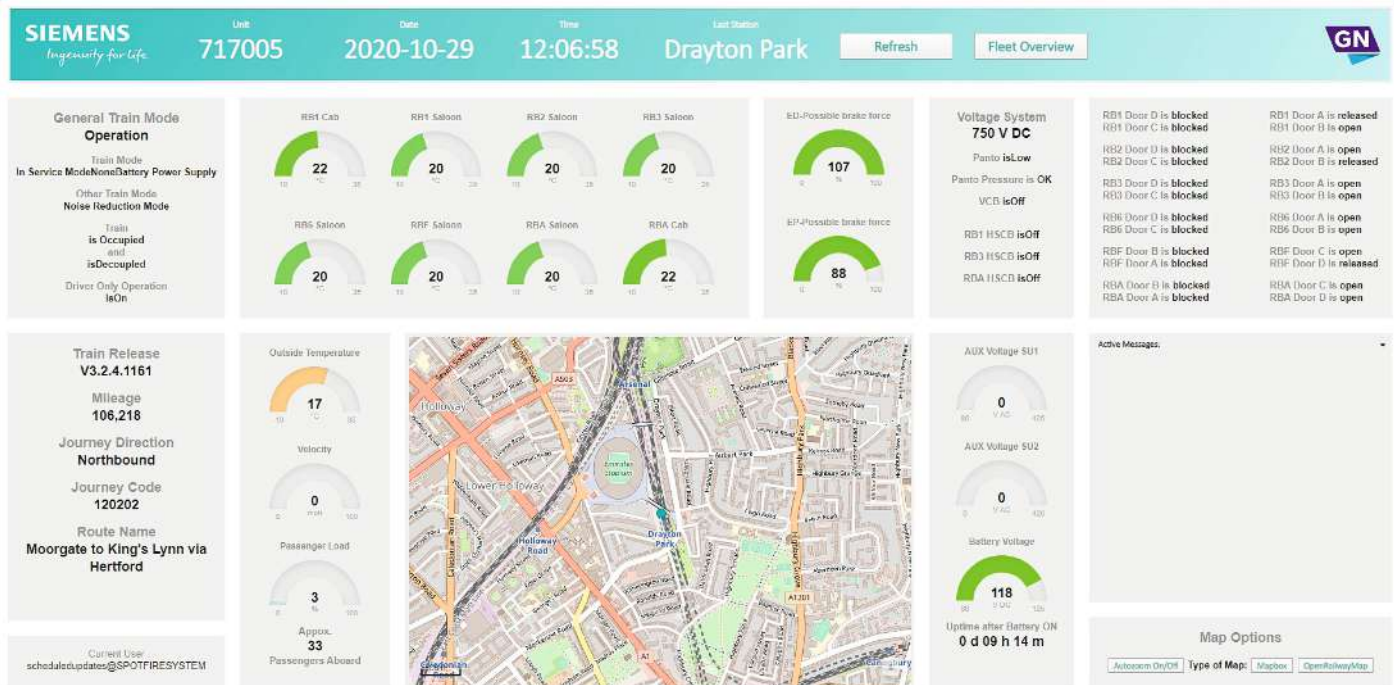
This took some time. In his report, Beeching was clearly conscious that he might be criticised for taking three years to publish his conclusions. Part of his response is illuminating: "There had never before been any systematic assembly of a basis of information upon which planning could be founded, and without which the proper role of the railways in the transport system as a whole could not be determined. The collection of this information was itself a massive task and it is, perhaps, more surprising that it was brought to a useful stage in just over a year than that it should have taken so long."

In his generally supportive biography of Beeching, railwayman Richard Hardy noted some reasons for the criticism of Beeching's work: "The report stated clearly that there was no doubt about the financial desirability of closing those services which did not pass the test, and that it was the railway's wish to close them as soon as the procedure permitted.

"To say that all hell broke loose when this was even partially understood is putting it mildly, but it was the publication in detail of the services to be discontinued and the lines and stations to be closed that caused the greatest concern among railwaymen: there were innumerable critics who said, not without some justification, that our figures were suspect, that we based everything on one

**As 2020's pandemic struck and it became important to keep distance between passengers, GTR's data feeds helped compile daily reports that showed where trains were becoming crowded and how busy its stations were. GTR.**





## UK National Data Strategy

The UK National Data Strategy was launched by the UK Department for Digital, Culture, Media and Sport in September 2020. Its Secretary of State Oliver Dowden commented: "Under this strategy, data and data use are seen as opportunities to be embraced, rather than threats against which to be guarded."

The Department's strategy is that, in theory, data is a non-depletable resource, but adds that its use is limited by barriers to its access - such as when data is hoarded, when access rights are unclear, or when organisations do not make good use of the data they already have.

"These barriers undermine the performance of public services and our economy, risking poorer outcomes for citizens," says Dowden. "We will ensure that data can be leveraged to deliver new and innovative services, promote stronger competition, and better prices and choice for consumers and small businesses. We will drive an approach to data that holds that all can benefit when data is used responsibly, and that withholding data can negatively impact society."

The strategy has pillars and missions. The pillars are:

- **Data foundations:** Data should be fit for purpose, recorded in standardised formats on modern, future-proof systems. It should be findable, accessible, interoperable and reusable. This should allow its more effective use and drive better insights and outcomes from its use.

- **Data skills:** To make the best use of data, Britain must have a wealth of data skills to draw on.

- **Data availability:** For data to have the most effective impact, it needs to be appropriately accessible, mobile and reusable. Government plans to encourage better co-ordination, access to and sharing of data of appropriate quality between organisations in the public, private and third sectors, while ensuring appropriate protections for the flow of data internationally.

- **Responsible data:** Government wants to ensure that data is used responsibly, in a way that is lawful, secure, fair, ethical, sustainable and accountable.

The missions cover the priorities the UK Government has. These are unlocking the value of data, securing a data regime that promotes growth and is trusted, transforming the way the Government uses data to deliver more efficient and effective public services, ensuring that data sits on secure and resilient infrastructure, and championing the international flow of data.

**When Network Rail found a problem with overhead wires just outside King's Cross on October 29, Siemens knew exactly the location of its Class 717s working for GTR. In unit 717005's case, it was on DC power at Drayton Park with around 33 passengers on board. With similar information on other units, this enabled GTR managers to plan how to evacuate various stranded trains. SIEMENS/GTR.**

single week's traffic - which was true - that we closed on crude statistics - they had a point - and that both our staff and the public were bulldozed into submission."

Today's managers should not lack information. There's an almost bewildering amount, but it remains only as useful as those observing it. It tells a tale... but only to those who look.

*RailReview* looked in Q2-2020 for any link between the cut in trains being run as COVID-19 struck and the concurrent rise in punctuality. What emerged at national level was that punctuality began declining several years ago after a sustained and long growth in the numbers of trains running. In effect, train operators had filled the tracks, but this didn't stop another round of service increases that gave punctuality another jolt downwards.

But when examined on an operator basis, other factors emerged - most notably the effect of Stagecoach losing its East Coast franchise (run under the Virgin Trains brand). Performance started falling sharply from the DfT's announcement that it was to lose its franchise. South West Trains experienced a similar fall for a similar reason. The conclusion must be that a realistic timetable is essential but not the only factor in running a punctual railway.

According to Govia Thameslink Railway Chief Operating Officer Steve White: "It's never been more important to understand how our railway is performing - its fixed assets, its trains and its people. Data permits this understanding and shows managers where to put their efforts."

For example, GTR monitors dwell times at stations. In the early days of pandemic running, 98% of services achieved their dwell times. More recently, and as passenger numbers have increased, that's fallen to 91%. Closer analysis should show where GTR needs to reinforce its pitstop principles of encouraging passengers off and on trains or giving the 'right away' earlier to ensure prompt departure. Then it might consider timetable tweaks to ensure punctual running.

Elsewhere, GTR monitors Network Rail's Ellipse data that contains information about infrastructure failures, so that it can better understand what's happening and where.

Through train maintainer Siemens Mobility, GTR can access >

► information about its Class 700 and Class 717 fleets. White tells *RailReview* how this helped when NR's overhead wires fell in Copenhagen Tunnel, near King's Cross, on October 29. Siemens could tell GTR which trains were stranded, how many passengers each had, whether their toilets were working, whether they were on AC or DC power, how much battery power remained, and the internal temperature. All this helped GTR managers decide which trains to evacuate first and how many buses and staff they would need for each train. White describes this information as "extremely valuable".

Data and subsequent useful information can come from unlikely sources. White tells *RailReview* of work to record vibrations in the latest GSM-R radio handsets which could show where track defects exist.

There are already video systems watching pantographs that, when linked with artificial intelligence algorithms, can warn about impending failures. Until the AI link came along, pantograph cameras were only good for explaining what had gone wrong in a dewirement.

Wheelslip sensors produce data that can alert operators and Network Rail to tracks with low-adhesion, allowing NR to increase treatment and operators to advise drivers. And White explains that GTR is fitting thermal-imaging cameras to some of its trains to monitor point heaters, conductor rail heating and detect where power cable joints might be overheating as a prelude to failing.

Calibration becomes a vital part of systems at this point, allowing them to decide what needs action and what doesn't. When Network Rail deployed fibre-optic acoustic sensors to the West Highland Line, it found the equipment was too sensitive, which made it difficult to detect normal lineside noises from those that needed action, such as landslides or rockfall.

Siemens Mobility has sensors to weigh trains (such as its Class 700s working for GTR). From this, it can estimate passenger numbers. Head of Digital Simon Rennie tells *RailReview* that each train has a different tare (empty) weight and this must be accounted for. However, the system appears pretty accurate. Rennie relates the tale of one incident in which passengers had to be evacuated. The train's driver reckoned to having 60 passengers on board. The train thought it had 12 and the actual number taken off was 13.

## SEEKING THE HOLY GRAIL

For Rennie, the holy grail of data would be a train that tells its depot when it needs routine maintenance, heavy maintenance or overhaul without any need for someone to touch the train.

*"It's never been more important to understand how our railway is performing - its fixed assets, its trains and its people. Data permits this understanding and shows managers where to put their efforts."*

*Steve White, Chief Operating Officer,  
Govia Thameslink Railway*

A further step would be to have the train talk to maintenance management systems and then link to suppliers of spare parts, which could reduce a depot's holding of spares.

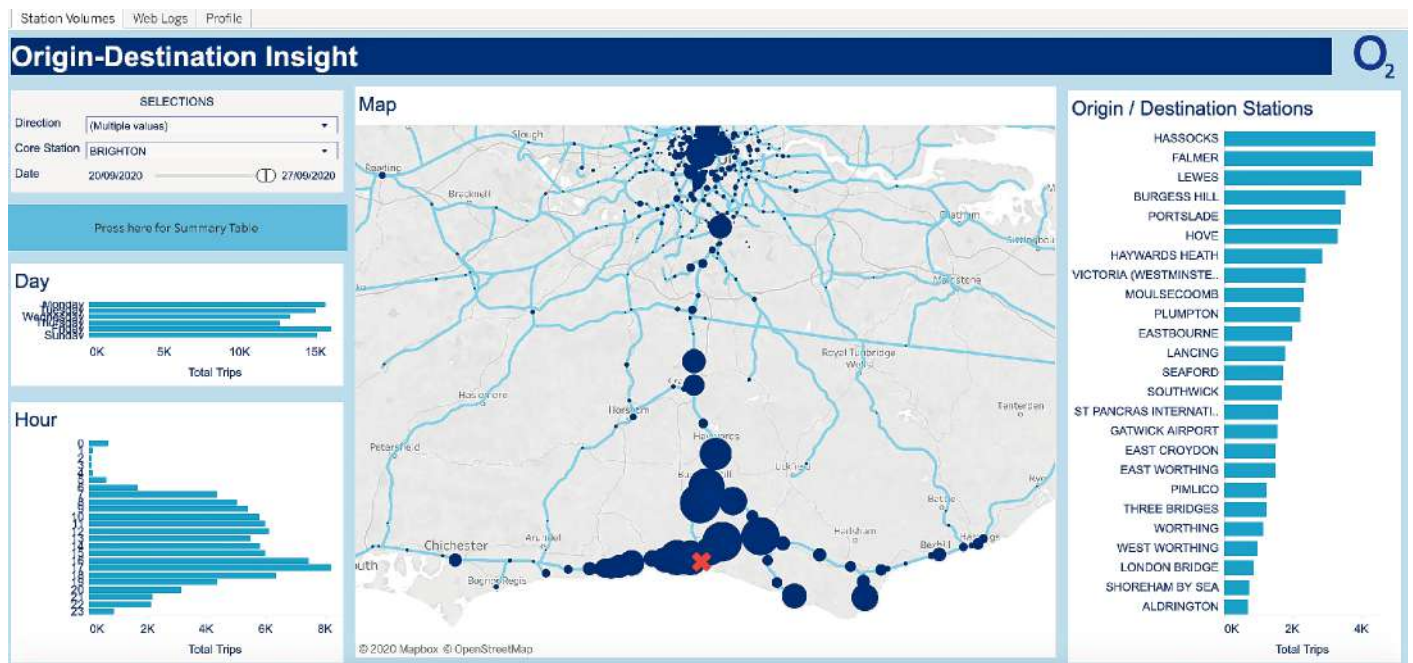
At the moment, he reckons that the most digitalised fleets generate a third of their work orders automatically - that is, one-third of the work to maintain a train is generated by the train itself rather than from staff inspecting it.

Rennie would like to see this extended into earlier generations of trains. In Siemens' case, it would be the Desiro electric multiple units that have been running for around 20 years and maybe have another ten years' life. In many cases, they already have the sensors and collect appropriate data, but don't have the communications necessary to transmit it in real time.

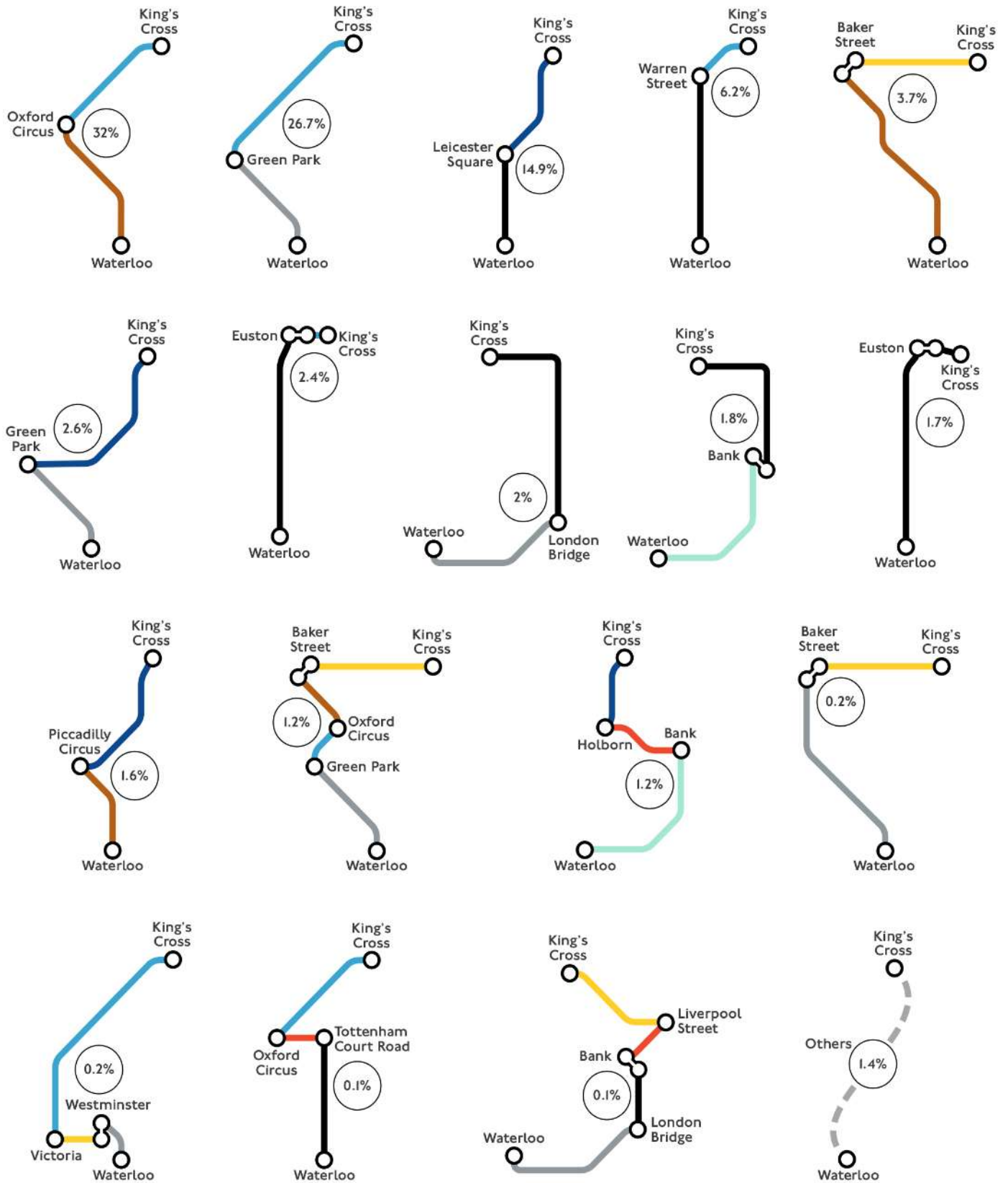
For Network Rail, perhaps the holy grail lies with system modelling. When Jo Kaye was running NR's System Operator, she explained the problem in *RailReview* Q4-2017: "One of the holy grails of being system operator is that everyone would love for me to be able to tell them how the outputs of the railway will change if they change a particular input. If I put a new train in there, what will it do to capacity or performance or any of those things?"

"There doesn't exist a complete whole system model that allows us to do that in an easy way. We've travelled the world looking for one, but no such thing exists. So instead of trying to specify what it is we want to do, we're very much taking a different approach, which is to say there are huge amounts of data available out there, these are the kind of questions we want to answer, what can you - the very bright and the very brave - do in a big data sense to ►

**GTR uses anonymous data from mobile phone provider Telefonica as a way of working out where its passengers are travelling beyond the railway's boundaries. It provides insight into travel patterns not only by rail, but also by road. GTR.**



**Figure 14:** Route options between King's Cross St. Pancras and Waterloo, and the proportion of devices on each one



Review of the TfL WiFi pilot

Transport for London tested WiFi a couple of years ago, as a way of finding more accurate data about passenger movements around stations and its network. It could plot how people travelled between King's Cross St Pancras and Waterloo, finding that 37% of passengers changed at Oxford Road while a hardy 0.1% preferred to change at Liverpool Street, then Bank, then London Bridge. TFL.

► create a model to do that?”

If you can have two holy grails, NR's second would be better analysis of operational performance. Here, it's been working with Amey Consulting and it's already resulted in the Quartz dashboard that gave GTR its dwell-time insights. Other threads of work have looked at section running times (a key part of timetable construction) and the impact of temporary speed restrictions. Its basis comes from NR's Industry Train Events Database (ITED) that NR describes as a "warehouse of train running information" from various sources. Data from 2019 onwards is available on a cloud for external access, while data stretching back a further five years is available to NR users.

Over at the Rail Delivery Group, Chief Information Officer Simon Moorhead wants to see a push towards open data that can tell passengers in real time what services they can expect. He praises

*"We need to accelerate trainborne intelligence. Providing regular, accurate and useful insights into asset performance will make a more reliable railway and this drives passenger satisfaction."*

*Simon Rennie, Head of Digital, Siemens Mobility*

the potential of personalised information that delivers timely and accurate information straight to a passenger. That way, the railway will bring a better customer experience, he contends.

Meanwhile, operators would love to know more about their passengers' habits. Smartcards already provide more information than traditional card tickets, which is one of the reasons there has been so much emphasis on their adoption. But they only tell operators about the rail journey. Operators would like to know more about what happens before and after - how does a passenger reach their starting station and where do they go after leaving their train?

It's here that the information from mobile phone providers such as Telefonica comes into play. Just as with TfL's WiFi trial, smartphones operate independently of rail systems. As phones move with their user, so their provider tracks them from phone cell to phone cell. The speed of tracking provides information to determine how they are travelling, whether by foot, cycle, bus, car or train.

At GTR, Steve White explains that the operator combines Telefonica data with its own ticket, gateline and train loading information to produce daily travel reports. From this, he can say that travel inside the M25 is recovering more quickly than travel outside and that leisure travelling is recovering more quickly than business travel. He also reveals that Brighton station's most popular destination is Polegate, just a few miles along the coast.

Furthermore, the phone network data reveals which social networks passengers use, which allows marketing teams to target



**A Thameslink Class 700 passes Offord Cluny on June 1. GTR is combining Telefonica data with its own ticket, gateline and train loading information to produce daily travel reports. This is enabling the operator to understand how quickly leisure travel is recovering compared with business travel for example, as well as other passenger habits. FRASER PITHIE.**

## Joint Rail Data Action Plan

In 2018, the Department for Transport and Rail Delivery Group launched the Joint Rail Data Action Plan.

Against a backdrop of rising demand and overcrowding, the document said: "The Department for Transport has the ambitions to make the UK the best place to do transport digitally, and to cement Britain's place at the forefront of the transport technological revolution. Unlocking the value of data is crucial to delivering these objectives. To support this, we are actively working with different transport organisations and stakeholders to overcome barriers that inhibit more data from being made openly available."

The plan followed a May 2016 commitment from the UK Government to be the most transparent government in the world. The plan set out what the railway needed to do to improve access to data and remove barriers to wider sharing. Hence the plan's five themes:

- Data transparency.
- Data use and access.
- Data standards and quality.
- Data value and principles.
- Rail culture and information/data skills.

It established a task force, while other groups emerged from industry players, including a Rail Data Council (RDC) and a Data and Information System Interface Committee (DISIC) hosted by the RSSB. A little later, the rail industry and the Government signed the rail sector deal and this brought another focus on data.

The Rail Delivery Group created the RDC to bring the two strands - the joint plan and the sector deal - together for their data aspects.

James Bain chairs the council and is also UK Chief Executive for global IT services company Worldline. He told the annual conference of the Railway Industry Association on November 4 that data had moved into silos when the railway was split at privatisation. The challenge now was to break it out from there. He added: "Those silos are wrapped in lead and dropped to the sea floor."

RDG Chief Information Officer Simon Moorhead explained that the RDC exists to bring together different bodies creating and using data, and to promote data's use and accessibility.

The council is developing (and plans to launch) a rail data marketplace next year. Moorhead stressed that this was not a warehouse, but a service that allows providers to plug in their data and users to extract it and provide services with it.

He is keen that data is freely available, but not free. RDG/RDC will charge on a cost-recovery rather than profit basis. Moorhead said he talked to potential users who had reported their willingness to pay because the data they receive would come with a service agreement to guarantee its quality and availability. In contrast,

data provided today does not come with a guarantee that it will still be provided tomorrow or that its format will not change.

DISIC's purpose is to "provide a focus for the governance, management and exploitation of data, information and knowledge in a safe, cost-effective and efficient manner". It has received a draft data catalogue from the Office of Rail and Road with ORR telling *RailReview* that it was for DISIC to decide how and when to publish this data catalogue.

DISIC's latest annual report covers 2019 and reports little progress. It notes: "The initial focus for 2019 was to re-establish the DISIC following a lack of demonstrable output in 2018."

It also reveals that it has a new chairman and vice-chairman following the "sudden departure of the previous chair". With the RDC's more recent work, the railway appears to have overcome the sticky start DISIC describes.

GTR Chief Commercial Officer Ian McLaren tells *RailReview* that the Rail Data Council was beginning to deliver with DISIC feeding into it. McLaren emphasises the importance of commercialising data, making it available while protecting the intellectual property behind it.

From his perspective, GTR is pooling its data into a lake while he is keen to see more emphasis on predictive analytics to shift data from simply being a reporting effect. He says GTR is working closely with Microsoft and is keen to openly collaborate, sharing data and insights while protecting how it is doing it - for example, the algorithms through which it runs its data.

While GTR is at the forefront of data exploitation, not all train operators are so advanced. Moorhead suggests that one of the RDC's roles will be to allow others to catch up. In creating its marketplace, it aims to work once to provide data rather than having each operator repeat another's work, he tells *RailReview*.

RSSB, with DISIC, is set to reveal the results of its T1184 research project in November 2020. It will provide a set of structured questions that it expects to help assess how much value a data set could generate and what complications might lie in the way of realising that value. It plans to follow T1184 with a second phase that could involve industry case studies to test what it learns from the questions.

RSSB is also heading its Data Sandbox+ initiative that brings together more than 50 data streams from different sources (some for the first time) to allow academics, innovators and scientists to explore it and develop uses for it.

It tells *RailReview*: "This led to several organisations willingly and openly sharing much more data with the project teams who won the competition, which led to the development of several innovative solutions in the space of network performance, delay predictions and optimised planning."

particular networks with messages designed for particular groups.

There's also a role in fraud detection, with these different data sources allowing GTR to see mismatches in delay-repay claims. White says it allowed GTR to hold back payments in suspicious cases but also quickly pay compensation to genuine claimants.

Things such as delay-repay fraud detection fall out of data gathering, rather than being the reason to gather data. Limits of data use come only with imagination. Siemens' Rennie, for example, suggests that the time between a train's doors closing and its wheels moving could show whether dispatch procedures are being properly done at stations.

White joins Rennie in pitching the importance of data from trains. He tells *RailReview*: "We need to accelerate trainborne intelligence. Providing regular, accurate and useful insights into asset performance will make a more reliable railway, and this drives passenger satisfaction."

Meanwhile, Rennie stresses the importance of using data from

trains to make them more reliable and predictable. This enables an operator to more closely match its fleet to its service.

"The bigger prize is the customer buying fewer trains. That's where the business case sits with lower capital costs," he says.

That might be a long way from the daily fare a passenger pays, but a smaller fleet worked more intensively should provide a railway with lower costs.

In many ways, this is one of the railway's challenges with data. There is plenty of it and it's being put to good use. But no single use will cure any of the railway's ills. Taken together, those uses could make for a better railway - one that is cheaper to operate, easier to run, and more intuitive for passengers and freight users. But there's no guarantee.

For now, the railway is throwing open the doors to its data (indeed, the latest emergency agreements for train operators mandate this openness) and inviting people in to root around. Good will surely come, even if it's not entirely apparent at the moment. ■

# Data revolution



**Simon French**  
Chief Inspector, RAIB

**P**hilip Haigh is quite right - data drives the railway and is an essential ingredient of good decision-making. In the 15-year life of RAIB, we have seen an explosion in the amount of data available to train operators and infrastructure managers.

A recent investigation of a freight train derailment involved detailed analysis of large amounts of data collected by a track recording train, ground movement sensors and the on-train data recorder. Other investigations have used data from wheel impact load detectors, combined with TOPS-generated train consists, to detect the presence of asymmetrically loaded wagons. Most modern signalling and train control installations include data logging, and this is often used by RAIB to plot a train's position, or to enable a precise understanding of a signalling system malfunction. Increasingly, CCTV systems installed at level crossings, stations or on neighbouring land have proved an invaluable source of evidence, as have voice recorders and mobile phone records.

Not surprisingly, data collection, management and analysis has become an important part of RAIB's work. In one recent investigation, our inspectors found themselves having to process nearly two million lines of data in order to answer a single question. Working with large quantities of raw data has made us very aware of the potential

*“The modern challenge is often not to collect more data, but to process existing data more efficiently.”*

benefits of data, but also the challenges that it poses to those who are seeking to understand and manage the complexities of the railway business.

Our investigations in years past have found some surprising gaps in the data available to railway managers. For example, RAIB's class investigation into track worker safety found that there was no reliable data on the amount of track work undertaken on lines that were still open to traffic ('red zone working'). And the investigation into the 2016 tram crash in Croydon found that UK tramways did not have an effective mechanism to promote the effective sharing of safety information. I'm happy to confirm that the situation has improved markedly in both of these cases.

In most cases we have investigated in recent years, we find that data is available in huge quantities, albeit often in a format that is very difficult to 'digest'. The modern challenge is often not to collect more data (although that's sometimes necessary), but to process existing data more efficiently and then make use of that data in an intelligent and thoughtful way. To meet these objectives ways need to be found to meet the following challenges:

- Storing, sorting and processing large quantities of data
- Identifying cost-effective ways of combining data from different sources and recognising any links and patterns
- Finding and exploiting data sources from outside the traditional railway environment, such as social media
- Developing the tools and skills necessary to analyse data in ways that are both accurate and meaningful
- Finding ways of managing and communicating uncertainty in the data (we have all witnessed recent controversies generated by the presentation of COVID-19 statistics)
- Educating railway managers to better understand and exploit the data resources available to improve their business, including the management of safety.

In the meantime, RAIB remains grateful for the quality of data provided to assist its investigations. Please keep it coming!



**The scene of the tram crash in Croydon on November 9 2016. Tram 2551 was derailed at 45mph and travelled 25 metres on its side. The subsequent investigation found that UK tramways did not have an effective mechanism to promote effective sharing of safety information. INVICTA KENT MEDIA/REX/SHUTTERSTOCK..**



**Robert Dale**

**Engineering Director - SYSTRA Ltd**

Since starting work as a graduate Civil Engineer 20 years ago, I have witnessed a continuous and rapid change in how the rail industry perceives, collects and uses data.

Information and data management is now more essential than ever to all types of organisation. On a micro-scale, organisations are looking at how to improve their internal performance through understanding how their systems work, analysing their business information to identify waste and whether automation and digitisation can provide them with an edge.

At SYSTRA, we have a group-wide Data and Digital Transformation Strategy (as many businesses do) - not just for internal continual improvement, but seeking how to make best use of available technology and data from industry-wide sources and to ensure we have the right skills and development in place to harness opportunity.

From my own experience delivering complex infrastructure, I have noticed a significant shortfall in suitably-trained and skilled data analysts and engineers. This skills shortage cuts across the rail sector. To tackle the opportunities described by Phillip Haigh, we must close the skills gap, increase investment in our people and work across sectors to attract the right skills and talent. I applaud Government placing apprenticeships and skills at the centre of the post-pandemic recovery strategy - boosting social mobility, upskilling industries and increasing apprenticeships nationally.

We need good information to make good decisions. It is an ongoing challenge for the rail industry to manage its data - to keep it secure, while making it accessible to inform decisions and combine with other data. This is not just about systems and technology, as a sector we need to consider the commercial constraints that often inadvertently drive silo approaches and hinder true collaboration and sharing of data.

There are several national data initiatives - including the UK National Data Strategy, RSSB Data & Information System Interface Committee, and the Rail Delivery Group Joint Rail Data Action Plan - setting out the approach for a data-driven economy as "a digitally connected economy that realises significant value from interlinked, large-scale data that can be readily analysed by technology to generate insight and deliver innovation".

As Philip highlights, a key focus is on simplifying data access, thus improving passenger experience. The message is reinforced by the pandemic. The RSG's COVID-19 Taskforce Suppliers' Survey (post-pandemic, July 2020) highlighted that rail businesses across the UK want simpler data access to enable new ways of providing real-time customer information. We must seize the moment for the rail sector to come together and make data far more accessible.

Data must be managed and used in a responsible, secure and ethical way - whether that is ensuring that our national infrastructure is secure from threat, or that customers receive appropriate advice and information to enhance their travel experience. But I'm not clear on who is taking the lead on making data more accessible. Perhaps it's time for us to appoint a figurehead for this.

The global pandemic has given us an opportunity to change our culture and attitude to sharing data for the greater good, to break down silos and build trust in how our data will be used. Knowledge is power, but what lies ahead, if managed effectively, will be transformational.



**Steve Medhurst**

**Global Rail Practice Leader, RSA Commercial**

The rail industry, like a lot of other industries at present, is using data to drive decision-making. Rail uses data to make decisions on performance, maintenance, passenger footfall and timetables. But is there too much reliance on data? Or is even the correct data being used?

It seems that the rail industry is currently awash with data, but it must be careful that it does not become too reliant on data and in some circumstances lose the human touch.

There must be recognition that there is a lot of good for the industry that comes from data - such as Network Rail's New Measurement Train, which helps NR to keep the railway safe as it aids the discovery of problems at an early stage. Engineers can then make repairs or plan routine maintenance schedules to prevent serious incidents such as derailments. This reduces maintenance costs as well as the potential for serious incidents.

But we must not lose sight of the importance of information gathered at the coal face (drivers or maintenance staff). A recent embankment movement at Wivelsfield on the Southern network (Christmas 2019) was noticed and reported by a driver, despite technology and data gathering.

The same goes for technology and data gathering on trains for fault detection and routine maintenance. This is great, but at what cost? How many times does a unit generate a fault due to the wrong data being supplied, which means taking it out of service and changing a part, or even the need to come in for routine maintenance? How many times do customers find that their service is either cancelled or short-formed due to more units being out of service for maintenance? There needs to be a balance between the use of technology and data, as well as the maintenance personnel to ensure the use of data is optimised to provide the best level of availability and service possible.

The current emergency in which we find ourselves because of COVID will change the working patterns of millions of people, as commuters embrace only being in the office two or three days a week once we get back to normality, but it will also change leisure travel. With the changing dynamics, the rail industry will need to adapt. This will mean revised timetables, as there will be fewer commuters but perhaps more people travelling during the day, evenings or weekends.

It is anticipated, therefore, that there will be a need for a fundamental change in timetables. But unlike Beeching in the 1960s, who took a snapshot of one typical week which many railway experts of the time felt was too narrow, today's rail industry has the opportunity to quickly utilise months of real-time information about passenger habits (estimating the number of people on a train, utilising information from the ticket barriers, and so on) to build a modern timetable for the new today.

GTR Chief Operating Officer Steve White says: "It's never been more important to understand how our railway is performing, its fixed assets, its trains and its people." He is right. Data will be with us for the rest of humanity, so it is important that the rail industry continues to embrace the benefits. But it should also ensure that it uses the output wisely to ensure the correct decisions are made.



**South Western Railway 159105 and 159015 pass the long-closed station at Seaton Junction with a service from Basingstoke to Exeter St Davids on March 1. The operator has partnered with Porterbrook to retrofit Eminox exhaust technology on a '159' diesel unit, to reduce its emissions by between 80%-90%. STEPHEN GINN.**

# Train builders rise to multiple challenges

Following years of buoyant orders, rolling stock manufacturers face a more uncertain future, exacerbated by the COVID pandemic.

**ANTHONY LAMBERT** examines the prospects

Orders for new trains have been buoyant in recent years. By 2021, more than 7,000 new vehicles will have been supplied since 2010 - roughly half the total fleet.

Twenty-five years ago, the outlook for manufacturing trains in Britain looked terminal. Chiltern's order for Class 168s in 1998 was the first new train order for three years, tens of thousands of skilled jobs had been lost, and major production sites had fallen from ten to just one (at Derby).

Today, six large facilities are in production, under construction or planned: Bombardier at Derby (to become part of Alstom in 2021); Hitachi at Newton Aycliffe; Siemens Mobility at Goole; Alstom at Widnes; Talgo at Longannet in Fife; and CAF at Newport in South Wales.

New trains are almost invariably supplied with maintenance contracts, so there are numerous depots operated by manufacturers. There are the relatively recent Hitachi depots at Doncaster Carr and Stoke Gifford to fulfil the company's long-term maintenance contracts, the Thameslink depots at Three Bridges and Hornsey built by Siemens Mobility, and Bombardier's at Old Oak Common and Central Rivers. However, the scale of new train deliveries has adversely affected the companies that have traditionally carried out rolling stock refurbishment, at least in the short term.

While good for the economy and prices, this explosion in capacity must raise fears of oversupply unless the cycle of boom and bust that has bedevilled the industry is replaced by a long-term programme. This needs to reflect the age and performance of fleets, passenger demand, and infrastructure changes through decarbonisation plans.

In recent years, cheap finance has led to trains less than ten years old being replaced, when the economic life of a train should be 30-40 years. This may be good for manufacturers and passengers (assuming improvements), but it is wasteful of resources.

"It makes sense to make sure an asset lives out its full economic life with appropriate upgrades and refurbishments," says Rupert Brennan-Brown, Director of Stakeholder Engagement at Porterbrook

Currently, the biggest prize is the £2.75 billion order for 54 new trains for HS2, with Alstom, CAF, Hitachi/Bombardier, Siemens Mobility and Talgo shortlisted. Orders for Southeastern, Scotland and probably CrossCountry can also be expected.

*"It makes sense to make sure an asset lives out its full economic life with appropriate upgrades and refurbishments."*

**Rupert Brennan-Brown,**  
Director of Stakeholder Engagement, Porterbrook

However, the pandemic adds to the conundrum of what follows on. Instead of being able to anticipate a continuing steady growth in passenger numbers, we are faced with little better than crystal ball gazing to estimate when and how quickly passenger numbers will return to former levels. This, coupled with the collapse of the franchising structure, inhibits train orders. There is consensus that the nature of the market will change, with some reduction in commuting and broader shoulders to the peak, and that leisure travel is likely to become more significant.

"We don't know what will happen to numbers, but we can conceive of a good outcome with a different balance between categories of passengers. A reduction in overcrowding and more chance of a seat could be an appeal in itself, as could a more reliable service because of a slightly less packed timetable," says Railway Industry Association Technical Director David Clarke.

## THE IMPACT ON DESIGN

Even though the chances of catching COVID-19 on a train has been assessed as 1-in-11,000, all train manufacturers are looking at train features that will provide greater reassurance for passengers. Manufacturers are all too aware that COVID-19 may not be the last pandemic during the lifecycle of new-build trains.

Siemens Mobility is working with Yellow Collective to develop an air-fan unit that uses a combination of a photocatalytic coated matrix and UV-C light to cleanse the air in rail carriages, destroying viruses such as COVID-19, bacteria and pollution in less than six minutes.

Paul Baines, Sales Director at Siemens, says this can reinforce industry messaging that rail travel is already safe: "This adds to the measures already undertaken by train operators, but it is a difficult message as you don't want to imply that rail travel is not safe."

Baines says that what has interested customers is the wider performance of the unit, combining pathogen reduction, breaking down air pollution, removal of greenhouse gases such as CO<sub>2</sub> and removal of harmful organic compounds such as methane and formaldehyde. This makes the fan unit a net carbon reducer.

"We were also conscious that increasing the load on existing systems like the aircon can overload critical systems and reduce reliability, so the system we've developed operates independently from any other system on the train, doesn't need maintenance and doesn't produce any waste like a filter does," he adds.

"Taking a longer-term view, we need to look at minimising touch points for passengers in toilets or on doors, for example, and special anti-viral coatings for handrails. I think for new trains there will be a new minimum standard in what passengers expect."

Bombardier predicts that the trains of the future will have motion sensors to replace touch buttons, more glass or Perspex screens between seats, hand sanitisers on grab rails, and entry and exit doors to permit a one-way system when boarding or alighting. ➤



**The stronger recovery in leisure travel compared with commuting since the start of the Coronavirus pandemic could lead to the reconfiguration of train interiors - such as this Stadler Class 755 in operation with Greater Anglia - to incorporate more table seats. PAUL BIGLAND/RAILREVIEW.**

► Will Tanner, Director, Communications at Bombardier Transportation UK & Ireland, says: “We are working with Northamptonshire-based Filtration Control on a pathogen-eliminating particulate air filter which can be fitted new or retrofitted to most carriages in operation. It attracts and captures aerosol droplets to prevent the virus circulating.”

Pandemic measures apart, manufacturers are also looking at what the changing nature and volumes of the passenger market might mean for design. Face-to-face seating has been restricted during the pandemic, but watch passengers board a train with mixed airline seats and table bays of four seats, and the table seats are almost invariably taken first.

Passenger preference for tables and groups of four is not confined to families, but greater leisure use of trains would suggest that a reduction in the number of airline seats would be welcome. Uniquely, Talgo trains have seats that can swivel to the direction of travel and allow flexible seat configuration. Lower commuter peaks would enable less high-density seating and make trains more attractive, as most passengers have the option of using a car.

Interestingly, the Parliamentary Transport Select Committee’s *Trains fit for the future?* inquiry is exploring “how the passenger experience onboard trains can improve and how accessibility can be enhanced”. The lukewarm or highly critical reception given to some recent trains suggests there is scope for improvement.

While cars have become steadily more well-appointed, train design too often seems utilitarian and lacking the design flair of early German ICEs or the attention to detail of an Electrostar or Class 185. Rising passenger expectations can be addressed by periodic overhauls, as with Porterbrook’s current £55 million modernisation of Govia Thameslink Railway’s Electrostar fleet, during which real-time information screens and USB/power points are being fitted.

“One of the traits in our business has been the lack of scope in specifications for new ideas and innovation,” says Baines.

“We need to change that approach. An operator that we bid to

*“We need to look at minimising touch points for passengers in toilets or on doors, and special anti-viral coatings for handrails. I think for new trains there will be a new minimum standard in what passengers expect.”*

*Paul Baines, Sales Director, Siemens Mobility*

may specify lots of digital functionality, but often it’s not integrated early enough into train platforms.”

Baines cites creating the ability to reserve a seat five minutes before departure as a typical passenger requirement. However, for that to work you need to integrate the right technology to distinguish between a bag and a person occupying a seat, and to then inform an App for online booking.

“This needs very early consideration,” he says. “Retrofitting that kind of thing after the event is never ideal. Traditionally, the specifications we respond to are developed by operators based on their response to DfT tenders. In a competitive tender situation, it’s difficult to offer innovations that are in addition to what’s been specified. I’d like to see a model in the future that allows OEMs [original equipment manufacturers] to bring potential innovations to the forefront in procurement and create an improved passenger experience as a result.”

## DECARBONISATION

The volume of orders for new trains will be largely determined by the speed with which the Government decarbonises transport and the measures it takes to achieve net zero in every mode by 2050 (2045 in Scotland).

The Department for Transport’s decarbonisation plan has been deferred until January 2021, but the Government’s aspirations were set out last March in *Setting the Challenge*. It wants public transport and active travel to be the natural first choice for our daily activities. “We will use our cars less and be able to rely on a convenient, cost-effective and coherent public transport network,” the DfT said.

As rail is the only transport mode capable of moving both people and heavy goods using a zero-carbon solution, rail should be expected to assume a much more important role for passenger and freight traffic.

But if fine words are to become reality, capacity on the railways will have to increase substantially. Switching to rail just 10% of the 2019 average of 580 car trips per person in England (compared with 21 by train) would mean an additional 3.8 billion rail journeys - more than twice the current number.

Signals that the Government is going to bring forward to 2030 the end of petrol and diesel car sales may not of itself increase demand for rail. Rising public awareness of our personal duty to choose modes more responsibly may achieve some change, but it is the choices the Government makes to replace the inexorable decline in fuel duty revenue of £28bn a year that may have far greater effect.

Road pricing or a distance-based lorry tax would encourage more thoughtful modal decisions, rather than what is for many the default road option. Sub-national transport bodies (STBs) have called for powers to implement road charging and clean air zones.

But, for the time being, passenger demand is no longer the key driver for rolling stock procurement, according to Siemens. Instead, it is the decarbonisation of rail traction that will also stimulate orders.

Network Rail’s interim *Traction Decarbonisation Network Strategy* (TDNS), published in September, will be used to inform the DfT’s overall *Transport Decarbonisation Plan*.

The TDNS considers where overhead electrification, battery or hydrogen trains might be most effectively deployed. It recommends electrifying another 13,000km (8,077 miles) by 2050, leaving 2,100km (1,304 miles) to be operated by battery or hydrogen trains (400 and 900 single-track kilometres [STK] respectively). Because these are the proposed requirements for 2050, there may be a case for more battery or hydrogen trains in the transition.

Oddly, the TDNS uses for battery and hydrogen operation the STK measurement appropriately used for wiring schemes. Route miles would have been more useful for non-wired options.

Additionally, there are 300 STKs where the jury is still out on the optimum choice of technology.

Transport Scotland has already published its bold plans to decarbonise the railway by 2035, which include electrification of

lines to Scotland's seven cities, building on the success of its rolling programme that has electrified 441 STKs in the past decade. An additional 1,616 STKs will be wired.

Simultaneously the Transport Select Committee is resuming work on its *Trains fit for the future?* inquiry. Chairman Huw Merriman says he is looking forward to hearing from experts in the rail industry about what developments are under way, so that the sector can help in the challenge of removing diesel from railways by 2040 and thus help the UK to reach net zero greenhouse gas emissions by 2050.

"Drawing on the experience and expertise of service and equipment suppliers, as well as passenger and freight rail operators, the Committee will examine the issues surrounding alternatively fuelled rolling stock on the UK rail network in the drive towards decarbonisation," says Merriman.

"While rail makes up a relatively small portion of the transport sector's greenhouse gas emissions, it is nonetheless important that the entire industry looks to make improvements."

Welcome as this and the TDNS is, Siemens Mobility's Paul Baines says there needs to be more detailed thinking: "Even if we started tomorrow, delivering nearly 12,000km of electrification with current supply chain capacity at around 450km per annum is a significant challenge, and there's also a skills agenda with that."

It is during this period, while the core electrification is delivered, where the right rolling stock and infrastructure decisions could realise great benefits in carbon reduction and air quality, quickly, Baines argues.

"We should use the time of the ERMA [Emergency Recovery Measures Agreements], and the transition into the new contracts planned to follow them, to define a clear strategy and create a single guiding mind for the railway. In tandem with wiring, we need projects that will reduce diesel emissions on lines that will not be wired or receive alternative fuel trains," he says.

Porterbrook's Brennan-Brown, believes that interventions now will reinforce green credentials in both passenger and freight.

"We have worked with South Western Railway and Gainsborough-based Eminox to fit SCRT® technology to the centre car of a Class 159," he says.

"Its catalyst reduced nitrogen oxide (NOx) emissions by over 80%, particulate matter by over 90%, and both carbon monoxide and hydrocarbons by over 90%. We are looking to see whether this technology can be scaled up for freight locomotives."

Hitachi Sales Director Nick Hughes anticipates the replacement of the diesel fleet (the '14X', '15X' and '16X' classes), which would require a good few hundred battery trains before 2030.



*"While rail makes up a relatively small portion of the transport sector's greenhouse gas emissions, it is nonetheless important that the entire industry looks to make improvements."*

*Huw Merriman MP, Chairman, Transport Select Committee*

Most manufacturers have been exploring battery and hydrogen solutions for lines that do not justify wiring.

Siemens has a Cityjet Eco train running up to 75mph in Austria using both overhead wires and battery.

Alstom has begun construction of the world's first hydrogen filling station for passenger trains in Lower Saxony, to replace a mobile filling solution for its 14 iLint hydrogen-powered regional trains. With a range of 1,000km, the trains will be able to run emission-free all day with just one tank filling. Expansion areas at the filling station will enable hydrogen to be produced on site at a later date, using electrolysis and regenerative electricity.

The challenge in Britain is the loading gauge.

"How do you store sufficient fuel on a train to allow that range without sacrificing passenger space or comfort?" asks Baines. "At 350 bar pressure, it wouldn't be expected to pass fuel between vehicles. Continental platforms use the roof space, so these are the challenges we're addressing."

He adds that 'carbon neutral' is a relative term: "If you have hydrogen as a by-product from existing industrial processes, fine. But if you need to transport it in diesel tankers, that defeats the object."

"We're very pleased that we're able to tie up with our colleagues in Siemens Energy on infrastructure requirements for clean hydrogen production, so that we can understand and speak to our customers about rolling stock and fuel infrastructure needs."

Baines would also like to see a joined-up energy and industrial strategy comparable with that employed years ago by the UK Government for wind power, setting prices for clean hydrogen to motivate the market and innovation.

"Our modelling at this stage suggests that a hydrogen train would have a similar total cost of ownership to a diesel, based on ▶



**Siemens Mobility and Austria Federal Railways have successfully developed Europe's first approved battery-powered train. The three-car Desiro ML Cityjet eco entered passenger service in September 2019 for use on non-electrified lines. SIEMENS MOBILITY.**

The Transport Select Committee's *Trains fit for the future* inquiry has been launched partly in response to the negative reception given to recently introduced 'utilitarian' train interiors including the Thameslink Class 700 fleet. PAUL BIGLAND/RAILREVIEW.



► current grey hydrogen prices," he says.

"We'd like to see this driven down in due course. Green hydrogen is currently at a higher cost due to it being small scale, but this is where we feel the real environmental benefits lie."

Given the target of eliminating diesel-only trains from the network by 2040 (2035 in Scotland), the scope for hydrogen trains might seem to be greatest in Scotland and Wales, where the lines that would not justify wires are longest - the Cambrian, Kyle and Far North lines, for example. However, development of battery technology is so rapid that the 100km range of a Bombardier Talent 3 or Vivarail Class 230 may soon be increased to put battery in contention on range.

Hitachi is working with Sunderland-based Hyperdrive to leverage its automotive expertise in batteries onto rail. The comparative costs of hydrogen filling plants and battery recharging stations will also be a factor.

A German study published in July by VDE, the Association for Electrical, Electronic and Information Technologies, concluded that over a 30-year life cycle, battery-powered multiple units are substantially cheaper and more efficient than hydrogen-powered trains. It found that fuel-cell multiple units are less efficient and cost up to 35% more to buy, operate and maintain.

Decarbonising freight traction is a tough challenge because of the need for much greater power away from the wires. Even the Stadler-built bi-mode Class 88s lack more than last-mile power.

RIA Technical Director David Clarke says the Government

*"Our modelling suggests that a hydrogen train would have a similar total cost of ownership to a diesel, based on current grey hydrogen prices. We'd like to see this driven down in due course."*

*Paul Baines, Sales Director, Siemens Mobility*

needs to provide confidence that the wires are going to be there to use: "You can't write off a Class 66 still with 20 years' book life without some recognition of that loss. One could envisage a Co-Co locomotive which would have enough length for battery storage to provide more capability, but we need signals from government and support for R&D because our loading gauge would make it UK-specific."

The Government's freight strategy expected next year is likely to envisage a substantial move to rail - not least to take advantage of West Coast Main Line capacity released by HS2.

The Climate Change Committee has recently stated that emissions from surface transport must fall rapidly to meet the UK's legally-binding fourth and fifth carbon budgets - they must reduce to close to zero by 2050 to meet the UK's net zero target. The Sixth Carbon Budget in December will recommend a limit on the volume of greenhouse gases the UK can emit in the period 2033-37. The committee's chairman, Lord Deben, has warned that it will be the "toughest of all" and will give the Government "a very clear path to follow".

## IMPACT ON SUPPLY CHAINS

Although the renaissance of train production in Britain is wholly welcome, a distinction needs to be made between trains that are manufactured and those that are assembled.

It was presented as a significant improvement that TransPennine Express Class 802s would entail far more assembly of components at Newton Aycliffe than previous orders of the same train for Great Western Railway and Virgin Trains East Coast. If it were possible, a breakdown of the source of components both between trains and between manufacturers would make interesting reading.

As orders rise, the proportion of work carried out in British plants can be expected to increase. For example, following the installation of friction stir welding equipment at Newton Aycliffe, 56 of the 135 vehicles being constructed by Hitachi for Avanti West Coast will be built there instead of Pistoia (Italy) or Kasado (Japan), as will the Class 810s for East Midlands Railway.

And sourcing more components from Britain is Talgo's intention,

to the extent that its trains would be described as manufactured here rather than assembled. Jon Veitch, Managing Director of Talgo UK, estimates that the 1,000 jobs at Longannet will be supported by 5,000 indirectly.

“Our President, grandson of Talgo’s founder in 1942, has wanted to bring real manufacturing rather than assembly back to the UK. Our two factories in Spain are at full stretch so we need additional capacity,” he says.

“Our Rodal technology, which optimises the alignment of each independent wheel with the rail, makes us very competitive through reduced life cycle costs. And we are close to Grangemouth and Rosyth for exports.”

CAF has also looked to “grow the number of local and national companies supplying components for our vehicles”.

At Siemens Mobility’s train manufacturing site in Goole, 700 jobs will be directly created, supporting a further 1,700 indirect jobs in the supply chain, with a strong focus on spending as much of the investment locally as possible. This will be the site for the manufacture of Piccadilly Line Tube trains for Transport for London. Future orders could include additional vehicles for the Bakerloo, Central and Waterloo & City lines, plus main line suburban and inter-city trains.

Baines says the company wants to create more than just a rail manufacturing facility at Goole.

“We want to create a lasting legacy for the rail industry and long-term skills and careers for the region,” he says.

“We’re encouraging suppliers to co-locate and we’re building an onsite R&D and digital innovation cluster serving the UK rail sector. Our goal is to create a Centre of Excellence for Rail Technology that covers everything from AI and robotics to battery and hydrogen technology.”

All manufacturers are looking to use their plant in Britain as a springboard for exports, while anxiously waiting to see what impact Brexit has on our ability to win export orders.

A dedicated line is being set up at Derby to build 70 four-car monorail vehicles for Cairo, in a contract won by Bombardier in 2019 (the first major export order for the industry in many years). The company is also bidding for Irish Rail’s DART fleet replacement.

RIA Policy Director Kate Jennings says: “Given the scale of

*“Our President, grandson of Talgo’s founder in 1942, has wanted to bring real manufacturing rather than assembly back to the UK. Our two factories in Spain are at full stretch so we need additional capacity.”*

*Jon Veitch, Managing Director, Talgo UK*

rolling stock manufacturing or assembly, it is a question for the Government how it is factored into the export strategy.”

Perhaps most important of all is the creation of a 30-year strategy that puts an end to the damaging cycles of boom and bust that have characterised recent decades. Without a steady programme of work, supply chains are broken, skills are lost, and costs increase when capacity and training have to be rebuilt.

The high-quality jobs created by making trains are exactly what Britain needs as it recognises the consequences of structural deformity in the economy, with an over-reliance on service industries.

Bombardier’s Tanner believes a road-based recovery is not the answer: “Post-franchising, the Government, DfT and Treasury will be even more involved, so we need to talk to them all and make the case for rail. The artificial divide between elements of the industry can inhibit a joint case for rail - decarbonisation will only happen if people work together. Electric road vehicles will not solve the problems. The Irish Government is intending a 2:1 ratio of expenditure between new public transport infrastructure and new roads. What a great model!”

A sense of urgency is needed - not only because of the timescale for decarbonisation, but also, as RIA’s David Clarke cogently points out: “A ton of carbon saved in 2020 is 30 tons saved by 2050.”

Moreover, work on wiring the Midland Main Line is almost at an end, and the dispersal of those skills would be immensely damaging. With COP 26 in Glasgow next November, there has never been a more appropriate time to enact bold policies as an example to others. ■



**Class 385s on order for ScotRail are assembled at Hitachi’s Rail Vehicle Manufacturing Facility in Newton Aycliffe. It is one of six such facilities in the UK that are either proposed, in operation or under construction. RICHARD CLINNICK.**

# Rolling stock

In my dream country, the Government does enough to plug the gaps left by the market, and there is a guiding mind not just for the railway system, but also for rail as part of a strategic transport network that supports the economy and all the associated socio-economic goals, such as a sustainable planet.

Ah well, so much for dreams. As the countryman said to the visitor asking for directions: "if I was going there I wouldn't be starting from here."

The transport, economic, and railway system context will have a strong influence on the rolling stock market eloquently summarised in the article. We face at least five years of crushing uncertainty. Will the passengers come back? How will the shape of the peak change? What will be the impact of road pricing as opposed to fuel taxation? What role do we want our railway system to play? In a no-diesel environment, what happens to the big lorry?

The absence of a comprehensive, national, intermodal transport strategy leaves a gap that the market will fill with low-level investment appropriate to a low-confidence environment. We are just arriving at a great bust, the boom has well and truly ended for trains, and I feel for all those late entrants building factories on the back of low-volume orders.

Three major uncertainties exist for a system that cannot change quickly enough: the pandemic; the impact of climate change policies; and the industry structural change, including the end of the franchising model for train operations.

**“For our passenger railway, rolling electrification must be the dominant approach to decarbonisation.”**

The pandemic has reversed overnight the dash for capacity that has been the driver for the last decade, and at the same time has destroyed the prevailing

**“For me, it was a very new experience and extremely enjoyable. I've reviewed finished products in the past, so it was nice to be involved in a project that wasn't in its final stage. I did feel that our views and suggestions were reflected in the mock-up. Nice to be involved in something that will have meaningful longevity.”**

These were the words of a passenger who took part in our Merseytravel rolling stock research.

Amid all the uncertainty generated by decarbonisation and COVID-19, there is one constant that still underpins rolling stock procurement: the need to provide rolling stock that meets the expectations and needs of the end user. And the best way of doing this is to involve passengers from the very start of the process.

Our passenger research is clear that there is no one-size-fits-all answer when it comes to the question of what passengers want from trains. There were common features, but each project looked at what has worked in a particular environment or market and the influences of local conditions and experiences.

You cannot assume that the views expressed are interchangeable - expectations and aspirations can (and do) differ. An obvious example of this is seating and internal layout. The expectations of long-distance passengers differ to those on shorter metro services. But there are regional differences, too, often driven by the experience of crowding.

With Thameslink, passengers recognised the importance of designing for the needs of those who have to stand. This included the suggestion of moving away from 3+2 seating, thereby providing more space in the aisles.

Passengers were pragmatic about designing for the primary purpose of the train. When you look at some of the criticisms



**Cliff Perry**

**Former Engineering Director, Angel Trains**

industry funding model. The short to medium-term solution as life returns to a new normality must be a drive to fill the trains that we have, and fix the revenue to cost gap.

One of the successes of franchising has been a profound focus on the customer, in order to attract them out of the cars that they suddenly see as an essential part of their private PPE.

A complete reversal of the current image of public transport as being unsafe will take a clever, sustained and significant public relations effort. The system-wide effort to fill empty trains then needs all the things that customers love: frequency, late-night services for the off-peak user, security, ease of ticketing, and slick interchange facilities.

Unfortunately a guiding mind will be close to (and heavily leant on by) the Treasury. Cost rather than customers will rule. The mitigating factor will hopefully come from more devolution and the pro-rail influences of city and local authorities under pressure through road congestion.

Overall, there will be little investment in new trains as a result of the pandemic except for HS2 and the needs of electrification schemes. So, refurbishment and repair will be up, and lots of warm storage for electric trains displaced by the 2018-19 order boom.

Which leads to climate change. When all cars are electric, rail will



**Anthony Smith**

**Chief Executive, Transport Focus**

made of the Thameslink Class 700s, such as the lack of tables and uncomfortable seats, they often (but not exclusively) come from passengers travelling longer distances. The train serves two markets but was really designed to move large numbers of people.

The article mentions a possible shift of focus towards the leisure market, which usually favours bay seating. It then suggests that if decarbonisation targets are to be met, capacity on the railway needs to increase substantially. While not mutually exclusive, given possible changes to infrastructure, train design has typically looked towards increasing the number of seats per carriage. The two competing demands present an obvious challenge.

The word utilitarian was used. This, unfortunately, appears to be an unintended consequence of having to move trains around the network every few years. The generic option - one that won't require too much adaptation and/or isn't expensive to change. With that in mind, and with the need to cater for specific segments of the passenger market, it's important that trains are built in a way that prevents it becoming prohibitively expensive to refurbish or cascade trains. This applies equally to short-term measures brought in because of the pandemic, and chimes with the article's point on retrofitting and incorporating innovation.

lose some of its green edge, although its advantages in high-speed and high-capacity moves will remain.

However, the medium-term opportunity for rail here is surely in the conversion of ex-passenger stock for those high-value, high-speed delivery services into urban centres where the distribution can be by electric vehicles. There is no viable market answer yet to the non-diesel HGV, so for trains there will be more conversion and adaptation, rather than new fleets, until this opportunity for modal shift is established in the next five to ten years.

For our passenger railway, rolling electrification must be the dominant approach to decarbonisation. Even minor low-density branches may eventually be trolley-wired, rather than persisting with the additional energy and infrastructure costs needed by batteries or hydrogen. For the passenger railway, we then have the impact of the change in structure, with more vertical integration and the end of franchising. Two key negative factors will emerge.

Vertical integration will obscure the importance of the wheel/rail interface, and in particular will change the commercial incentive to invest in reliability that comes from real money crossing company boundaries through the attribution scheme. Wooden dollars circulating inside a company are not the same. This will reduce the long-term ability to run a reliable railway, or adapt it for resilience to extreme weather events. The second factor is that we are taking away the incentive of the private operator to grow passenger numbers just when we need it the most.

Changing the seat configuration on an expensive and unloved bi-mode train running half-empty, even in the peak, is the closest railway analogy to the deckchairs on the *Titanic*. A dramatic unified industry push to counteract the perfect storm we have entered is desperately needed. Messrs Hendy and Haines are the right folk to deliver. We can and must support them.

We've heard accounts of short-sighted specifications where desired outcomes haven't been precise enough or have specified a method of delivery without fully appreciating the alternatives that could provide a better option for passengers. Involving original equipment manufacturers and, importantly, the practitioners within train operating companies before a specification is written is one way of addressing that.

Is an engineering team's understanding of what's required of a passenger information system the same as a customer experience or passenger information manager? Both need to be involved. Understanding the needs of passengers underpins it all.

This includes looking beyond the basics that regulations provide for disabled passengers. In our recent work with Merseytravel, wheelchair users identified the need for an information screen within plain sight of the wheelchair space. This sounds obvious, but existing screens often don't allow for the possibility that standing passengers might block the view. The provision of a wheelchair space that allows the user to choose the direction of travel was also identified.

In respect of the pandemic, minimising touch points by introducing motion sensors could have the dual benefit of improving accessibility, but such measures need to be done in consultation rather than based on assumption (the move towards push button locks in toilets didn't give passengers the reassurance they needed that the door was locked). Looking forward, we'd also like the industry to think about how the interface between the train and the platform can be improved by the design of the train, rather than relying solely on changes to station infrastructure.

There are many challenges facing rolling stock design. Having an iterative, consultative process won't solve them all... but it's a very good starting point.



**David Simpson**

**Operations Director, ScotRail**

**A**nthony's article makes very clear the challenges and opportunities in the rolling stock market, and in particular the need for innovation in respect of the on-board environment and achieving decarbonisation objectives.

In Scotland, the challenging target to eliminate diesel trains by 2035 is a mere 15 years away. And as Anthony highlights, Glasgow hosting the COP26 conference in late 2021 is a fantastic opportunity to showcase the role which UK rail can play in achieving climate change targets.

As a train operator, I particularly enjoyed the section on design - both in respect of technical innovation against the backdrop of the pandemic, and the focus on passenger comfort and flexibility. This is particularly important as markets change in the future from the traditional peak 'crush' to perhaps a more even pattern of demand through the day and week.

Passengers using trains for two or three days a week, perhaps blended with home working, will expect a better quality of journey than before, with the journey seen as a productive part of the working day. Will on-board WiFi be strong enough to support the 'new normal' of video conferences? Equally, there could be new markets to exploit, such as Scotland's scenic routes, where innovative and flexible interior train design can make a difference.

Comfort is also key. As Anthony highlights, recent new train designs have received mixed reviews in this respect. It is interesting to compare the seats and the general environment on the latest National Express or Citylink coaches, or even on many local buses, with the railway's offering - they certainly come across as a higher-quality product in the eyes of many travellers. More research on this would be useful, as I don't doubt competition between modes will be even more intense as we aim to rebuild patronage.

Cost will be another key factor, given the expectation of very constrained funding for the industry in future. Any new fleet must contribute to the fundamental need to reduce the cost base of the industry while maintaining quality - all operators now have an even stronger focus on every single cost line than ever before, and so innovative ways to finance, operate and maintain new or repurposed fleets are critical.

The article correctly highlights decarbonisation as the main driver of rolling stock replacement going forward, in respect of electrification on the core routes and alternative energy (battery

**“ Any new fleet must contribute to the fundamental need to reduce the cost base of the industry. ”**

or hydrogen) on the remaining parts of the network. Clearly technology is advancing rapidly in all these areas. But for me, remembering that the railway is a 'system', and involving all parts of the system in a collaborative manner as we develop solutions, is key.

Sensible rolling stock cascades are as much a part of the rolling programme of electrification as putting the wires up.

The long-term strategy referred to, eliminating the 'boom and bust' cycle, is key - let's work together as an industry to achieve that, and give our passengers rolling stock which will attract and retain their custom.

# Creating a manifesto for a cyber-resilient railway



The COVID-19 pandemic has rightly caused many boards across the world to dust off their corporate risk registers and reconsider the existential threats around them. And the spread of the disease has given rise to the need for a reappraisal of one of the other perennial 'black swans' - cyber-security of critical national infrastructure.

No one can doubt that the pandemic has been deeply challenging for the rail industry, but there has clearly been a determination to forge ahead despite that.

Reduced service levels have created opportunities to redouble efforts across the country to introduce new rolling stock, and have been used to bring forward renewal and maintenance projects. With the UK now officially in recession, investment in infrastructure as a way to stimulate the economy has risen to the top of the agenda. The Government's Project Speed initiative has been embraced by Network Rail, with pilot projects under development to increase the efficiency and timeliness of rail investment.

In this environment, it seems that the long-trumpeted evolution of the railway from a fundamentally electro-mechanical one to a fully computerised, networked 'system of systems' will finally mature. Co-ordinated rollout of the European Train Control System (ETCS) standard for digital signalling is imminent, and new rolling stock is being introduced across the network which utilises centralised computer-based Train Control and Management Systems (TCMS), networked to on-board computer control units.

This new technology will bring many improvements. Digital signalling will reduce the risk from Signals Passed at Danger and help the railway to be more flexible to change. Digital traffic management will reduce delays, maximise throughput, and reduce the time it takes to restore the timetable when disruption takes place. Computer-based train control systems aboard trains are bringing greater

reliability and detailed real time fault monitoring and recovery.

There is therefore an opportunity here to achieve political and economic objectives, while producing the fundamentally renewed railway that is needed for a sustainable transport system in the UK. But to do so will require a fundamental reappraisal and understanding of the cyber threats inherent to these digital systems.

### **THE RISING THREAT**

Although it is sometimes difficult to separate the hyperbole from the facts, there is no question that the cyber threat to critical national infrastructure is rising. Data to quantify this is hard to obtain, but there is data on the rising threat from cyber-crime in general. The number of reported cyber-crimes in England and Wales has risen steadily since comparable figures have been recorded (see graph). This rise is exacerbated by the increasing impact of each breach: the average cost to businesses of each cyber security incident rose by 32% in 2018-19.

The stocks of cyber security companies have been relatively safe havens during recent economic turbulence. And why not when ransomware attacks are on the rise, with vast sums of money flowing to the criminal organisations behind them? Cyber security is a growing business, and the ultimate customer is the party carrying the risk. That risk is highest where organisations are responsible for Operational Technology, including critical national infrastructure such as signalling systems and rolling stock.

Upgrading the railway effectively is a difficult enough challenge without this emergent risk, and it would be easy for

*There is no question that the cyber threat to critical national infrastructure is rising.*

consideration of it to be crowded out by other more immediately obvious challenges and the false reassurance that comes from a backwards look at risk. But these risks can only be managed effectively through a long-term vision. Given the 20- to 30-year investment horizon of the railway, the current promise of renewal of the asset base provides a rare opportunity and need to engage on this topic.

The ability of cyber attacks to devastate critical infrastructure was perhaps most vividly demonstrated by the Black Energy malware that remotely shut down 30 power stations in a carefully co-ordinated attack against the Ukraine in 2015.

Going back further to the late 2000s, the 'Stuxnet' virus, developed to arrest the Iranian nuclear programme, illustrated how highly sophisticated attacks that stretched the boundaries of what was previously thought possible could be carried out on critical national infrastructure.

Both of these incidents were now several years ago - a lifetime in the world of computing technology. Enhanced capabilities exist now, held in reserve until such time as they can be used to maximum effect. And even if there is a view that the UK railway isn't a target for nation state cyber terrorism - despite global political tensions - once new capabilities are exposed elsewhere, they quickly filter through to a wider set of cyber criminals.

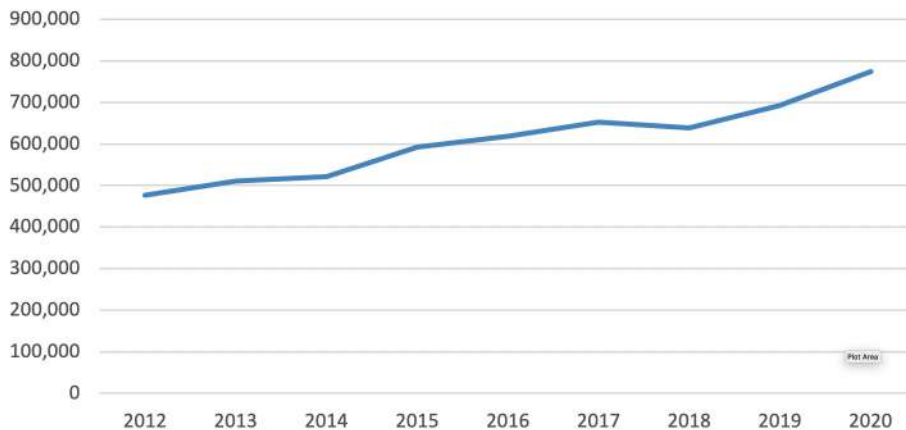
### **MEETING THE CHALLENGE**

The industry has a very broad and comprehensive cyber security strategy. But are its priorities clear and actionable? Which of the actions within it are most strategically valuable given the current stage of industry maturity? There are four key commitments that should, in my view, be the strategic priorities.

■ **Create clear requirements for the design and assurance of Rail Operational Technology:**

Regulations have emerged to address

## Total fraud and computer misuse offences



**Total fraud and computer misuse offences in England and Wales, 2012-present** (source: ONS)

cyber security threats, in particular the Network and Information Systems (NIS) Regulations 2018.

However, these are targeted at the parties who have the operational responsibility, essentially Network Rail and the train operating companies, rather than those designing and building the Operating Technology (OT).

A strategy is needed to address this, and to ensure that appropriate overarching legal requirements are in place for OT security as they are for safety and technical compatibility. Until such time as they are put in place, those funding and specifying rail assets will need to ensure that contractual arrangements effectively incentivise 'design for security'.

### ■ Ensure standards are in place and that they are practical and effective.

For any overarching requirements to be effective, standards need to be in place enshrining good practice. However, the standards for Operational Technology (the industry control system standard IEC 62443:2018 and its emerging railway specific version TS50701) are still evolving.

A key challenge is that the process of assuring security is complex and not widely understood. Security by design, like safety by design, can only be delivered through application of a robust engineering process from the very outset of asset design. However, the standards that exist are arguably overcomplex and may not accurately reflect real practice in the manufacturing community.

For example, the idealised approach in such standards is based upon the assumption of a top-down, centralised design and validation process. This model doesn't reflect the plug-and-play reality where different sub-systems are

independently developed and integrated into each rail asset on a project by project basis.

A more credible model would strengthen the assurance that these standards are intended to provide. Those requiring that assurance will need to engage on the evolution of these standards to make sure that they remain fit for purpose.

### ■ Foster a culture of open, controlled communication of cyber vulnerabilities.

The steady improvement seen in the safety performance of the UK rail industry over the last 20 years has been built on an open culture where safety hazard information is shared transparently between all parties. To minimise risk, security vulnerabilities - like safety hazards - need to be consistently understood by those with a role in addressing them.

In particular, security by design requires good up-front knowledge of the possible attack surfaces and their operational and safety implications. It is also true that cyber threats and vulnerabilities are dynamic and evolving, and understanding often only fully emerges at the time that the asset is put into operational use or when a breach occurs.

A concerted effort is needed to create open, trusted mechanisms for sharing vulnerability information to all parties who need to be aware. Although such information (of course) needs to be effectively controlled, access should not be unduly hindered by commercial considerations or vague assertions around the risk of doing so.

### ■ Equip all of those engaged with the knowledge needed to mitigate cyber risk.

Cyber competence exists mainly in organisations' IT departments, and most focus is on standard business IT systems

and networks. Cyber security competence is not yet readily found in the community of engineers traditionally responsible for track, signals and trains. Sustained effort is needed to raise the level of understanding of all parties to the level needed.

Security by design requires early focus, but many of those involved at the contracting stage are unlikely to have a deep understanding of cyber security risks or the frameworks and standards needed to provide assurance that they have been addressed.

There are parallels here with System Safety. In 2017, the pilot application of ETCS on the Cambrian Line failed in an unsafe way as a result of latent equipment design faults. To address a resulting recommendation from the Rail Accident Investigation Branch, work is under way in the industry to develop a rail industry standard to guide clients on how to procure safe software-driven assets. A security-focused equivalent would be equally useful.

In other areas, system designers need to understand how they can best zone their system to make it inherently secure to emerging threats. Those undertaking penetration tests need to have up-to-date understanding of threat vectors - paths in which criminals can gain access to the network. And perhaps most importantly, the end user, who must demonstrate compliance with NIS regulations, needs to understand the potential access points and the emerging threats in order to monitor networks for intrusion.

## THE WAY FORWARD

The railways are at a critical stage in their evolution and transformation to a more flexible, reliable, passenger-focused, digital system. There are emergent risks, but if they are considered now - in a co-ordinated manner - they can be effectively addressed. The nation's cyber security knowledge is among the most advanced in the world. If it is leveraged effectively, with partnership between government and industry, our railways can emerge as an international exemplar for the protection of critical transport infrastructure. ■

### About the author

George Bearfield is Director of Health and Safety at Rock Rail, the Visiting Professor of Railway System Safety at the University of Huddersfield, Institute of Rail Research and the Chair of the RSSB sponsored Asset Integrity Group. He is also an i100 partner at the National Cyber Security Centre.

**Manchester city centre from the air. The DfT is yet to confirm which projects are included under the Project Speed banner, but one of the press releases sent to *RailReview* related to £10m to design works to unblock Manchester's railways, which doesn't meet the definition of 'shovel ready'. ALAMY.**



# Creativity the key to speed project delivery

**PHILIP HAIGH** reports on Network Rail plans to change attitudes, behaviours and procedures, as part of a bold new initiative to slash costs, save time and boost efficiency

**P**roject Speed is a joint initiative between Network Rail and the Department for Transport that aims to cut costs and hasten delivery of infrastructure projects. It's a snappy name - so snappy that it was borrowed by Prime Minister Boris Johnson for a new infrastructure delivery task force headed by Chancellor of the Exchequer Rishi Sunak. Its aim is to build the right things in Britain "better and faster than before".

Johnson said in a speech in the West Midlands on June 30: "We will build better and build greener, but we will also build faster, and that is why the Chancellor and I have set up Project Speed to scythe through red tape and get things done with every home we make, every mile of full fibre broadband that we lay, with every flood-defending culvert that we dig, with every railway station, hospital or school that we build."

The Treasury followed this with a July 8 press release that said: "£5.8 billion will be spent on shovel-ready construction projects to get Britain building."

*RailReview* decided it was reasonable to ask the Treasury what rail projects were included within that £5.8bn. The response was short: "Thanks for getting in touch. Please could you direct this query to the Department for Transport?"

So *RailReview* asked the DfT... and asked again... and then followed up the lack of response to eventually be sent links to two press releases. One related to the Government's pledge to reopen lines shut by Beeching, while the other explained that there was £10 million to design new works to unblock Manchester's railways and £100m to be spent on local roads. Design works don't meet any definition of shovel-ready, which suggests there's little in the Chancellor's £5.8bn for rail.

But just to be sure, *RailReview* asked the DfT again what rail projects were shovel-ready. There's not yet been a reply.

What then of the other angle to Project Speed - the Network Rail part? NR told *RailReview* to refer any questions to the DfT because the DfT had told it not to talk about Project Speed.

*"All we've done is respond to what we were seeing unfold in the current Control Period - that we weren't getting the projects into the supply chain and into passenger service in the timescales that we set out in our CP6 plan."*

*Rob McIntosh, Eastern Region Managing Director,  
Network Rail*

Thankfully, NR Eastern Region Managing Director Rob McIntosh was not so coy when he spoke to the Railway Industry Association's annual conference in November. He explained Project Speed's background and aims.

"Project Speed is a joint Network Rail/DfT initiative. I lay copyright to it because Cav Elithorn [DfT major rail projects development director] and I came up with the name before the Prime Minister coined his Project Speed, but he got to run with his first.

"All we've done is respond to what we were seeing unfold in the current Control Period - that we weren't getting the projects into the supply chain and into passenger service in the timescales that we set out in our CP6 plan. So we got together to work out how we might address this and we set ourselves the somewhat audacious goal of halving the time and slashing the cost it takes to do things. We then set our teams off just answering that question in a six-week window, chose six live projects within the portfolio, and said: 'Just tell us, unconstrained, how you can halve the time it takes to do things'.

"They came back with a whole variety of suggestions. Those have now been developed into eight to ten themes that cross everything from Government legislation and planning through to capability of our own people and getting more access trackside. It's the whole round of things we're working through into very precise asks that we can use to re-baseline these projects as exemplars of how you can do projects in half the time."

So, Speed's summary is to halve the time and slash the cost of projects. This fits the theme of the DfT's acceleration unit, which was launched in the summer (Q3-2020) with strong involvement from the road sector to learn lessons in project delivery. It might be confusing that the Prime Minister used the same name for his acceleration unit, but both aim for the same outcome and NR's might benefit from Prime Ministerial influence.

Project Speed (another railway acronym, standing for 'Swift, Pragmatic, Efficient and Effective Delivery') covers three main areas. The first is what NR can do internally, the second is how it and the DfT can better work together as one team (removing duplicate assurance process as one example), and the third is what legislation might change to make NR's project delivery easier.

In this last area, one senior manager tells *RailReview*: "There are very simple things such as giving Network Rail parity with Highways England on things like rebuilding bridges for electrification. Highways England does not have to consult when it builds a bridge, it just has to let people know. But if I want to rebuild a bridge for route clearance, I have to go and consult with a load of councils who probably aren't that interested in electrification, and they can drive a lot of cost and scope into it."

Change might come to the way ministers decide Transport and Works Act Order applications. It's just taken five years for Network Rail to secure permission to close or downgrade two ➤

*“I see people in Network Rail who are gold-plating schemes in the first instance because our standards have not been driven to reflect a cost-constrained environment,”*

*Andrew Haines, Chief Executive, Network Rail*

► dozen level crossings in Cambridgeshire. Now NR is suggesting under the ‘one team’ work with DfT that TWAO applications have decision deadlines and timescales. Perhaps akin to ‘service level agreements’, injecting known timescales into TWAO applications will allow better planning and more certainty as to when spending will take place.

DfT Northern Powerhouse Rail and HS2 Phase 2 Director Nick Bisson told the RIA audience: “We’re absolutely after what are the concrete improvements that can be made in the delivery of projects - not just in rail, but more broadly. This is something the Secretary of State is pushing really hard personally and asking much the same questions as the Prime Minister: why do things costs so much, why

do things take so long, and what can be done differently?”

*RailReview* quizzed a contractor with UK and overseas experience. The result was some clear hints to improve delivery speed and cost. Procurement could be faster, with more work grouped under alliances or called off under ‘taxi rank’ procedures or simply directly awarded. The latter two methods would ensure every competent contractor received some of NR’s spending, but they go against the usual methods of competitive procurement.

In calling for NR’s Governance for Railway Investment Projects (GRIP) planning process to be made quicker, *RailReview*’s contractor was speaking before NR Chief Executive Andrew Haines announced to RIA that GRIP would be replaced next year. The contractor’s gripe was the time GRIP takes, particularly around developing different options when the answer was an obvious single option.

When it comes to building, this contractor’s view was clear: NR should take advantage of fewer passengers travelling during the pandemic and close lines to allow engineering work. He argued that the railway had clung to the notion of running trains for key workers when demand really didn’t support it. He cited the case of trains to Manchester Airport being cut back, which was helping provide contractors more time on the tracks.

If NR’s GRIP process adds time, it’s sometimes hard to escape



*“Good solutions arrive from being totally open about what your challenges are as a client and what you’re trying to achieve, then the contractor on the supplier side being open and transparent about capability. It is all down to that investment in a really strong relationship, supported by good project controls.”*

*Stuart Calvert, Centre of Excellence for Capital Delivery Director, Network Rail*

thinking that DfT’s Rail Network Enhancements Pipeline (RNEP) is designed to prevent delivery and to save DfT from spending, by consigning projects to a planning purgatory from which there’s little chance of escape. There are certainly easier ways for contractors to win work, with HS2 going ahead and positive noises coming from Scotland about its proposed rolling electrification programme.

There’s also a European perspective where the client/funder takes less of a project integration role, leaving that to those delivering the work. This relies more on the supply chain and, as *RailReview*’s contractor, notes: “Europe collaborates. In Britain we’re in a forced marriage.”

He also says there’s a reluctance in Britain to learn from Europe - certainly in Network Rail, although less so in HS2. Yet France built its high-speed line from Tours to Bordeaux within seven years from

securing legal permission to opening.

Circling around the relationship between Network Rail and its contractors is the matter of trust. Office of Rail and Road Chief Executive John Larkinson told *RIA*’s conference that lack of trust was at the bottom of NR’s problems in delivering renewals a few years ago.

Of today’s delivery problems, Larkinson said: “We’re trying to work out what the asks are of different organisations. What we did three years ago was work out what we all agreed the problems were because, unless we can convince the Treasury that we’re going to sort those problems out, there isn’t going to be any more money for the rail industry.

“So, do we actually agree about what the sources of the constraints are in improving speed of delivery and reducing costs? If we do and we act on them, what the analogy shows is that you can actually start to turn things round pretty quickly, provided you can build up consensus.”

Trust and consensus comes from relationships with each player understanding what the other players need.

Stuart Calvert heads NR’s project delivery in its Wales and Western Region, and is also the director of its Capital Delivery Centre of Excellence. He tells *RailReview*: “We have some first-class examples of excellent relationships and excellent collaboration but, of course, they are built on trust. And we probably have some examples which we all, on both sides of the commercial line, wish were better.”

Calvert has seen projects with good relationships and projects without, and explains the difference: “It really is about being clear about what it is that you are trying to do, clear about what success means and why that is a success, building up the relationship and the trust. It’s not just relying on the contract, but understanding what the contract means to each other and working together to understand the issues on both sides.

“In my career, I’ve spent about half of my time as a supplier and half as a client. Quite often, people have only been on one side of the fence, and of course there are different pressures and different requirements on both sides.

“Good solutions arrive from being totally open about what your challenges are as a client and what you’re trying to achieve, then the contractor on the supplier side being open and transparent about capability. It is all down to that investment in a really strong relationship, supported by good project controls.”

NR Chief Executive Andrew Haines touched on relationships at *RIA*’s conference.

“I see people in Network Rail who are gold-plating schemes in the first instance because our standards have not been driven to reflect a cost-constrained environment,” he said.

“I see designers who look to off-load risk from designers to the customer, effectively by over-engineering. That’s a large part of the story for Great Western electrification. The fact we were a poor client for that doesn’t mitigate poor behaviour.”

Haines added that the way in which Network Rail negotiated access was “criminally expensive” and led to very long delays.

“As we know in large projects, if you have long delay you end up with very large overheads. Those are just three examples of what we can change for ourselves in the very short term.

“They don’t have to be five, ten, 15 years away. They’re things ►

**Crossrail Chief Executive Mark Wild describes Crossrail as now being a tech company facing a system integration challenge rather than a construction project. This is Tottenham Court Road on the Crossrail system on October 20. CROSSRAIL.**



► we can be changing now and that's what we're doing with Project Speed. People are lapping up doing it when you give them the opportunity, and really looking at the opportunities for yourself, really testing your specification and your delivery methodology against those criteria."

It was here that Haines announced GRIP's demise, after being asked whether it was fit for purpose.

"If it was used properly, it is. But it rarely is used properly. That's why we're going to replace it. When you get into GRIP it has agility in it, but we've cultivated a whole generation of people who almost feel obliged to apply it mechanically and that's what makes it not fit for purpose. There will be some work on that very early in 2021 to declare how we deal with that. Some of the disciplines are important, but they've driven a very mechanical process which has

## Infrastructure Projects Authority principles for project success

### Focus on outcomes

- Be clear about the outcomes to be achieved before starting the project, and who commissioned them.
- Translate outcomes into tangible deliverables and realistic measurable benefits and use these to steer decisions on project scope, time, cost, risk and design priorities.
- Set out a clear project business case for investment of funding and other resources needed to deliver these benefits and outcomes in the most efficient and effective way.
- Be clear how success will be measured, and focus on delivery of benefits and outcomes throughout the project. If these no longer appear deliverable or affordable, the project should be stopped.

### Plan realistically

- Invest time in thorough up-front planning to ensure the project is deliverable and affordable before giving commitments.
- Use expert, evidence-based cost estimation, using benchmarking and reference class forecasting to identify the range of possible scenarios, and increasing accuracy between each stage gate.
- Use ranges for costs, benefits and delivery dates, adjusted as certainty increases through the life of the project. Plan for contingencies and be aware of optimism bias.
- Maintain the plan throughout the project and track progress against it, taking decisive action quickly if things go off track.

### Prioritise people and behaviour

- Plan ahead for the diversity of people, skills and experience needed to deliver the project and build a strong, properly resourced and competent team, evolving as necessary through the project lifecycle.
- Agree the delivery structures, internal and external, needed to deliver the project, and how these will be established, managed and governed as the project evolves.
- Be clear on individual accountabilities and responsibilities across project delivery structures, and check that they are working as expected. Consider organisational capabilities and take action where improvements are needed.
- Agree clear expectations on behaviours and make the project a great place to work, where everyone in the team can thrive, grow and feel valued for their part in the project.

### Tell it like it is

- Foster an open project culture, where people feel safe to challenge and raise risks and issues, and where assurance is valued as a key element of successful delivery.
- Agree standards for realistic performance reporting and challenge optimistic assumptions and inaccurate data.
- Encourage honest conversations within the project team, with sponsors, stakeholders and suppliers, and as a fundamental principle for assurance.
- If something isn't right, isn't ready or isn't working, say so, and take action accordingly.

### Control scope

- Agree project scope from the start and stick to it at each stage. For evolving agile and transformation projects, agree clear scope for each stage, within an overall envelope.
- Exercise strict change control, and test unavoidable changes in scope or design for impact against the plan, business case, benefits and outcomes before decisions are taken.
- Work in manageable project stages, with gated decision points, pausing to assess delivery and ensure continuing viability at each stage of the project.
- Track progress to plan, in terms of cost, schedule, deliverables, risks and opportunities, always assessing impact on benefits and outcomes.

### Manage complexity and risk

- Reduce complexity and risk where possible. Where not, plan for them and manage them.
- Take a system-wide view of what it will take to deliver the project (including operating context, boundaries with partners and operational change) and plan for it, with a detailed project execution plan in place before moving to delivery.
- Minimise internal and external dependencies where possible at the design and planning phase: manage those remaining actively through the life of the project.
- Pay attention to integration: ensure a single point of accountability. Plan how to bring elements together, testing that they work together at each stage and that the outcome works for users.

### Be an intelligent client

- Build a clear understanding of user needs and design the project accordingly.
- Consider the whole supply chain in terms of market appetite, capacity and capability, and whether it can deliver what is needed, as part of planning. Involve the supply chain early and have firm bids for scope before full business case.
- Establish channels for dialogue with users and stakeholders to ensure their voice is heard throughout the project.
- Build trust-based relationships with the supply chain and partner organisations: contract collaboratively to ensure a viable contract and incentivise successful delivery where everyone benefits.

### Learn from experience

- Seek out relevant experience from other projects and use it in planning and delivering the project.
- Value experience and learning in the project team and build a culture of continuing professional development.
- Maintain an 'outside view' of the project: bring in independent perspectives and integrated assurance, and learn from them.
- Capture lessons throughout the life of the project, and share them as feedback, stories and case studies to improve project delivery for wider public benefit.

Source: IPA.

cost money and time."

In GRIP's place will come another acronym: PACE - Project Acceleration in a Controlled Environment.

McIntosh tells *RailReview*: "It's much more scalable, it's much more flexible. But at its heart, it's designed about doing the right thing quickly."

He adds: "There's a generation of project managers that have grown up compliance-orientated... compliance with GRIP has become a more successful outcome for these folk than actually doing things for passengers."

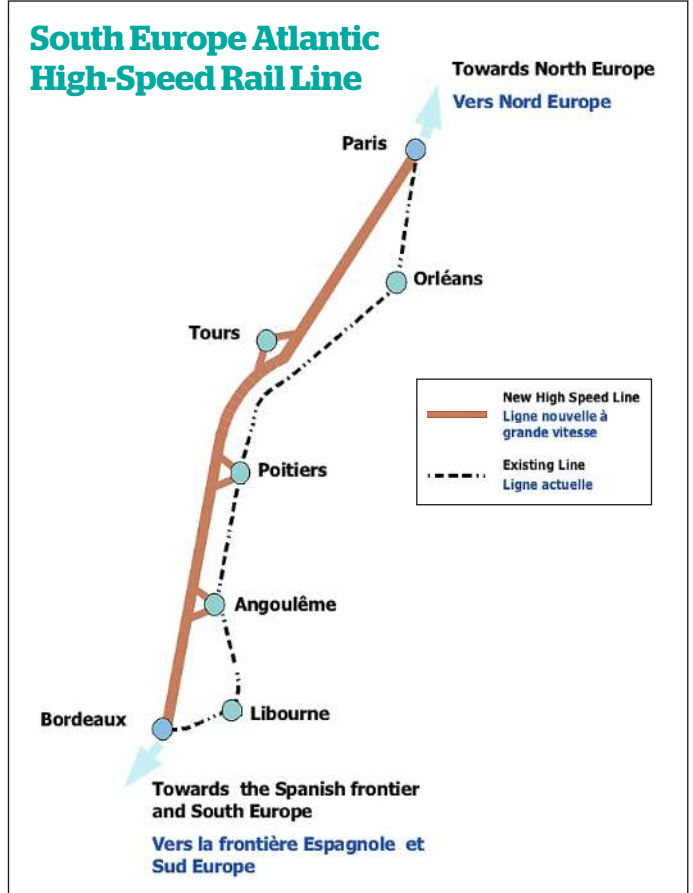
Calvert adds some detail: "A lot of our processes have become very one-size-fits-all. One of the criticisms of GRIP is that while it had excellent control measures and a fairly standard stage-gate review process, it had become a little too rigid. In some cases, we feel we can reduce the cost or reduce the time by having a more flexible process."

He says that replacement would give more flexibility and would be a simpler process, helping to unlock the project teams and the development teams to create solutions that meet funders' and passengers' needs.

He continues: "One of the key things in GRIP we've really challenged was the option development process, because you have to go through so many steps and develop so many options to a certain level. In a lot of projects, while the option you want is obvious, why do you need to go through that process?"

"Yes, of course you should do a bit of testing, but that whole option development process could be very much foreshortened. And that's down to understanding why we're delivering projects. We don't deliver projects for engineering because it's nice engineering, we do it because it's needed to deliver better services. It's unlocking that process."

Culture and behaviour aren't usually associated with major projects that tend to concentrate on tons of muck being shifted >



**A railway contractor told Philip Haigh that he feels there is a reluctance in Britain to learn from Europe, yet France built its high-speed line from Tours to Bordeaux in seven years. This is the South Europe Atlantic High-Speed Rail Line, which opened in 2017. CREATIVE COMMONS/KIWINEKO14.**



*“We need to be investing in people and skills that enable us to better manage risk and focus on outputs rather than the processes. If we’re tendering all the time, we’re not investing in R&D and we’re not investing in people. For me, building better is very much around a culture change in leadership, collaboration and competence.”*

*Russell Jackson, Head of Rail, AECOM EMEA*

► or volumes of concrete poured, but Calvert argues that changing culture, behaviours and minds is key.

“Whatever processes and procedures we have, projects engineering is done by people. The first step for that is devolution. We have devolved regional teams working closely with the routes and that has already made a significant change. If I put my Wales and Western hat on, I’m a full member of the regional exec. I’m as responsible for delivering a train on time at Paddington as the Route Director, and the Route Director is as responsible as me for delivering investment projects.”

Much stronger collaborative alignment in the regions and routes for delivery is fundamental, he says, adding: “That helps create the mindset that helps people realise why we’re doing these jobs, who we are doing them for, and how we create that collaborative environment.”

McIntosh made similar points to the Railway Industry Association: “Railways aren’t about engineering vanity projects, railways are about jobs, they’re about people, they’re about economic growth. Yet over probably the last decade, we’ve created an environment where

compliance has become more than the passenger and economic outcome, and that has driven so much time and cost into schedules.”

He added: “What that means is that we focus unrelentingly on the passenger outcomes and we manage our risks really hard. We have to change the mindset of our people and that’s a big challenge. It’s about moving away from a mindset of compliance and moving to a mindset of creating the right passenger outcomes.”

AECOM EMEA Head of Rail and *RailReview* Editorial Board member Russell Jackson echoed to RIA the emphasis on outcomes, and talked about the importance of creating a one-team ethos.

He said: “I also think there’s an element of competency. We need to be investing in people and skills that enable us to better manage risk and focus on outputs rather than the processes.”

Jackson further explained that longer-term frameworks and alliance were good ways to invest in competency and build trust and collaboration. He said: “If we’re tendering all the time, we’re not investing in R&D and we’re not investing in people. For me, building better is very much around a culture change in leadership, collaboration and competence.”



Infrastructure Projects Authority Chief Executive Nick Smallwood commended the IPA's project success booklet that was published last summer (see panel, page 70), but cautioned rail companies against rushing into delivery.

This was something that Crossrail Chief Executive Mark Wild also told RIA. He noted that Crossrail might have saved two years from its construction had it spent six to nine more months at the beginning of its process to concentrate on design management.

This sounds counter to arguments about ditching GRIP's option selection stage, but is really about concentrating minds on how to deliver a project. Wild also suggested that schemes would be better to concentrate on delivering the minimum to make a project viable. By contrast, he said that Crossrail had been trying to deliver everything from day one.

David Hughes reflected these comments when he argued about the perils of labelling projects 'world class'. Hughes is now Transport for the North's Strategy Director, but he was previously at Crossrail and recalled how the world-class label had driven its specification upwards, adding cost.

Wild argued that Crossrail is today a technology company facing a system integration challenge rather than a construction project. He said he had 2,500 staff testing every wire on Crossrail, and would much prefer modular kit built and tested in factories which his team could simply plug into the railway.

Smallwood told RIA that Britain was generally lagging behind in project delivery, with uncertainty on project pipelines and poor margins for contractors. He described rail as "not top of the pops" and was particularly critical of its lack of automation in design and construction. There was little "design one, build many" in rail

*"We need to create a more flexible, more responsive set of governance and procedural tools."*

*Stuart Calvert, Centre of Excellence for Capital Delivery  
Director, Network Rail*

projects, he said, citing stations in particular.

This is an area where rail could certainly improve if ministers do decide to authorise Beeching line reopenings and bring stations back to the public. This could give scope to design a uniform station - perhaps the railway could develop a standard design of ticket machine that incorporates passenger information screens and then install them at every new station.

Smallwood also tackled the problem of gold-plating, which he described as things the private sector would love to do but couldn't afford. He noted that no one really owns gold-plating, reflecting a view that it can appear unnoticed in a project until it's too late.

*RailReview* also asked Stuart Calvert about gold-plating. He says: "I don't think there's universal gold-plating across the board, given that there are some really good examples of very well-developed projects that are exactly the right solution. Of course, there are examples where elements of gold-plating need to be got rid of. The important thing is to focus on the outcome you want from your project."

He adds: "You have to come up with a sensible solution that meets the need and which is affordable and available in a sensible timescale. That is where this creativity comes out. You can see all sorts of examples and we've talked about modern methods of construction, modular off-site builds and things like that where you're not only advancing the time of delivering the project and the cost but also the safety regime.

"Where there is gold-plating, there really must be this single-minded focus on what we are trying to achieve for the benefit of passenger or stakeholder within a regime that's affordable."

The theme emerging from RIA's conference discussions about speeding project delivery and keeping costs to budget is people and their relationships. It's a subject Calvert strongly echoes.

He tells *RailReview*: "We need to create a more flexible, more responsive set of governance and procedural tools. We then have to work really hard with our project teams - everybody involved with investment process, from the client to the sponsors through project delivery teams to suppliers - and say what we want to unlock is creativity.

"It comes back to one of those academic questions in project management - is it an art or a science? Of course, the reality is that it is both, so the control measures and the engineering we do are the science of project management, but the creativity in developing the solutions - working with passengers and stakeholders - is the art side of it.

"What we've already started to work hard on in all the regions, and through the Centre of Excellence, is how can we help people understand that we need to unlock that creativity and deliver better solutions that much better meet the needs of our passengers and in a more cost-effective way.

"It all sounds a bit like motherhood and apple pie, but the reality is that it's giving people permission, and that's what we want out of the replacement for GRIP. We're not project managing by numbers. It's not just a process. You have to combine that with creativity."

Forget Project Speed as an infrastructure programme or a project delivery programme. In reality, it's a programme to change people's behaviours. That makes it difficult. Success will only come through continued hard work by rail industry leaders. ■

**Ticket machines at London Victoria station. Philip Haigh argues that rail could improve the way it 'designs one, builds many' with things such as ticket machines, by adopting a standard design which is then used across all new stations. ALAMY.**



# Project Speed



**Professor Andrew McNaughton**

**Professorial Fellow, University of Southampton**

Philip's article starts to dig at the rot which lies at the heart of the British way of doing renewals and enhancement work: mechanistic application of GRIP, the avoidance of personal and commercial risk, and bespoking otherwise routinely repeatable works. And endless reviewing "assurance". This surfeit of process and procedure means direct costs of work - materials, plant and labour - is a fraction of the total cost.

There is a sense of déjà vu all over again! In 1996, a study of Railtrack's performance concluded that its project managers were applying the full force of its major projects procedures to small simple jobs. Network Rail started modular S&C, signalling and stations programmes, but they fizzled out as sponsors and project managers conspired to claim they could shave pennies off the direct construction cost by developing each job from scratch (ignoring the cost of their armies of paper warriors to do so).

So, what needs to change for it to be different this time? As well as all the good stuff here on simplifying process, the culture has to change. First, the acceptance by everyone (business sponsors, engineers, project managers, including by DfT and ORR) that most work can be specified from a small suite of "pre-assured" standard jobs which deliverers from planner to operative repeat in rolling programmes week after week, and get good at.

Business managers have to scope only what is reasonably needed - finding the sweet spot between short-term bodging and fantasy requirements. Engineers have to act as the professionals they are, specifying rather than blindly listing generic standards. They must drive innovation and, when accepted, change the standard jobs accordingly.

Planners should not see the route to avoiding over-runs as to schedule to take twice as long as needed. Plan right. Stop building in excessive contingency for failures. There are many good suppliers. even if they cost a few percent more - use them!

Project Managers must stop being rewarded for avoiding all commercial and programme risk. They should be measured on delivering the agreed specification at below benchmark cost and time, rather than being lauded for how much money they've burned through.

Philip highlights the success of the Scottish rolling electrification programme. An important part has been each part of the team exercising judgement about what is and is not reasonable and sensible - and being respected for that, rather than hiding behind "compliance with process" or punting everything off for expensive, unnecessary optioneering and assessment.

Finally, all parties have to acknowledge the cost of poor quality. It is accepted everywhere else in the developed world that subsequent performance and whole-life cost is so governed by initial quality. Richard Spoor and his team showed the laws of physics really are the same on this side of the Channel, on the elements of the West Coast Upgrade they engineered and insisted on being delivered even when the highly paid programme managers only wanted to measure "pounds in the ground". Their legacy remains visible today.

All power to Project Speed, but remember it's about personal responsibilities, attitude and commitment as well as soundbite and process. Let's make it happen - this time!



**James Quinnell**

**Chief Commercial Officer, Colas Rail**

The basic premise of Project Speed is to bring work to market quicker and then deliver it in less time. This, in turn, will help kick start the economy. We are all on board with that, but it needs to be now.

The good news is that the industry is ready to start, but only if we take packages of work through the arrangements that are already in place. Frameworks exist to get this immediately moving, and which have been developed to provide commercial tension but with agreed terms and no further lengthy procurement. Fortunately, utilisation of the arrangements already in place is happening on works such as Bristol East, under Stuart Calvert's leadership. The industry stands ready to do more.

Despite the current challenges, I remain confident that ridership will in large measure return, if maybe looking a little different from pre-pandemic, and that the economy can no doubt thrive again. We need to make the case for rail to play a key role in that recovery, chiming as it does with the levelling-up and decarbonisation agendas.

However, we must be realistic over where the public finances will be in two to three years from now, and that trying to kick off all the possible major rail projects we may have hoped for, on top of HS2, might be poor timing.

Take, for example, Croydon Area Resignalling: notwithstanding that we can significantly reduce its time and cost off the back of the excellent work Rob McIntosh and others are doing as part of Project Speed, do we really see now as the time to gain commitment of several billion pounds?

We need to be sympathetic to the economic reality, and perhaps focus on how we improve the rail network 'spine' to reduce the bottleneck. We can then return to some of these wider plans around the station when the public finances improve.

Is this Putting Passengers First? I believe it is. While some passengers like world-class stations, they would prefer (if forced to choose) to limit their time in them and have more trains reliably and rapidly. Some will argue for putting the case of 'asking for everything in the hope of something', but I prefer to reflect where we are and to target something realistic but with maximum 'bang for your buck'. Again, the framework holders, the experts both in terms of the specialism but also geography, could help drive this.

Longer term, I can see a future where we have a smaller client with the supply chain being involved earlier. Most in the supply chain would welcome such a move, as we usually say: early contractor involvement is the answer, what was the question?

However, for that revolution, we still need the client very much present, as you cannot be a spectator in a revolution. Network Rail is rightly recognised as an industry leader in more aligned working, but there is the chance to go further by bringing the suppliers and ultimate clients together earlier.

We also need to do less as standalone projects, with the inevitable ramp-up and ramp-down of resource as well as the price of the learning curve. Efficiency comes from long-term programmes of work where continuous improvement can flourish.



**John Downer**

**Director of Sales for Rail and Network Rail  
Client Account Manager, Jacobs**

**P**roject Speed, as incarnated by Rob McIntosh, is an excellent idea to challenge the industry, and Network Rail leadership's willingness to get their running spikes on and speed up change is creditable. Targeting Swift, Pragmatic and Efficient Enhancement Delivery, Project Speed is simply the right thing to do.

As Mark Wild explores, there is a fundamental tension between speeding up to be "shovel ready" and optimising the time to co-create intelligent, constructable designs between the client, contractors and the professional services community. Here, and on this tension, I'd like to magnify the following points:

**Speed needs trust:** John Larkinson, Stuart Calvert and Andrew Haines all raise issues of trust in their comments. The adage that it is hard work to create trust and so easy to lose seems magnified in the rail industry, but it goes both ways. You need to earn the trust of your supply chain as much as you need to trust your supply chain technically and commercially. At the root is collaboration: organisation to organisation; team to team; and individual to individual.

**Speed needs efficiency:** The behaviour changes needed to embrace Project Speed requires a unified rail sector to be braver, but not foolhardy. We need to be prepared to test, refine and continuously improve, not agonise over getting it perfect before we start. That means adopting the minimum viable product approach and applying lean start-up philosophies by:

- Engaging the supply chain earlier in the project lifecycle.
- Enabling and encouraging thought leadership from the small and medium-sized enterprises ecosystem.
- Embedding social value at the heart of planning and procurement.
- Being open, honest and pragmatic about conflict of interest with contractors, vis-à-vis their input early in design and their ability to compete to deliver.
- Rethinking the current UK procurement framework - to openly discuss procurement routes/options with suppliers to encourage innovation, collaboration and integration, and shared vision. Reviewing the current procurement 'rules' to embrace market-led proposals, productivity and sharing of risk.
- Addressing procurement inefficiency, especially for Direct Awards under a Framework contract as the cost to bid routinely outweighs the net profit return on investment.
- Pivoting to a measure of productivity, rather than selecting the cheapest.
- The supply chain needing to be less risk-averse on commercial assumptions where there is commensurate reward, and resist flowing risk down our own supply chains who are not as well placed to manage it.
- Retaining design intelligence from cradle to grave (subject to performance).

On procurement efficiency, many of us have invested millions to secure places on framework contracts, only to face further 'mini-competition' where there is nothing mini about the exercise - none more so than the design community. The challenge is often from third party stakeholders who inject resources and funding into

a project, but who don't understand the rigour with which the framework has been procured. There are successes - for example, a demonstrable and tangible desire to improve procurement efficiency and reduce contracting costs for all parties on Network Rail's Design Services Framework, which, following the supplier's recommendations, established a Leadership Collaboration Board with commercial and procurement engagement from the Regions and at Group level. This is the channel through which we can co-create procurement practices that articulate, endorse and stimulate trust, collaborative working and creativity, not penalise them.

**Speed needs outcomes-based thinking:** The Institution of Civil Engineers' Project 13 commercial handbook recognises the power of incentives to drive outcomes. We are all driven by incentives, and at all levels - personal, project, programme or portfolio - behaviour is altered by incentives. Calibrating a tiered incentivisation regime aligned to achieving outcomes is both an art and a science, and critically the client must not fear sharing the benefits for a job well done. Making a profit is not a dirty word, it's a means for re-investment - this will absolutely need a mindset shift, a behavioural change from clients.

The Western Rail Link to Heathrow is a case in point. I declare that this is a scheme I am personally invested in, because I will be using it for pleasure and for business. I must also declare that it is a scheme I have been close to for five years in its development.

I have witnessed an extremely collaborative effort between Network Rail, its supply chain (which includes Jacobs) and key stakeholders. In true Project 13 style, it has clear and desirable outcomes on putting passengers first, improving social mobility, on air quality, decarbonisation and battling road congestion - no wonder it has created overwhelming positive stakeholder support.

The scheme has met every test thrown at it except the pandemic, the timing of which is frustrating as the scheme is well progressed to being shovel ready, although noting that the (increasingly required on rail projects) Development Consent Order process is a contender for Speed's scrutiny.

**Speed needs certainty:** Firstly, saying that a project has been done quickly or cheaply can only be measured if the speed and cost benchmarks are the right ones. We need credible comparative baseline data certainty to start with.

Secondly, the back-and-forth between Treasury and DfT that *RailReview* experienced (when trying to find out how much of the £5.9 billion is coming to rail) underlines the Railway Industry Association's concurrent 2019-20 campaigns *Show us the Rail Enhancements* and *Speed up the Rail Enhancements*. This cross-Government syndication of accountability underlines this last point that I want to magnify. If Government wants to speed up shovel ready projects, then I believe it must first speed up:

- The progression and acceleration of projects that deliver more and better outcomes.
- Ministerial decision-making, notably for Development Consent Orders and Hybrid Bills.
- Pipeline visibility and certainty.
- Procurement efficiency.
- The prevalent adoption of collaborative incentivised commercial contracts.
- The co-creation of technically and commercially intelligent designs that optimise the delivery of outcomes.

I'll finish where I started by addressing Rob McIntosh's opening challenge to "halve the time and slash the cost".

Project Speed is absolutely the right thing to do, but Project Speed must not stop at "six live projects" or "eight to 10 themes", it is a mindset that requires a behaviour change programme that the rail industry must embrace and which it must champion - from manufacturer to Minister and from apprentice to CEO.

# Research and reports

Here's *RailReview's* digest of documents and reports released by industry bodies during the past quarter. All those listed can be downloaded from the Rail Hub database on [www.railreview.com](http://www.railreview.com). If members would like to submit a report for inclusion, please email: [paul.stephen@bauermedia.co.uk](mailto:paul.stephen@bauermedia.co.uk).

**Rail Infrastructure and Assets 2019-20**  
Office of Rail and Road  
5 November 2020

Route length: 15,904 km  
Track length: 31,218 km

As a result of various electrification schemes across Great Britain, 6.649 km of the railway network is now electrified. This is 26.2% of all routes.

8,805 route km not electrified (42%)  
6,649 route km electrified (38%)

251 new electrified track km was added to the network. This was mainly in the East of England Programme, and Great Western Electrification plan.

Four new rail stations opened in 2019-20, bringing the total number to 2,287 stations:

- Huddersfield
- Wokingham
- Warrington North
- Worcester Parkway

The average age of rolling stock for all train operators is 17.2 years, which has decreased 1.9 years since 2018-19. This is due to several operators introducing new rolling stock.

All data tables and a quality and methodology report associated with the release are published on the [orrapublications.org](http://orrapublications.org) website of the ORR data portal. Key releases are in annex 1 of this release.

## Rail Infrastructure and Assets 2019-20

### Office of Rail and Road - November 5 2020

The average age of franchised operator fleets (as of March 2020) has decreased by 1.9 years to 17.3 years, while non-franchised operator fleets have decreased by 0.1 years to 19.2 years, according to the latest data released by the Office of Rail and Road.

This is due to the introduction of new trains, combined with the withdrawal of many older vehicles such as High Speed Trains, Mk 3s

and Pacers. And looking ahead, the average age of Britain's passenger train fleets is expected to drop to 15 years by March 2021, owing to the introduction of an extra 1,565 vehicles ordered during 2017-18.

This will mean that the total number of new vehicles delivered between 2014 and 2021 will have reached almost 7,200, and comprise more than half of the current fleet.

## Rail Emissions 2019-20

### Office of Rail and Road - November 5 2020

CO<sub>2</sub>e emissions for passenger trains fell to 35.1g CO<sub>2</sub>e per passenger km in the April 2019-March 2020 financial year - the lowest level since the comparable time series started in 2011-12.

For passenger trains, electricity usage increased by 5.3% and diesel usage increased by 1.5% compared with 2018-19, although over the same time period passenger kms fell by 1.3%.

Meanwhile, for freight trains the amount of diesel consumed increased by 12.7% to 172 million

litres (the highest figure since 2015-16), while electricity usage fell by 6.3%.

ORR attributes the overall fall in emissions to a transition towards renewable energy sources in the electricity sector.

It also warns that passenger rail usage during the first quarter of 2020-21 was severely affected by the Coronavirus pandemic, and that this is expected to have a large effect on emissions for the current financial year.

**Rail Emissions 2019-20**  
Office of Rail and Road  
5 November 2020

**Passenger train emissions**  
35.1 g CO<sub>2</sub>e per passenger km in 2019-20  
Decrease of 4.1% compared to 2018-19

For passenger trains, electricity usage increased by 5.3% and diesel usage increased by 1.5% compared to 2018-19. Over the same time period, passenger kilometres decreased by 1.3%. The resulting CO<sub>2</sub>e emissions for passenger trains have fallen to 35.1g CO<sub>2</sub>e per passenger km. This is the lowest level since the comparable time series started in 2011-12.

**Freight train emissions**  
27.5g CO<sub>2</sub>e per tonne km in 2019-20  
Increase of 6.6% compared to 2018-19

The amount of diesel consumed by freight trains in 2019-20 has increased by 12.7% to 172 million litres. This is the highest figure since 2015-16, and the first time that diesel use increased year on year since 2010-16. Electricity usage fell by 6.3% to 70 million kWh.

The resulting CO<sub>2</sub>e emissions for freight trains have increased to 27.5g CO<sub>2</sub>e per tonne km. This is the highest level since the comparable time series started in 2011-12.

All data tables associated with this release are published on the [orrapublications.org](http://orrapublications.org) website of the ORR data portal. Key releases and information on methodology are in the annexes of this release.

**Lessons learned from Major Programmes**  
National Audit Office

Cross-government

REPORT  
Published online  
14 November 2020  
14 November 2020  
14 Nov 2020

## Lessons learned from Major Programmes

### National Audit Office - November 20 2020

The NAO has identified four key areas where government should focus its attention to improve performance and secure best value for money in its Major Projects Portfolio (which comprises 125 programmes, including HS2, and which represent a combined whole-life cost of £448 billion).

NAO draws its conclusions by bringing together

findings from other recent reports on major infrastructure programmes, including Crossrail.

It says: "While there is a wealth of literature and courses on major programmes, we repeatedly see similar problems. Many of these problems have their roots in four key areas: scope, planning, managing interdependencies and oversight."

## Environmental Sustainability Strategy

### Network Rail - September 23 2020

NR describes its Environmental Sustainability Strategy as its "most ambitious" strategy to date and says that rail travel could be the cleanest and greenest form of mass transit.

The strategy sets out four priorities: a low-emission railway; a reliable railway resilient to climate change; improved biodiversity of plants and wildlife; and minimal waste and sustainable use of materials.

On the first two points, NR says it has already published its *Traction Decarbonisation Network Strategy*, while NR regions will develop long-term adaptation strategies and identify the

levels of investment required for different scenarios by 2029.

For the third and fourth points, NR plans to publish its national biodiversity standard by the end of 2021, while it is also aiming to embed material reuse and redeployment systems and tools into its procurement process by 2024.



## Building Back Better - the green case for rail investment after the pandemic



### The High Speed Rail Group and Rail Delivery Group - September 21 2020

Changes are needed to transport tax policy, in order to create a level playing field that reflects the environmental impact of transport modes.

In this report, HSRG and RDG also propose a national high-speed rail spine to encourage modal shift from air, support for a long-term electrification plan, improved connections between Scotland and

northern England, and reformation of the fares system to encourage more people to use the railways.

The authors say that despite low usage levels at the moment, a return to pre-Coronavirus passenger levels is achievable and that a post-pandemic rail network is set to have a greater emphasis on leisure and long-distance travel.

## Connecting Communities: How the Spending Review can kickstart an infrastructure revolution

### CBI and KPMG UK - October 2020

The *Connected Communities* report argues that there has never been a better time to reshape the UK's transport network, to help level up across regions and work towards a zero-carbon future.

The paper outlines a number of recommendations on how government should rethink the way it invests, including making long-term funding allocations for regional infrastructure and

adopting a sharper focus on driving delivery.

CBI Chief Policy Director Matthew Fell says: "Commuters of the future will want flexible, reliable and green travel options. If the UK is to deliver the world-class infrastructure needed to meet the changing patterns of demand tomorrow, it must embed long-term shifts into its policymaking today."



## Go Big Go Local - a new deal for levelling up the UK

### UK2070 Commission - October 2 2020

Major investment is needed in public transport, including rail, if inequality across Britain is to be reduced.

That's according to the UK2070 Commission, which calls for HS2's Y-shaped network to be extended into an 'X' to improve connectivity, as well as the implementation of the Midlands Rail Hub, High Speed North and the East Coast Main

Line upgrade.

Drawing on work carried out by Greengauge 21, the report calls for widespread electrification and new S-Bahn-style services and networks for Birmingham, Bradford, Manchester and Leeds.

New metros are proposed for Bristol, Cardiff and Southampton, plus light rapid transit networks for all cities with populations over 175,000.

## The UK border: preparedness for the end of the transition period

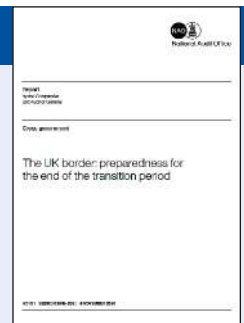
### National Audit Office - November 6 2020

The NAO is warning that widespread disruption could occur on the UK border from January 1 2021.

In its fourth report assessing government's preparations for the end of the post-EU transition period, the NAO highlights that COVID-19 has exacerbated delays in implementing the changes required to systems, infrastructure and resources.

It says that significant risks remain, particularly to implementing the Northern Ireland Protocol and trader readiness more generally.

Gareth Davies, the head of the NAO, said: "The January 1 deadline is unlike any previous EU Exit deadline - significant changes at the border will take place and government must be ready."



## Adapting our railways to an uncertain future

### WSP - September 2020

This WSP White Paper considers how our assumptions about railway planning, delivery and usage are changing, and the need for a more dynamic and future-ready railway.

It calls on the industry to help forge a "brave and broad approach" to change that reflects the pioneering vision of the 1993 Railways Act.

WSP argues that within any new agenda, there must be changes to regulation to allow more

dynamic working, a rebasing of costs that copies other industries' drive to efficiency, and the creation of a "truly supporting" policy environment.

The report's author, WSP Technical Director of Rail and Transit Martin Heffer, concludes: "Our current Government has proved itself bold enough to tear up the rule book in terms of its approach to many things. The railway is ripe for that approach and ready for a bold set of changes."

# Behind the mask... Jacqueline Starr

STEFANIE FOSTER fires the questions at the new Rail Delivery Group CEO and Service Delivery Lead, who wouldn't be without fig rolls...

**If you could buy any type of food (right now) what would you buy?**

A great big burger.

**What is one of the things you would put on your "bucket" list?**

Stay on a working ranch and 'muck in'.

**Morning or a night person?**

Definitely morning.

**What annoys you the most?**

Laziness, grrrr.

**Strangest thing you've ever eaten?**

Sea urchin-type thing, or was someone pulling my leg?

**What is one of your weird quirks?**

I can't sit in the lounge if the cushions aren't plumped.

**What is your biggest addiction?**

Gardening, gardening, gardening.

**What book are you reading at the moment?**

I'm not. I only read on holiday - I can't sit still long enough.

**What is your lifelong dream?**

I want to retire young and enjoy life.

**How long does it take you to get ready in the morning?**

30 minutes.

**What is the one thing you have always wanted to do?**

Ski in Colorado.

**Prized possession?**

The first new car I bought myself (Mini Cooper convertible 2006, it's on its knees!) It's gone through the three children and looks a little worse for wear now.

**If you were stranded on a tropical island, what two things would you want with you?**

My glasses and my phone.

**Pet hate?**

People eating loudly.

**What have you done that you are most proud of?**

Won a scholarship to senior school.

**What is your favourite song?**

*Seasons in the Sun* - Terry Jacks.

**What is the best advice you ever had?**

Hard work pays off.

**Person that influenced you the most?**

Probably my Dad.

**What is one food you wouldn't want to give up?**

Fig rolls - love them!

**If you had access to a time machine, where and when would you go?**

Into the future 25 years and see my children and their families.

**What was your favourite cartoon show growing up?**

*Mary, Mungo and Midge* (below).

**Greatest sadness?**

Death.

**Favourite film?**

*Pretty Woman*.

**Temptation you wish you could resist?**

Wine.

**What is your best childhood memory?**

Dressing up as Noddy for the Silver Jubilee.

**The book that had the greatest impact on you?**

*The Bible*.

**Takeaway: Chinese or Indian?**

Indian.

**Introvert or extrovert?**

Introvert.

**Beer or wine?**

Wine.

**Eggs: scrambled or fried?**

Ooh - love both. Scrambled.

**Cats or dogs?**

Dogs.

**Adventurous or cautious?**

Adventurous.

**Saver or spender?**

Spender.

**What nugget of wisdom would you pass on to your grandchildren?**

Live for the day.

**Favourite poem?**

*Mr Tom Narrow* by James Reeves.

**The hidden talent which would surprise people?**

I like to think of myself as a poet!

**TV programme you wouldn't miss?**

*Corrie!*

**Last time you shed a tear?**

A few weeks back, when someone at work shared a very personal sad story.

**First record you bought?**

*Hit me with that rhythm stick* - Ian Dury and the Blockheads.

**If you could pass any new law?**

Hmmmm, controversial - let me settle for the punishment should fit the crime.

**What do you drive?**

Nothing at the moment, I'm awaiting delivery of a new Mini Electric.

**Perfect Sunday?**

Early start, then gardening all day in the sunshine, and wine to close the day off with a great film.

**Who would you like to play you in a film?** Spiderman, I want to be able to swing around in webs like he does - haha!

**Favourite UK place?**

Port Issac, Cornwall - so pretty and great memories there.

**How would you like to be remembered?** Hard-working, kind and crazy.





# **RailReview**

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