

RailReview

From the publishers of **RAIL**

Q2-2023 www.railreview.com



Access all areas

We can no longer ignore level boarding

Train orders dry up

As a feast of new train orders turns to famine, how should the supply chain respond?

Rail's conflicts of interest

GBR's Transition Team is tasked with simplifying the railway, but where should it start?

Research in CP7

Priorities for R&D spending over the next five years and beyond.

ANALYSIS, STRATEGY AND INSIGHT

Sir Michael Holden *RailReview* Editorial Board Chairman
Q2 Reasons to be cheerful... but also to be fearful



I remember that day like it was yesterday. The first time I saw the cover of the first issue of *RailReview*. It was a special moment for me, as I had just been appointed as the first Editorial Board Chairman. The cover featured a photograph of a train on a track, with the headline 'Reasons to be cheerful... but also to be fearful'. It was a mix of optimism and caution, reflecting the state of the industry at the time. The magazine was a breath of fresh air, providing a platform for industry voices and a critical eye on the challenges ahead. It was a sign that the industry was beginning to look for solutions and improvements, despite the uncertainties. The cover also highlighted the need for a more integrated and efficient railway system, one that could better serve the public and the economy. It was a call to action, and I believe it has inspired many in the industry to work towards a better future for rail.



Q2 2023

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How can our industry be made simpler?

The Great British Railway Transition Team is charged with reducing the complexity of the railway, but that's easier said than done when it is set up around deliberately conflicting interests. PAUL CLIFTON reports



It is a challenge to reduce the complexity of the railway, but that's easier said than done when it is set up around deliberately conflicting interests. The Great British Railway Transition Team is charged with reducing the complexity of the railway, but that's easier said than done when it is set up around deliberately conflicting interests. The team is made up of representatives from various industry stakeholders, including the government, the railway companies, and the public. Their task is to identify areas where the railway can be made simpler and more efficient, while also ensuring that the interests of all parties are protected. This is a complex task, as the railway is a highly regulated industry with a long history of complexity. However, the team believes that it is possible to make the railway simpler and more efficient, and that this will benefit the public and the industry as a whole. The team is currently working on a number of key areas, including the simplification of the railway's operating rules, the streamlining of the railway's governance structure, and the improvement of the railway's customer service. The team is also working on a number of other initiatives, including the development of a new railway strategy and the implementation of a new railway governance structure. The team is confident that it will be able to make the railway simpler and more efficient, and that this will benefit the public and the industry as a whole.

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Rail freight and the gauging challenge

To make commercial rail freight more attractive to customers, innovative solutions to gauging must be found and implemented. If only it wasn't such a hugely complex issue. PHILIP HAIGH reports

It is a challenge to make commercial rail freight more attractive to customers, innovative solutions to gauging must be found and implemented. The current railway infrastructure is not designed to handle the increasing volume of freight traffic, and this is a major barrier to the growth of the rail freight industry. The railway companies are working on a number of initiatives to address this challenge, including the development of new freight services and the improvement of the railway's infrastructure. However, the most significant challenge is the issue of gauging. The railway's infrastructure is designed to handle a specific range of freight loads, and any increase in the weight or size of these loads would require significant changes to the railway's infrastructure. This is a complex and expensive task, and it is not clear when these changes will be implemented. The railway companies are working on a number of initiatives to address this challenge, including the development of new freight services and the improvement of the railway's infrastructure. However, the most significant challenge is the issue of gauging. The railway's infrastructure is designed to handle a specific range of freight loads, and any increase in the weight or size of these loads would require significant changes to the railway's infrastructure. This is a complex and expensive task, and it is not clear when these changes will be implemented. The railway companies are working on a number of initiatives to address this challenge, including the development of new freight services and the improvement of the railway's infrastructure. However, the most significant challenge is the issue of gauging. The railway's infrastructure is designed to handle a specific range of freight loads, and any increase in the weight or size of these loads would require significant changes to the railway's infrastructure. This is a complex and expensive task, and it is not clear when these changes will be implemented.



Expanding the family and disabled markets

The needs of disabled people, families and elderly people often overlap. It is enough being done to encourage growth of these passenger sectors? asks ANTHONY LAMBERT

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Time to take stock as the 'bubble' bursts...

The UK rolling stock industry faces lean times against a backdrop of budget cuts and changing priorities. BEN JONES analyses what the future holds for manufacturers, leasing companies and the supply chain.

Even before the end of the year, the industry is already looking at a leaner future. The UK rolling stock industry faces lean times against a backdrop of budget cuts and changing priorities. BEN JONES analyses what the future holds for manufacturers, leasing companies and the supply chain.

"Alarm bells are ringing across almost every part of the industry - from operators facing overcrowding to train builders and leasing maintenance specialists trying to retain leases of vital equipment."



The research priorities for Control Period 7

What are the priorities for rail research, as the industry prepares for the next five-year funding period? During that time, a new 'world-class' test track will open at Wakes. PAUL CLIFTON canvasses opinions.

What will be the research priorities for the next five-year funding period? During that time, a new 'world-class' test track will open at Wakes. PAUL CLIFTON canvasses opinions.

"The railway will be around 100 longer than a five-year funding period, you can't fix today's problems by tomorrow. Some research is about improvements in CP8 and CP9."

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When it comes to the often fraught and complicated subject of funding rail schemes, some are pointing to greater levels of devolution as a way of changing things. PETER PLISNER has been investigating.

Some of the most difficult issues in the industry are those related to funding. When it comes to the often fraught and complicated subject of funding rail schemes, some are pointing to greater levels of devolution as a way of changing things. PETER PLISNER has been investigating.

"The railway can stimulate development and fresh markets for travel with it, not only from near local populations but, as with the National Rail network."



Rail's role at the hustings

With a General Election promised to take place within the next 18 months, RailReview asks two industry leaders what they think the main political priorities should be including on rail in their election manifestos...

How will the railway be represented in the 2024 General Election? With a General Election promised to take place within the next 18 months, RailReview asks two industry leaders what they think the main political priorities should be including on rail in their election manifestos...



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Q2 Reasons to be cheerful... but also to be fearful

I sometimes feel that in the past three years I've been stuck in 'doom and gloom' mode, unable to see the positives in anything going on with our railways. So, let me start this column with some green signals to give us hope in these dark times.

The best news possible is that ridership appears to have recovered strongly during the first few months of 2023.

During April, the number of passenger journeys broke through the pre-pandemic threshold level, and the trend appears to be still upwards. This has been helped by the extremely successful way in which cross-London Elizabeth line services have been launched and bedded in, contributing about 3% to that national ridership growth.

Passenger revenue is also improving, although the switch away from business and commuting towards leisure travel means that yields are significantly lower, which of course reduces the rate of revenue growth.

Unofficial reports available at the time of writing suggest that revenue in cash terms is also now approaching pre-pandemic levels. If we convert that value to allow for average fare increases in the intervening three years, it means that it's around 12% less at constant prices, roughly £1.4 billion a year at the current level of revenue.

If we make a brave assumption that train companies between them have so far managed to make around £400 million annual savings from their pre-existing cost base, then the level of unplanned support from the Treasury is probably now running at an annualised rate of around £1bn.

This is around a quarter of the level experienced in the lockdown period back in 2020, so its rapid reduction is a cause for celebration - even if it sometimes doesn't feel that way.

There is more good news from Network Rail, which having finally settled the long-running dispute with its maintenance and operations staff, is now able to look forwards again and plan effectively for the future.

Apart from the obvious benefit of an end

to repeated closures of the network, this has lifted an enormous weight off the shoulders of its managers and leaders. It has also provided a much-needed fillip for freight companies and open access operators.

I've heard from Network Rail insiders that they have been pleasantly surprised by just how much time the resolution of this has freed up for them, and how significant a change it represents as they can now start to get on and plan for the future with much greater confidence.

The Government's decision to end the contractual arrangement with FirstGroup to operate the Transpennine Express franchise, and instead to bring it back in-house, might not feel like good news. But in a way, I think it is - it enables a fresh start to be made to repair the toxic relationships which had developed between TPE and its staff, customers, and stakeholders.

We could argue about the causes of this, and whose fault it all was, but a reset was needed for the business to move forward.

Of course, there is no silver bullet that will make everything come good again. It will take a long time to rebuild relationships and repair the reputational damage. But putting its management in the same stable as Northern will make it easier to create the best possible timetable across the north of England - and no doubt will help to drive some efficiencies, too. It is possible to see a future where the two businesses might be run much more closely together, but with distinct branding and services (a bit like Southern and Thameslink, for example).

There are other signs of progress around the network. Merseyrail is finally getting its new Stadler Class 777 trains in service to replace its very elderly Class 507/8 fleet.

I might balk at the seating comfort (or lack thereof) in the new trains, but there is no getting away from the fact that the level access into and out of these trains (and the similar type already in service on Greater Anglia) is a game-changer for rail.

We also have LNER's trial of single-leg pricing extended across its whole service offer, implying that HM Treasury has finally been persuaded that this represents a way forward on fares more widely.

We have just seen a first foray into midweek daytime engineering works on the East Coast Main Line - a sign that the industry is trying to find an effective way to respond to the changed patterns of demand we are seeing post-pandemic.

Finally, in my round-up of positive things, we are continuing to see electrification and route modernisation works taking place on the Midland Main Line and in places on the Transpennine Route Upgrade.

INDUSTRIAL ACTION

However, not everything in the railway garden is rosy. After a couple of months of train services uninterrupted by strikes, we are now back into that bleak place again with the passenger train companies - and with a vengeance.

It seems that the parties are as far apart as ever, with the management unable to move as it is boxed in by its political masters, and the two trades unions involved unwilling to give ground at a key juncture for them.

Support for further strikes remains firm overall at grass roots level - among train drivers belonging to ASLEF at least, although support among RMT members seems weaker, especially at the big commuting train operating companies

"We have just seen a first foray into midweek daytime engineering works on the East Coast Main Line - a sign that the industry is trying to find an effective way to respond to the changed patterns of demand we are seeing post-pandemic."

DB Cargo UK 66028 sets off with a ballast train for the tunnel at Clay Cross, as engineering work is carried out on May 28. There has been a slight thawing in industrial relations since Network Rail settled its long-running dispute with operations and maintenance staff. ROBERT FALCONER.



(TOCs) in the South East.

It is hard to see where movement in these disputes is going to come from during the rest of the year. Yet nothing much else on the railway can move forward until this does eventually happen.

I still find it odd that a series of disputes between individual TOCs and their trades unions has been allowed to morph into a twin national dispute, unhelpfully sucking politicians into the fray, and resulting in the stakes being raised so much higher.

Sometimes it feels that it has deliberately been encouraged by the management side to develop this way. If so, then I can't see why this might ever have been seen as a good idea.

One of the major benefits of the 1994 restructuring of the railways was that it broke down bargaining into much smaller units, making the task of the RMT and ASLEF in trying to create national disputes very much harder. Somehow, a year or so ago, by accident or design, the management seems to have created the conditions for this to be enabled once again.

I struggle to understand how a settlement acceptable to both sides can be negotiated at national level by the Rail Delivery Group.

Terms and conditions of employment

and rates of pay have drifted a long way apart between companies and grade groups over the past 30 years, and this has largely happened by design and not by accident.

In other words, packages of pay, benefits, terms and conditions have been developed over time to better suit the needs of differing markets and different geographic areas.

Trying to resolve the current pay and productivity disputes by a 'one size fits all' approach has always struck me as most unlikely to succeed. Such deals would likely result in some employers paying for things they don't need or want, and most staff feeling dissatisfied with the results of the negotiations.

Meanwhile, passengers have shown themselves (on the whole) to be less dependent on rail to carry on their everyday lives. They are increasingly using the new post-pandemic flexibility to avoid commuting on strike-affected days.

Likewise, leisure and business passengers are showing much greater capability to shift journey dates or mode of travel in order to avoid the disruption. This translates into less pressure on government to settle.

Management, aided and abetted by the Government, seems to have slipped into a position where the trades unions hold most

of the cards and it is almost impossible to find a sweet spot to enable resolution. Hence the descent into trench warfare to see who can survive the longest - a rather old-fashioned version of mutually assured destruction, perhaps?

HS2

Another bad news story which seems destined to not go away is the ongoing saga of the escalating cost of constructing HS2.

On this, we have seen pretty well everything that can go wrong on a major programme going wrong. Significant scope changes 'in flight', elongated project timescales, and serious construction cost inflation post-Brexit and post-pandemic have combined to create one enormous unholy mess.

The programme has clearly gone beyond the point of no return, so it's now important to try and salvage as many of the benefits of the original business case while minimising the call for additional funding.

Unfortunately, we are now in a position where HM Treasury is focused on reducing a Brexit and COVID-inspired deficit budget, and so has become significantly cash-constrained as a result.

A project which once had a positive ➤

► business case is now increasingly viewed as a cash drain, made worse by the fact that in the change of Prime Minister last summer it lost its chief supporter at the top of government.

Viewed from the Treasury perspective, it has to keep going with HS2 given how far it has come. But now it wants to minimise the overall cost and reduce the cash flow in the short term.

It probably regards HS2 costs as railway costs first and foremost, rather than economic development or levelling up costs, and thus we are seeing an appropriately lukewarm approach taken to all other railway enhancement projects.

The Treasury lens struggles to see beyond the design excesses of the Great Western Electrification Programme and the huge cost increases now estimated by HS2 Ltd just to get Euston to Curzon Street over the line, never mind the rest of the programme.

Hence there is no funding for the Rail Network Enhancements Pipeline, slow progress on authorising phases of the Transpennine Route Upgrade, and no guarantee that the contents of the *Integrated Rail Plan* will see the light of day any time soon.

WITHERED GBR

To add to railway woes, the news in mid-May that the pledges made by the Secretary of State for Transport in his Bradshaw address in February have now turned to dust has come as an unwelcome development.

Not really that much of a surprise, though, as there were precious few signs of movement in the three months between the new policy being announced with much fanfare and it being quietly ditched.

Ostensibly, it is only the legislation to create Great British Railways as a statutory body that has fallen by the wayside. The rest of the plans to reorganise the way that the railway runs will still proceed.

But by reading between the lines, you can see that the Department for Transport has lost a behind-the-scenes battle with Treasury and No. 10, and the railway will be the longer-term victim of this loss.

With just a year or so remaining until the next General Election, it is now clear that rail will have to take a back seat until after that (railways are rarely, if ever, an issue at General Elections). We can therefore expect the dither and drift to continue for the foreseeable future.

THE NEXT YEAR FOR TOCS

It seems that the pressure from government to constrain costs will not ease while the disputes with ASLEF and RMT drag on.

Whether rising income will encourage the

civil servants controlling decision-making in the TOCs to become less risk-averse remains to be seen. What is badly needed is a wider view being taken of costs and revenue together, to encourage an environment where TOCs can 'speculate to accumulate'.

As other commentators have remarked, the only way for the railway to escape its current cycle of doom is to grow revenue faster than cost. That requires some faith to be shown by civil service handlers, as increasing cost is usually a pre-requisite to increasing revenue. Presenting business cases simply but credibly must be the order of the day.

NR: MISSION IMPOSSIBLE?

Network Rail stepped into the fray in mid-May with the publication of its *Strategic Business Plan* for Control Period 7 (CP7), the five-year period starting in April 2024.

You couldn't accuse this of being skimpy, as it weighed in at 171 pages. Yet it is only a summary of the four regional and six functional plans!

The tone, however, is crystal clear from the beginning and was duly picked up in mainstream media coverage: infrastructure

is ageing, costs are increasing, and there's insufficient money in the Statement of Funds Available (SoFA) to maintain assets at a steady state.

It's notoriously tricky to get a grip on Network Rail's unit costs and efficiencies, despite the plethora of published information both from Network Rail itself and from the Office of Rail and Road (ORR), its regulator.

This isn't necessarily because anyone is trying to hide this from us, more that it is a complex area and needs more time and effort than most of us have to try and get to sufficient granularity to provide understanding.

But if we exclude traction current from the analysis (which is a pass-through cost from Network Rail to the TOCs), we can make a start.

In CP7, Network Rail is proposing to spend almost 5% more (at constant prices) than it did in the previous five-year period.

Despite this headline figure, the amount spent on operations, maintenance and support is to increase by just over 3%, while the amount to be spent on renewals is actually reduced by nearly 1%.



Worse still, it transpires that most of the increase in maintenance costs is to cover the increased cost of keeping assets serviceable that should have been renewed. This increased cost is estimated at between 0% and 10% depending on asset class.

The rest of the overall increase is accounted for predominantly by the significant sums required (£800m) for cab fitment in England and Wales to support digital signalling upgrades (which is not being treated as an enhancement), and an 11% increase in cumulo rates charges.

So, what appears at face value to be an exceptionally generous SoFA offer (in the circumstances) is going to prove to be insufficient to maintain the status quo, even after planned efficiencies have been achieved.

On renewals, it appears that the position is much worse.

In a typical year, Network Rail renews about 0.5% of its assets, meaning that renewal on average would occur every 200 years. In practice, many structure assets (bridges, tunnels, earthworks) are starting to approach that age, but all are under it.

Given that average asset lives for non-

“It seems to me that Network Rail has a forward agenda which is scarily challenging and might reasonably be considered by knowledgeable people to be almost overwhelming.”

structures assets are typically between 30 and 70 years, the underlying rate of renewal is way below the level required to maintain steady state.

Remaining asset life is measured by Network Rail and assessed using its Composite Sustainability Measure (CSM). While this sounds like an arcane regulatory tool, it is probably of greater importance than most other performance metrics commonly quoted.

What the CSM shows is a slow but steady decline ever since the measure was introduced in its current form in 2014. As far as I can recall, average asset age (the previous measure used) was in steady decline prior to that, too.

Making matters worse is the trend towards more frequent and extreme weather events which is causing earthworks degradation to occur at a fast rate.

Now NR is predicting further decline in CSM over CP7 of around another 2.5%. Such repeated managed decline over a lengthy period is unsustainable and will result over time in poorly performing infrastructure where the focus will have to shift to maintaining safety over operational performance.

Given that additional funding from government seems fanciful, the only viable way forward is through a major drive for efficiency.

NR is planning 10% efficiencies in operations and maintenance and 15% in renewals across CP7. This is valued at £3.2bn and (to the extent that it might not be achieved) represents a significant risk over the five years.

For CP6, NR is claiming that it will have achieved £4bn of efficiencies - and to be fair, it has quite an impressive list as to how this has been achieved.

Efficiencies are claimed against various initiatives such as improved contracting strategies, use of new technology, better work bank planning, optimising access, and restructuring - all of which are laudable.

But it begs the question as to what is happening to unit costs? Unit cost measures for aspects such as track maintenance and track renewal per single track mile, signalling costs per route mile, and many more like this, are key outcome measures of what the organisation is achieving, yet they don't appear to be easily available in the public domain.

For sure, we could do some number crunching and work some out at a high level, but I'm surprised that ORR doesn't publish such figures routinely as a tracking measure.

All of this assumes a benign impact of inflation on Network Rail's finances. Currently it is protected against this to the extent that inflation is no higher than as forecast by the Office of Budget Responsibility in November 2022.

At that time, there was a view that inflation would fall sharply before the start of CP7. Viewed from where we are now, this seems optimistic. There is a possible "known unknown" risk here of between £1bn-£2bn (getting on for 5% of total spend).

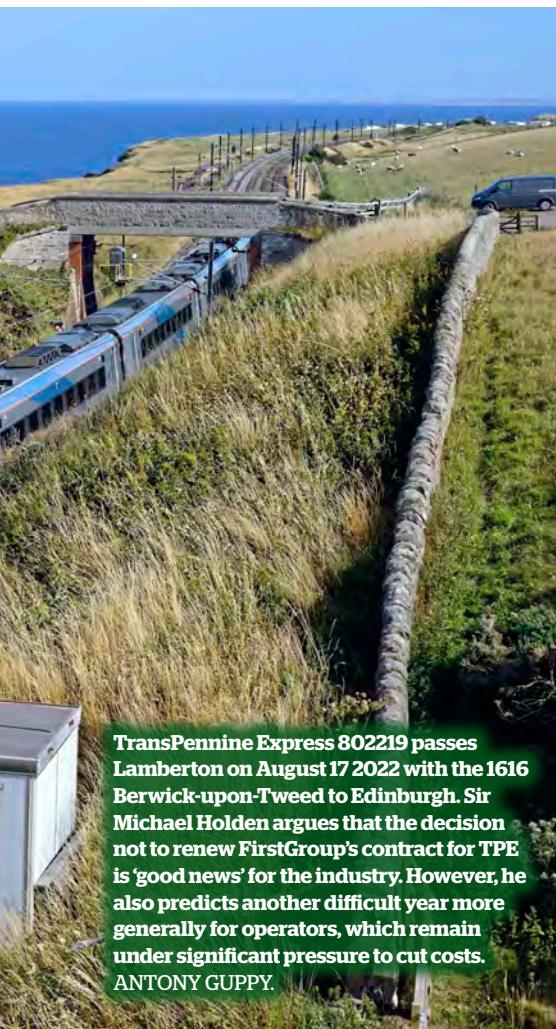
To secure an acceptable future condition of the infrastructure, there will need to be a step-change in efficiency so that renewal rates can increase rather than decrease. It's not clear to me how today's incremental approach to efficiency, laudable though it is, can possibly be sufficient to enable this.

It seems to me that Network Rail has a forward agenda which is scarily challenging and might reasonably be considered by knowledgeable people to be almost overwhelming.

In addition to having a myriad of stakeholders who all want to tell it what to do, as well as a well-resourced economic and safety regulator and an unstable principal funder and owner, it is facing a future where its ability to continue its core business to the required standard of safety and reliability must be increasingly called into question, given the deteriorating state of its infrastructure (historic, current and projected).

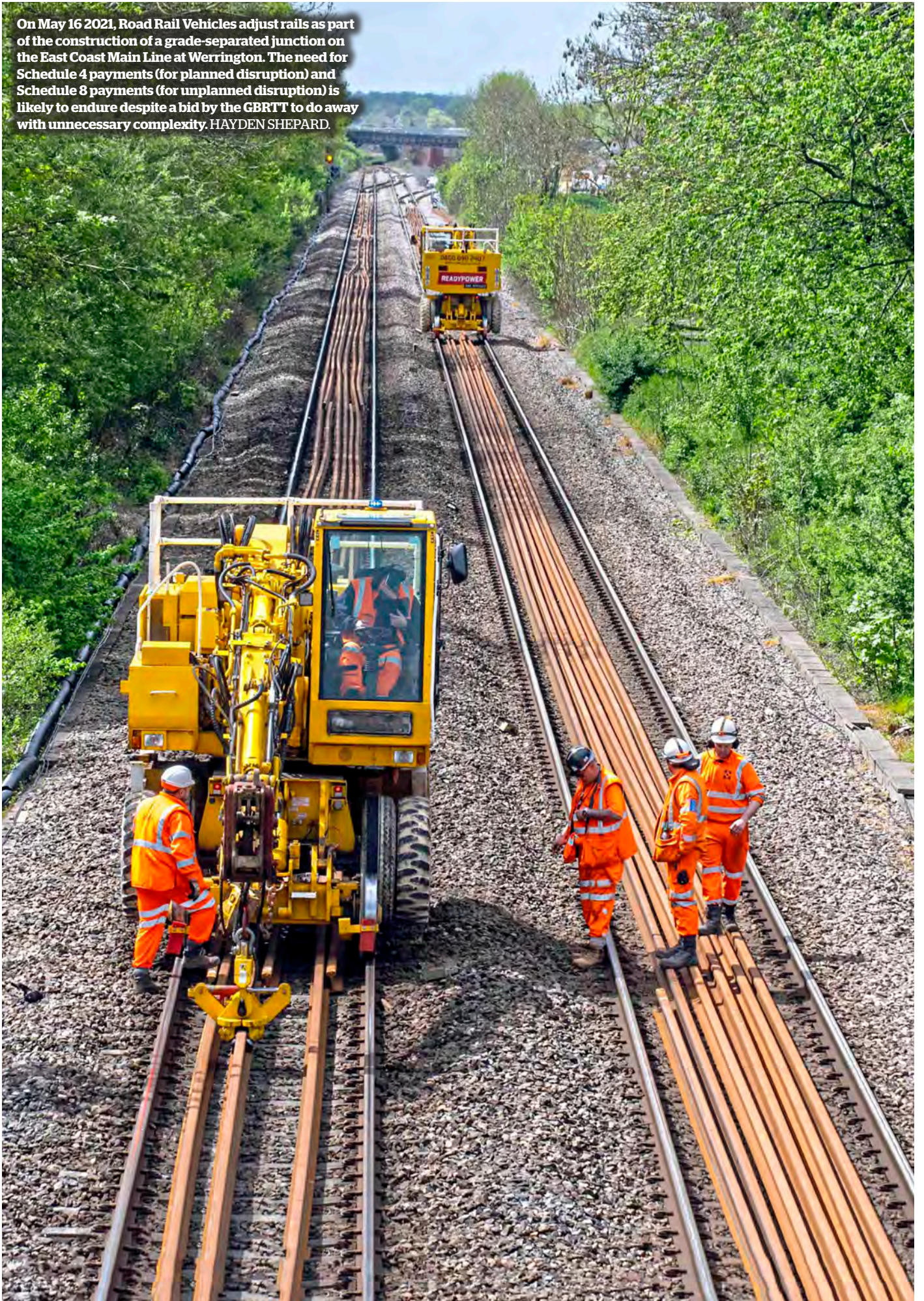
On top of this, it is operating in a febrile political environment and a generally hostile media climate. The reputation of rail just now is such that it has become difficult to recruit sufficient talent to secure the future of the organisation, and it must be getting harder to retain the existing talent in the company as time goes on.

The absence of a clear route map towards a future industry structure, now that government is back-peddalling from its own adopted rail policy, makes everything more challenging. Without some recognition from the representatives of the railway industry's staff that the good times might have to be put on hold for a while, I am fearful for what the next five years might bring. ■



TransPennine Express 802219 passes Lamberton on August 17 2022 with the 1616 Berwick-upon-Tweed to Edinburgh. Sir Michael Holden argues that the decision not to renew FirstGroup's contract for TPE is 'good news' for the industry. However, he also predicts another difficult year more generally for operators, which remain under significant pressure to cut costs.
ANTONY GUPPY.

On May 16 2021, Road Rail Vehicles adjust rails as part of the construction of a grade-separated junction on the East Coast Main Line at Werrington. The need for Schedule 4 payments (for planned disruption) and Schedule 8 payments (for unplanned disruption) is likely to endure despite a bid by the GBRTT to do away with unnecessary complexity. HAYDEN SHEPARD.



How can our industry be made simpler?

The Great British Railways Transition Team is charged with reducing the complexity of the railway, but that's easier said than done when it is set up around deliberately conflicting interests. **PAUL CLIFTON** reports

"I believe there are considerable opportunities for the current system to be simplified and improved. I am commissioning the Great British Railways Transition Team to lead work in developing reforms."

That was the Secretary of State for Transport, one year ago. Grant Shapps, at the time. He said the commission should ensure that processes, agreements and systems put passengers and freight customers first, and are transparent and simpler, reducing administrative costs and complexity.

So, how is that going?

GBRTT has published a series of discussion documents. "This does not represent policy - draft for discussion only" each says in big red letters, right at the top. It's keen to stress the thinking can evolve before advice is given to the Transport Secretary in the autumn.

RailReview spoke to the people in charge: Rachel Kelley is the project director; Michael Clark is the director of policy and transformation at GBRTT. And we ran ideas past some of the top lawyers in the business.

"We hear from all parties that the processes are pretty bureaucratic, pretty inefficient and don't put passengers at the heart of it," says Kelley.

"The point is that we are looking at industry processes that are highly regulated and highly contracted. The way we do things is very tightly written down. Operators value that - it offers protection - but at the same time, it stops things being sorted out for customers.

"The idea is to have something simpler and better. To do that, we have to pass through quite a nerdy process."

She says GBRTT has talked to 200 different individuals from 80 different organisations so far. More will follow.

"What we've put out is a discussion. Then we will come up with some very technical recommendations that go to the Secretary of State."

Clark concedes: "We've had a conflict-based approach towards bits of the railway. It doesn't actually incentivise people to worry about what is best for the customer rather than worrying about making a return.

"This is what Keith Williams was trying to get to in his report - the railway has lost customer focus. A lot of these processes are the

reason for that - people get tangled up in them. And they just give up."

SIMPLIFICATION

"I've heard this for 25 years," warns Jason Chamberlain of BCLP.

"This is an old trope. The railway is a highly complex system. Even if you do not separate it contractually to the extent we have chosen to do, the function is still going to be very complex. Unless you return to a monolith like British Rail, you are still going to have to talk internally in order to manage it.

"Let's start with the contracts. There is a lot you can achieve from simplification by taking a lot of the words out. But if you regulate less through the contract, the behaviours of the infrastructure manager and the train operator will change.

"Privatisation was the government pushing the challenge of operation to the private sector. The franchise agreement, as originally conceived, was a light-touch document. It was sold as a business opportunity: fix it, operate it and make money from doing it better. From that point, there was inevitable document creep, because gradually they realised what behaviours they were starting to see.

"So, the complexity evolved. Long before COVID, it got to a level of prescription where, in my view, these stopped being contracts. They became licences. They became the most prescriptive licences you could imagine."

Darren Fodey, of Stephenson Harwood, cautions: "Simplification must not mean the removal of important checks and balances on power. Sometimes, the two are confused.

"Freight, open access and concession operators outside GBR will still need access. And those checks and balances take on potentially greater significance when the entity granting access to the network is also the entity specifying the service and taking revenue from the operators it controls."

"The challenge is to design a simpler system," says Ian Tucker of Burges Salmon. "That should be a holistic structural question rather than one focused on locating parts of the existing system which are said to be unnecessary.

"We can't just chop off bits that are complex or confusing. That way lies great danger. Everything in the system was put there for a reason, at the time it was created. Appendices to documents were not added just to hang about waiting to be removed. If we drop parts of the system that are seen to be complex, without fully understanding why they were there, we will discover later that they served a purpose."

"Tim Shoveller pointed out that during the strikes, it was very important that discounted rail travel remained on the books," says Chamberlain.

"He said the concept had to be retained because it made staff feel part of the railway - it gave them investment in something they ▶



"Discussions about capacity, about open access operators and what we leave for freight need to be done a couple of years in advance of a timetable change."

Rachel Kelley, Head of Policy and Legislation, GBRTT

► would use themselves. It struck me that was a similar edifice to giving a train operator some financial reward for performance.

"Which is not what we have now. We only have downside risk - if you don't achieve a target, you are penalised for failure, and something is taken away from you. It's not the same as rewarding good behaviour. A bit more carrot and a bit less stick is helpful. You have to accept that a train operator gets some reward for it.

"If a train operator is just managing performance, it seems there is a degree of indifference, a low-risk operation that does not incentivise acting outside the prescribed behaviour."

TICKETING

"One reason why people feel unfairly treated is that the ticketing system is not simple," says Tucker.

"They probably feel the complexity is hindering delivery of what they want: fair, transparent, value-for-money pricing."

Yet there is no mention of it in the consultation documents. Not a single word.

"The title of the Commission, whether we like it or not (we don't), was not meant to imply the entirety of the work we are taking on in simplification," says Clark.

"We very much agree that it is something we need to grasp as an industry. We have a ticketing and retail project. It is entirely separate to this process - the name may be misleading."

"As part of the reforms in the 1990s, the Ticketing Settlement Agreement was invented as a way to divide the money coming into the industry," Tucker explains.

"As a contract, it was brilliant for the mid-1990s, and arguably is so good that it has proved difficult to replace. The new GBR model certainly doesn't need a system of that sort.

"Over time, more layers were added, more options provided, and more types of journeys became available. That has left us with a horrible amount of complexity, pricing which is poorly understood, and it produces perverse incentives such as split ticketing and a system which lacks public trust.



"If you are searching for simplicity, you would do as much as you could to simplify the way passengers are charged, with a simpler means by which revenue is allocated around the industry."

Jason Chamberlain, Partner, BCLP

"I have no doubt a fairer and cleaner system could be produced. My guess is that it has not been done because there will be losers. Some people will be charged more, and that is politically difficult. Losers complain; winners tend not to.

"But it is the single biggest win. The benefits would be fantastic, and I expect that ticket sales overall would rise considerably, as would customer satisfaction. However, it would mean being clear about how much different types of travellers should pay, and how much the public purse pays, and that is a difficult conversation."

"We tried to simplify ticketing settlement in the second round of franchising," explains Chamberlain.

"It is now the most dense contract in the whole universe. I don't know how many pages it is now; it was 1,200 back then.

"That document led to an army of people overseeing it centrally, as well as within every train operator. It is a huge inefficiency.

"If you are searching for simplicity, you would do as much as you could to simplify the way passengers are charged, with a simpler means by which revenue is allocated around the industry."

TIMETABLING

"We've got rules and ways of working that don't help us," says Kelley. "Discussions about capacity, about open access operators and what

DB Cargo 66090 Maritime Intermodal Six passes Barham on March 28 2022 with the 1004 Wakefield Europort-Felixstowe South, as classmate 66059 unloads an aggregates working from Mountsorrel. The allocation of network capacity to passenger versus freight services is one area under consideration by the GBRTT. KEITH PARTLOW.





On September 9 2022, passengers buy tickets from self-service machines on the concourse at London Waterloo. Ticketing is a surprising omission from the simplification discussion papers prepared by the GBRTT. JACK BOSKETT.

we leave for freight need to be done a couple of years in advance of a timetable change and lock them down in a way that can stick legally. At the moment, there are bits in the legislation and in the Network Code that mean they can't be nailed down far in advance.

"You need ways of working out what supports the public good. The freight lot are worried that sometimes we look after our own interests. We must have a framework that shows how we will look after freight, how we make sure there is room for open access, if that is offering a benefit.

"It's offering a framework that keeps us honest. We have to show our working to offset the other stakeholders who worry that we are building a system that will just favour our own operators and our own revenue."

"Capacity allocation (timetabling) could be simpler," says Tucker. "The interests of the infrastructure owner are not naturally aligned with the interests of an operator that wants to get more trains on the tracks. It was felt that a detailed process with different groups with different interests created competition, because it gave

bidders for capacity something to pursue and defend.

"In theory, pressure was put on to provide more services which customers wanted, and which otherwise might not have materialised. A form of complexity which, on some level, could be regarded as a good thing.

"We are now moving to a view that a centrally planned system is better for the provision of capacity. This is one of the things which GBR is supposed to be about - a top-down reflection of need. If you do that, you can remove much of the highly involved timetabling process, which can take 18 months plus. It would be simpler.

"But you lose something when you gain something - the current system probably did provide greater use of the network."

MONEY FLOWS

"Schedules 4 and 8 are all about money flows," explains Fodey.

"Schedule 4 is about engineering access. Schedule 8 is about on-the-day performance. The intention behind both is to make sure the operator does not lose out when the infrastructure manager is unable to perform, or does not perform. They are intended to compensate the operator.

"In GBR, where it takes on the revenue risk, there is a legitimate question of whether all that money needs to flow around. But in the Bradshaw address, the Secretary of State suggested the private sector may be encouraged to generate more revenue. There needs to be a means to take into account engineering work or poor performance if the operator is once again going to be on the hook for revenue to some degree.

"Take Lumo on the East Coast - the money-go-round will be different from an operator inside GBR. It will need a model that ensures it will be compensated when it suffers financially."

"Schedule 4 and Schedule 8 performance regimes are important," says Tucker.



"The plan is for light legislation, thinner contracts and more supporting documentation. I am not sure that is really simplifying things that much; it's just putting things in different places."

Darren Fodey, Rail Partner, Stephenson Harwood

► “The concept is that you need to know the cause of problems, and you need the originator of the problem to feel some pain for it. Because that’s how you get visibility of what you need to improve.

“Williams-Shapps highlighted that means a lot of people are employed, allocating cause to delays, and took the view that is a process that could be removed. The alternative view is that it is incredibly valuable information about the cause of delays, which you need if you’re going to make the system better. If you lose the performance regime, you also lose a huge chunk of information. Be careful about what you lose.

“My view is that there is scope to tidy up the performance regime, but designing the timetabling process better would be a more useful area for simplification.”

At GBRTT, Kelley confirms there is no likelihood that Schedule 8 will disappear. Not even the name.

“It would be difficult for GBR and its operators to come to an arrangement where that money doesn’t flow,” she says.

“We assume the basic principle will be in the new regulations. I think it will be called Schedule 8 for the foreseeable future. There is no vision of changing that.

“The bigger question is whether there are better ways of incentivising performance between GBR and its own operators.”

“Using the Thomas the Tank Engine metaphor, the new Fat Controller will have the infrastructure and will take the fare revenue,” says Fodey.

“In that context, what is the incentive on the Fat Controller to let anyone else use its network? It won’t get the fares, it may have some costs associated with making sure those other operators can work, and they might get in the way of its own plans. That’s the starting point for discussion.

“Schedules 4 and 8 remain relevant, as non-GBR users will still need something to protect their businesses when there is engineering work or when GBR underperforms. The open access operators, the freight operators, TfL and Merseyrail models - these operators will not be part of the new GBR operation.

STATIONS

“You can simplify the customer interface,” says Chamberlain.

“Stations should have a simple, single outward-facing interface. Some stations serve multiple operators, fracturing the system. Different people with different interests in different uniforms. You could funnel this through someone who simply represents the railway and serves the passenger in that capacity.”

“Why do you need three change processes for track, stations and depots?” asks Fodey.

“The outcome is intended to be the same - you want to make a change, you agree the process and then deliver the change. The thickness of the paperwork could probably be slimmer. But if track and trains are still separate in the way they are managed, the issues to be dealt with will remain largely the same.”

“We have a lot of propositions around station change,” says Kelley.

“If you want to put up a new bench, there is a whole consultation-and-approval process to go through. Many different processes, actually. You essentially need station professionals in the train operators and Network Rail to navigate all the different processes

Lumo 803002 stands at Newcastle Central on February 26 with the 1023 London King’s Cross-Edinburgh while LNER 801211 also waits to get under way to the Scottish capital with the 1003 departure from King’s Cross. Adequate protections must remain for open access and freight operators under any new system for timetabling and track access. PAUL BIGGS.



to get that bench. It involves so many different agreements and contracts.

“It is precisely these points of friction - about inflexible contracts, with nobody looking at the bigger picture - that we want to get done. GBRTT has to do a lot more work about which organisation does what.”

EUROPEAN LAW

“Separating track and train in 1994 was ahead of the curve in Europe,” explains Tucker.

The European Union has always held a passion for competition, believing that best served the passenger. It considered that competition required separate operators and produced a number of railway regulations ratcheting the degree of disassociation between the track and the train, opening on-track competition where possible, and competition for the market where it wasn’t possible. This came with heavy regulation to protect consumer interests and safety.

Tucker continues: “The UK latterly bulk-adopted EU regulations on top of its own. Now we are not obviously aligned and in parallel; the EU is still driving the view that maximising competition is good, to break out the old remaining monopolies. The UK position seems to be that re-integrating much of delivery under a guiding mind is better. That means a log of hangovers from the European system that no longer apply or apply differently.

“Some of the layers of regulation may not be necessary in a new system designed to be led benignly from the top, so the number of friction points and boundaries created by the regulations can be reduced.



“I have no doubt a fairer and cleaner system could be produced. My guess is that it has not been done because there will be losers. Some people will be charged more, and that is politically difficult.”

Ian Tucker, Partner, Burges Salmon



“In any review of that structure, it is important to remember that we have achieved a very high level of safety with the current system, and we would not want to lose that.”

Fodey adds: “The reasons European law developed here over time include maximising use of the railway, and making sure the capacity decisions are made in a fair way. Those principles will remain relevant.

“The intention of separating infrastructure management from operation of trains was so that people who made decisions about the track were not incentivised to prioritise their own operations. We will want to capture the underlying principle that anyone who can legitimately have access to the railway does so fairly.”

WHAT NEXT?

GBRTT’s consultation and conversations will continue until its recommendations are made in the autumn.

“You could simplify the contracts to a great degree, by reintroducing revenue incentive to some degree,” says Chamberlain.

“Are we going to persist with a structure that requires a train operator to care about revenue? If you remove that incentive, you have to replace it with a large number of different regimes to artificially create that incentive.

“To simplify, you have to overcome the current ideological challenge, which believes that the revenue model of franchising failed because we were asking the private sector to take a punt on the future economy. That guess was used as a differentiator for bids. It asked bidders to say how confident they would be in their ability to increase revenue.

“You could perhaps say: ‘Here is an assumption of the future of the economy you can all use. Now bid with the methods by which you would work against that assumption.’ We are a long way from that right now.

“Based on Mark Harper’s comments about revenue risk being back on the table in some situations, rather than full revenue risk, you presumably also have to retain some mechanisms which incentivise, or pretend to incentivise, concern about revenue.

“The complexity of the contract is not a reflection of the lawyers; it is a reflection of the policy decisions that are taken.

“If simplification is what you want to achieve, you have to take a more laissez-faire view of the behaviours that you want to regulate. That’s quite difficult after 25 years of making the contracts more complex, by giving the train operators less freedom.”

Chamberlain continues: “If Brexit was about anything, it might have been about changing state aid to procurement rules. We seem to be going a different way - we are not following the US or EU on green subsidy, by which they push more public money to the private sector.

“We have the rail network enhancement pipeline, which was announced to great fanfare, which seems to have produced nothing in four years. At best, it seemed like a way to appropriate ideas. The Department takes the ideas, decides which are best and then publicly procures them. In other words, it gives you a chance to bid to get your own idea back. Nothing really came out of that.

“Meanwhile, there is private sector money waiting, which cannot get through the administrative process. By definition, it is more expensive than public sector money. If you can’t get over that politically, you will never get private sector money into the industry.

“There is not a trade-off involving some risk transfer. Something has to give. Either the government decides that it will do all the work itself, because public sector money is cheaper, or it has to open the door in a way that allows the private sector in, in order to make a profit. We are in limbo at the moment.”

Tucker concludes: “In what way will GBR make sure the simplified solution is actually simpler for the customer, and not just a way to reduce internal admin? There is a danger in getting rid of things that are actually quite useful, and then regretting the simplification.”

“The best contracts we write are the ones we can pass to anyone, and they can understand them,” says Fodey.

“We can make the system easier to understand, but the commercial points still have to be addressed.

“The plan is for light legislation, thinner contracts and more supporting documentation. I am not sure that is really simplifying things that much; it’s just putting things in different places.

“It’s all jolly interesting, but the information from GBR is quite high-level still. We need to see the next level of detail.” ■

Our lawyers

Jason Chamberlain is a partner at Bryan Cave Leighton Passer (BCLP). The firm acts for ROSCOs and infrastructure owners, including Heathrow Airport. Chamberlain started at OPRAF in 1996, followed by the Strategic Rail Authority. In the private sector, he has helped write operating contracts for TfL on London Overground and Crossrail, and worked on the Intercity Express Programme, Thameslink and Eurostar.

Ian Tucker is a partner at Burges Salmon, which acts for a number of train operators and holding groups, as well as for Transport for Wales and Translink in Northern Ireland. He is on the DfT’s advisory panel.

Darren Fodey is rail partner at Stephenson Harwood, which acts for train operators, TfL, as well as rolling stock manufacturers, owners and financiers. It deals with franchise agreements, supply chain contracts and regulation.

Great British Railways



Martin Fleetwood
Consultant, Addleshaw Goddard

There has been competition for space on the UK's railway tracks since the mid-19th century, once the introduction of passenger services changed what had been isolated, single-use freight lines into a multi-linked network.

From drafting legislation such as the Railway Clauses Consolidation Act 1845 to private contractual agreements permitting one railway company specific rights to run over another company's infrastructure into a major station (such as at Carlisle), lawyers have been trying to find solutions to manage competing requirements. Private companies all had slightly different agenda, ranging from parochial to national big picture. Even when nationalised as BR, there were still internal conflicts over which sector had priority at any one time.

It is therefore not unsurprising that a number of comments in the article point towards the growth of detailed contractual provisions to manage conflicting requirements - many of which started in the 1990s as part of rail privatisation.

However, in most cases, legislation was driven by the system that the politicians and railway management of the day considered expedient to keep the railway running effectively when it was split into many parts. This has since been complicated by a series of (primarily political) actions that have effectively created centralised control over parts of the rail system, while generally adding additional layers of legal requirements at the same time, rather than looking to reduce requirements where possible.

Paul Clifton's article, and the collection of opinions from some leading legal minds in the rail sector, challenges the decision-making that led to the complexity of the existing system and correctly identifies the challenges of its simplification. While not explicitly stated in the article, the collective industry fear of doing something momentous to fix what's broken can be read between the lines.

Since privatisation, the railways have struggled to be agile to the changing needs of customers and the economy, and have introduced levels of bureaucracy as a result of this failure to adapt - preferring to over-adopt and over-specify in an effort to control.

Jason Chamberlain reflects on this, in reference to the document creep in franchise agreements intended to curtail perverse behaviours and manage risk and reward.

Ian Tucker points out that ticketing and timetabling complexity has increased through the addition of a multitude of journey types and associated fares options.

And Darren Fodey rightly points out that the devolved decision-making across the system, and the complexity of the performance regime in place to assign blame, does not allow for simple decision-making to be undertaken. Add to this the blanket adoption of EU regulations, the challenges of capacity allocation to freight and open access, and the nuanced assignment of accountability and responsibility across the network, and it's no wonder we are in the complex position we are in now.

Rachel Kelley's statement - "We hear from all parties that the processes are pretty bureaucratic, pretty inefficient and don't put

This is particularly true with passenger services and infrastructure maintenance, where contracts now look to tie risk and management activities down significantly. Unfortunately, this creates additional processes and stifles quick decision-making for marginal (if any) gains. Look back to the first franchise agreements in the 1990s and compare them to the current contracts - the levels of micro-management that have been introduced are significant.

Alongside this is the freight sector, where freight operators give a significant push to keep contracts as short as possible - particularly haulage contracts and wagon lease terms and conditions. Decisions on risk and management are generally taken commercially, rather than referring to many pages of contractual terms.

To its credit, the Office of Rail and Road has mostly maintained a relatively straightforward approach to the agreements it is responsible for, and (for example) track access agreements for freight operators have not changed that significantly over the past 25 years.

Can the system be simplified? For certain parts, the answer is almost certainly 'Yes', such as for fares and ticketing - although that will most likely see a number of 'winners' and 'losers', and as Ian Tucker points out, "losers complain, winners tend not to".

Other areas, such as the relationships between government concessions, open access passenger, freight operators and the infrastructure provider, are likely to need to retain many aspects of the existing relationships. However, the documenting of that legal relationship could attract a level of simplification in some areas.

This is where politics has to play its part, and unfortunately the MPs' postbags and attention-grabbing headlines too often hold sway against logical argument. The introduction (or lack of it) of road user charging in the UK is another victim of the same political predicament, notwithstanding the logic of paying for what road space you use.

There are various lawyers in the rail sector who have the skills and ideas to re-shape the complex way that the industry is managed. The many joint legal working groups managed by BR, who put in



Cara Murphy
Client Director - GBR, Atkins

passengers at the heart of it" - says it all.

The resounding challenge of change reflected upon by those interviewed for the article is that of understanding why decisions were made to introduce the complexity in the first place. While not stated within this article, it seems to me that more needs to be done, sooner, to collect this information from those who made the decisions and to understand if those reasons are still relevant.

Ticketing is a good example of this. In a semi-regulated environment, where franchise bidders (and subsequent successful operators) were motivated to tinker with the unregulated fares in order to boost revenue forecasts, the complexity of the fares structure is not surprising.

Ian Tucker highlights the fear I mentioned earlier with his statement: "Some people will be charged more, and that is politically difficult. Losers complain; winners tend not to." While this is true, surely it is better that we seek not to placate everyone, and use the conversation inspired by complaint to articulate the benefits of what we are seeking to achieve through fares simplification?

That we are only just "now moving to a view that a centrally

place the structure for a privatised rail industry, is testament to this. However, the lawyers require instructions from their clients as to what they need to achieve in any legal drafting.

Any simplification needs to start from the position of “Whose interest is reform being undertaken for?”

While the railways now have many ‘customers’, the needs of different parties - whether it is a passenger, open access freight operator or a concession serving passenger operator - are likely to require different reforms and priorities. Once identified, simplification will generally need a political decision which can be translated into the rules and legislation which governs the way that the railways operate and how it is funded.

It will also need to be sold politically, particularly to the electorate - an area where the many reports on rail reform give testimony that this is not a task that any Secretary of State for Transport finds easy.



Lumo 803002 arrives at Newcastle on August 17 2022. Open access is an area that GBR will inevitably find more difficult to simplify. ANTONY GUPPY.

planned system is better for the provision of capacity” is astounding, and made worse when reflecting that the timetable does not (and has not for quite some time) reflect the actual travelling needs of the public.

Ian states: “In theory, pressure was put on to provide more services which customers wanted, and which otherwise might not have materialised.” The key words here are “provide more services”. In my experience, there have not been many services removed - driven by the continuous adoption of a “no less than today” approach in franchise specification - which has caused inefficiencies in capacity allocation and impacts on performance.

Jason reflects: “If simplification is what you want to achieve, you have to take a more *laissez-faire* view of the behaviours that you want to regulate. That’s quite difficult after 25 years of making the contracts more complex, by giving the train operators less freedom.”

But this is exactly what we have to do: provide those that know the opportunity to do; create flexibility and adaptability in the system to mould to future (unforeseen or otherwise) requirements; and measure and monitor performance in a way that seeks not to divide through blame allocation, but to unite through a common goal focused on the end user.

Whatever the end result looks like, a simplified structure, a clear collective vision, strength in leadership, and the unwavering commitment from all industry partners to do what’s right for the customer is necessary to ensure we don’t end up in this same place in another 25 years. I doubt our industry will get a second chance to get it right.



Stephen Joseph

Transport Consultant and former Campaign for Better Transport CEO

The GBRTT commission on simplifying the railway is a noble effort, but ultimately it is a bit like Hamlet without the prince. Or, to switch metaphors, putting the cart before the horse.

Without legislation to establish GBR on a proper basis and give it clear objectives and powers, there is a limit to how much this commission can really achieve. Until a conclusion is reached - and legislation or guidance is put through setting out GBR’s role in timetables, ticketing and contracts - there will continue to be a lack of clarity on where power in the railways really lies, and whether the key decisions are going to be taken by GBR, the Department for Transport, train operators, or other industry players

Having said that, there are some clear wins available. Stations are an area crying out for simplification, given the consultation process involved even to add a new bench. The consultation proposes an asset management register, for depots as well as stations, to reach a ‘single version of the truth’ on who is responsible for what. And this all looks very sensible.

The consultation also proposes a new ‘Access and Use Policy’, setting out rules governing access to the railway and use of capacity. But as this piece shows, there are plenty of potential pitfalls. Which trains and operators are given priority in places where capacity is constrained will result in some hard choices, and there are also potential conflicts of interest: will GBR give priority to the operators of the services for which they let contracts over other operators (open access, freight, devolved authority local trains)? And how will such a policy sit with current ministers’ interest in more open access and liberalisation of inter-city services?

There are also questions on national versus local/devolved decision-making (declaration of interest: I am an adviser to the Urban Transport Group on rail and wrote UTG’s response to the GBRTT consultation - <https://www.urbantransportgroup.org/resources/types/consultation-response/gbrtt-commission-simpler-better-industry-processes>).

Rail industry decisions have in the past undermined city region objectives in some corridors, notably Coventry-Wolverhampton and the Castlefield Corridor in Manchester. Access and use policies need to take account of local and devolved authorities’ objectives. There is also a need to safeguard and support local authority investments, notably in stations. Sometimes investments made or enabled by local authorities have been based on a specific level of service, and this needs to be safeguarded in future contracts and decisions.

These issues are not show-stoppers, but do need thinking about. As some of Paul Clifton’s interviewees say, if simplification was that easy it would have been done years ago. And, as I say, none of this means much without legislation and guidance, or at least some decisions on those. Sadly, that seems some way off.

“Stations are an area crying out for simplification, given the consultation process involved even to add a new bench.”



Groundhog day: little progress on strikes info

Accurate information is essential when services are disrupted. When people know the reason why things are happening, even if it's bad news, they can adjust their expectations and react accordingly. Keeping people in the dark only serves to stir negative emotions and erodes trust in the railway.

As strikes on the railway have now been going on for 11 months, with the most recent ones taking place earlier this month, it might be expected that after 11 months of 'practice' the rail industry had got strike-related passenger information off to a tee.

However, our monitoring of passengers' experiences of strikes - particularly on awareness of strike disruption, information on which train services are running, and information on changing tickets/obtaining refunds - indicates no tangible improvement.

It is nearly a year since we started monitoring passengers' experiences of strikes, particularly on journey information, and feeding results back to train operators.

By now the systems should run smoothly.

We hope that a resolution can be reached to the ongoing dispute, avoiding further disruption to passengers, and that our survey published just ahead of the latest strikes will be the final survey! The results show:

- Just under seven in ten people who intended to travel were aware of the strikes in June. This awareness is back to a similar level of awareness seen ahead of previous rail strikes this year, after a dip in awareness for strikes on May 12-13.

- The majority of those that had planned to travel on days affected by strike action say they will no longer do so, but almost one in four still planned to use the train on strike days.

- Information ratings remain similar to previous survey waves. Around six in ten people who had intended to travel between May 31-June 4 rated information about which train services were running and information about changing tickets/refunds as good.

Our message to the industry

Transport Focus seems to be pointing out the same issues time and again. So, what are passengers saying about the prospect of more industrial action?

- "Limited train times so limit my choice of travel."

- "They will require me to take alternative routes which will take slightly longer, but I will still be able to get to the places I need to get to."

- "Stopped one of my trains, turned my journey from 2.5 to 3.15 hours."

- "Will just mean I go on a different day. They affect me by feeling I've lost control of my life and affect me mentally."

- "Will need to travel by coach, will take longer."

- "I actually have a three-hour, in-person exam, so I'll need to look into whether I can get to the exam centre without using the train."

Our message to train operators is to 'up your game' on strike information, as a new raft of industrial action disrupts passenger journeys.

It's not just Transport Focus that's finding issues. The rail industry's own checks and monitoring is still finding things wrong on train company websites.

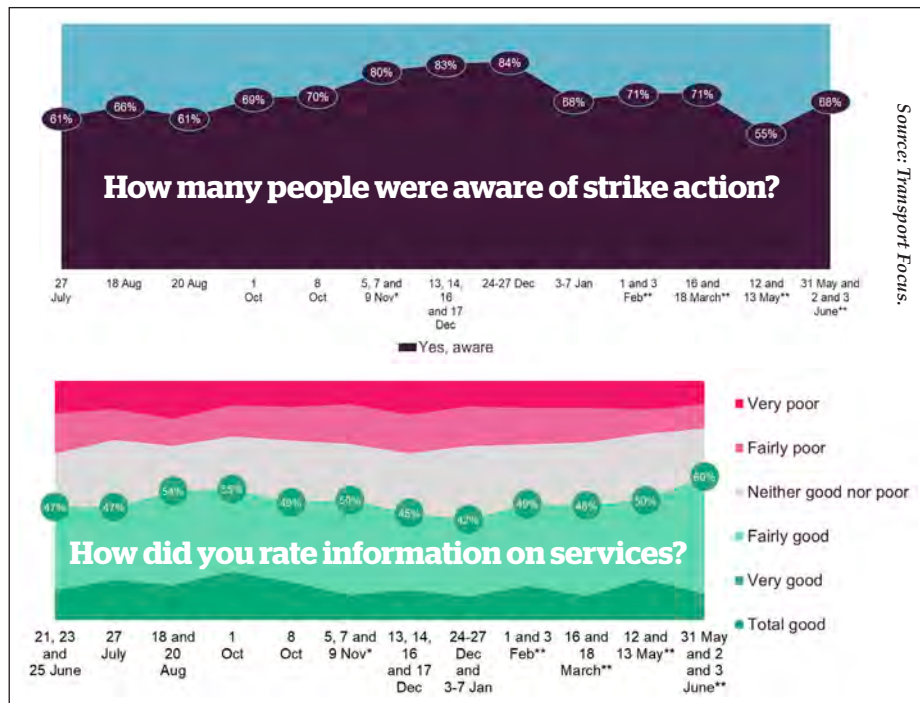
We have looked at the results of the checks the National Rail Communication Centre carries out ahead of each round of industrial action, and it is not pretty reading.

Seven days before the mid-May strike, eight operators scored 'red' (as opposed to 'green' or 'amber'), indicating very poor or no information. A further six scored 'amber'.

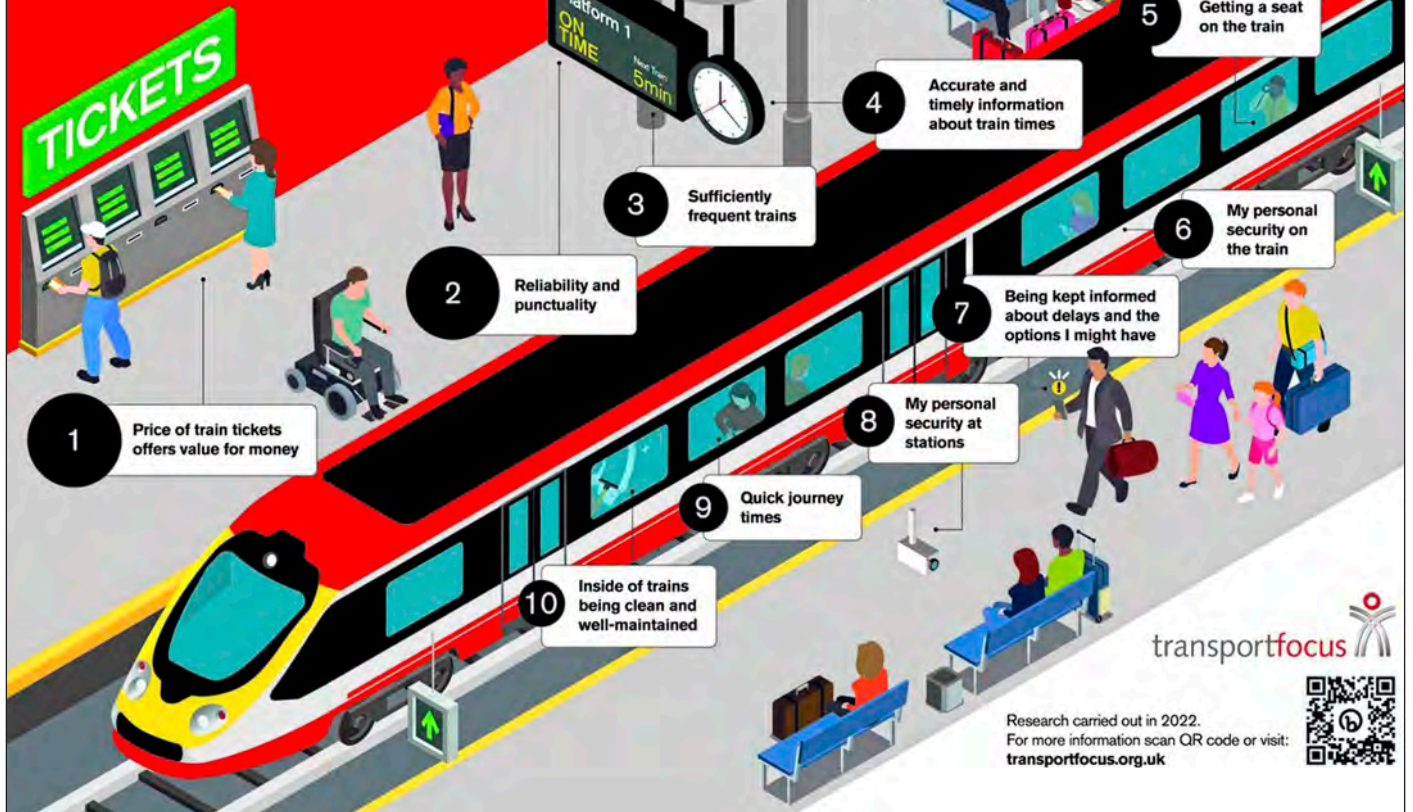
We have written to the Rail Delivery Group and train operator managing directors urging them to improve.

All of this disruption points to the ongoing need for excellent passenger information. Passengers need information both before and while making their journey, and it's useful to remember that some do not have a choice not to travel. Making sure that it's crystal-clear what trains are running and what are not, and how to claim refunds and make ticket changes, is crucial.

With seemingly no end in sight to the industrial action, we've challenged operators



What matters to rail passengers in Great Britain



to achieve 'greens' across the board next time these checks are done. We also continue to urge all parties to get around the table and resolve this strike action as soon as possible.

Looking ahead

Network Rail has recently published its England and Wales *Strategic Business Plan* for Control Period 7 (CP7), which responds to the objectives set by the Secretary of State in his High Level Output Specification.

To help inform the Strategic Business Plan, Transport Focus was pleased to work in partnership with Network Rail, asking over 15,000 rail passengers across Great Britain to tell us what is important to them - *Britain's railways: what matters to passengers*.

The research provides an importance ranking for 25 aspects of rail services, and also shows how passengers think the railway is performing in each of those areas. This gives a clear view on what matters to passengers, and where the railway should target investment and effort to meet passengers' aspirations.

The *Strategic Business Plan* recognises that there will be a range of cost pressures in CP7. Managing infrastructure that in

some cases is nearly two centuries old is a significant challenge, especially when combined with the impacts of a changing climate, and significant inflation risk.

We hope that our research will allow Network Rail to develop its plans with a principal focus on what matters to passengers, to support an improved level of train service performance.

The *Strategic Business Plan* outlines a more market-led and whole industry approach to planning than the traditional asset condition-focused approach. This has involved prioritising investment on areas which will provide the most value, to support key revenue-generating areas of the network while providing an appropriate level of service to areas where revenue is typically lower.

Our concern is that this approach could lead to a two-tier railway, with poor performance on some routes affecting passengers detrimentally.

A new dawn

The transfer of TransPennine Express to the Government's Operator of Last Resort is now complete.

The immediate focus must be to re-establish relationships, re-engage colleagues, and rebuild trust with passengers. The legacy problems with ASLEF and wider industrial action, driver resilience, and unacceptable levels of cancellations will all take time to resolve and reset. There is no quick fix to some of the challenges that TPE has faced. It will take time before passengers start to see substantial improvement.

We look forward to passengers receiving a better, more reliable service. In our recent Rail User Survey, TPE was rated the joint poorest-performing train operator with just 67% of passengers being satisfied with the punctuality of their journey.

We hope that the actions planned to improve performance and build back trust with passengers can be delivered. We will be monitoring evidence and feeding it back to TPE. ■

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.

Doubts have been raised about the future of LNER's Class 91 + Mk 4 fleet. Rail Operations Group 37510 Orion drags ex-LNER 91125/115/112 through Northway (near Aschurch for Tewkesbury) with a February 3 scrap move from Doncaster Belmont Yard to Sims Metals at Newport Docks. JACK BOSKETT.



Time to take stock as the 'bubble' bursts...

The UK rolling stock industry faces lean times against a backdrop of budget cuts and changing priorities. BEN JONES analyses what the future holds for manufacturers, leasing companies and the supply chain

Every bubble has to burst, but few could have predicted that the good times for the British rail industry would end so suddenly and traumatically.

Five years ago, the sector was booming. Consistently rising passenger numbers, new train orders worth billions of pounds, huge inward investment in new factories, and the opportunities afforded by the need to reduce carbon emissions all pointed to a rosy future.

Seasoned observers said it couldn't last, but even the most cynical could not have predicted how quickly the picture would change.

Changing work and travel patterns, a decline in season ticket sales in favour of harder-to-predict leisure travel, and the huge cost of maintaining rail services through the shock of the COVID-19 pandemic have utterly changed the landscape.

Franchise bidders found success in the second half of the 2010s by offering to replace and expand existing train fleets, which encouraged established suppliers such as Siemens and Bombardier to increase investment in their UK operations. It also brought new players into the market, including Stadler and Talgo.

Hitachi and CAF built factories in Britain to assemble new trains for the UK, while others hinted at following suit if they won big orders. Alstom's acquisition of Bombardier Transportation in 2020 revived the French giant's presence on this side of the Channel, after a long hiatus.

Although the focus of any new train order inevitably falls on who will build and operate them, very few orders happen in the UK without the involvement of the international finance markets and leasing companies.

The three rolling stock owning companies (ROSCOs) formed to manage the ex-BR passenger fleet upon privatisation in the mid-1990s were bought out by financial institutions attracted by guaranteed long-term revenue and profits. They have steadily evolved to become broader rolling stock management companies, offering services such as refurbishment of older fleets and the development of new technologies to keep their assets relevant to changing demands and extend their working life.

With contracts generally priced in the hundreds of millions (and occasionally billions) of pounds, the need to secure favourable financial terms on the global markets has become vital to funding

major rolling stock procurement.

As the rolling stock 'bubble' grew in the 2010s, the potential for new UK rolling stock orders to deliver safe, lucrative, long-term investments for shareholders drew in more international banks, venture capitalists and pension funds to underwrite specific contracts.

That spirit of optimism has evaporated, as the Department for Transport and HM Treasury take an even tighter grip on the industry. Uncertainty over the restructuring of the industry has drifted over the past two years.

Alarm bells are ringing across almost every part of the industry - from operators facing overcrowding to train builders and heavy maintenance specialists trying to retain teams of skilled engineers.

UPHEAVAL

The political upheaval of 2021-22 and the subsequent months of 'drift' surrounding the establishment of Great British Railways (GBR), as well as delays to new investment as part of the 'levelling up' agenda, have already led some train builders to focus their energies elsewhere.

Without firm commitments from the UK government to back up its ambitions to decarbonise the economy and promote modal shift, manufacturers are looking to countries where train orders worth billions of pounds continue to be placed.

In other European countries such as Germany, Austria and even France, the pandemic was viewed as an opportunity to reset the way people work and travel. Even the US, where the automobile reigns supreme, is investing hundreds of billions of dollars in new and improved passenger rail links.

In the longer term, prospects for train operators and builders elsewhere look positive, with rail seen as essential to fighting climate change. More than €55 billion (£47.8bn) has already been committed to new trains and infrastructure, backed by European Union recovery funds, to double passenger and freight traffic, to make travel 'greener', and to achieve a 55% reduction in greenhouse gas emissions by 2050.

Of that total, more than 50% is earmarked for the acquisition of rolling stock, with the rest being invested in electrification, deployment of ERTMS (European Rail Traffic Management System), and infrastructure upgrades.

Billions more will be invested in EU rail networks before 2027, from the €25.8bn (£22.4bn) Connecting Europe Facility and the €330bn (£287bn) European Regional Development Fund (ERDF) budgets.

SHORT LEASH

It's a stark contrast with the gloomy outlook in the UK. With the former franchises now operating on an even shorter leash under National Rail Contracts (NRCs), budget cuts of around 10%, ➤

"Alarm bells are ringing across almost every part of the industry - from operators facing overcrowding to train builders and heavy maintenance specialists trying to retain teams of skilled engineers."

► industrial unrest, and uncertainty over the future shape of GBR, the opportunities for new train orders and rolling stock refurbishment programmes have largely evaporated since 2020.

New trains ordered before the pandemic continue to be delivered, and a few significant orders such as the Hitachi/Alstom HS2 fleet and London Underground's new Piccadilly Line trains offer some comfort for the factories building them.

However, since the railway's moneybox was snapped firmly shut by HM Treasury in 2020, the rolling stock industry has been on hold, awaiting clarification about what might come their way over the rest of this decade.

In that new environment, and with no franchises changing hands, you might expect leasing companies and operators to compensate

by upgrading existing trains to keep them fit and relevant for the 'new normal'.

Worryingly, however, older trains that were intended to work alongside new fleets to soak up the expected growth are instead being set aside at the insistence of the DfT.

InterCity 125s, expensively refurbished for Great Western Railway and CrossCountry in the past few years, will be phased out this year - most likely following South Western Railway's Class 442s into the scrapyard.

East Midlands Railway has lost its small fleet of Class 180s, while Southern's fleet of electric multiple units has been significantly reduced with the withdrawal of Class 455 suburban units in 2022 and the retirement of its elderly Class 313s in May.

New train orders by manufacturer

ALSTOM

| Operator | Nos. | Sets | Vehicles | Expected | Delivered | Value |
|-----------------------------|------------|------|----------|----------|-----------|-------|
| South Western Railway | 701001-060 | 60 | 600 | 2020-21 | 2022-23? | £895m |
| | 701501-530 | 30 | 150 | | | |
| London Overground | 710374-379 | 6 | 30 | 2021-22 | 2021 | £TBC |
| | 720601-612 | 12 | 60 | 2020-21 | 2022-23 | £105m |
| Greater Anglia | 720101-144 | 133 | 665 | 2018-20 | 2019-22 | £900m |
| | 720501-589 | | | | | |
| West Midlands Railway | 730001-036 | 36 | 108 | 2020-21 | 2022-23 | £542m |
| London Northwestern Railway | 730101-129 | 29 | 145 | 2020-21 | 2023 | - |
| | 730201-216 | 16 | 80 | 2020-21 | 2023 | - |
| Eversholt | TBC | 10 | 30 | 2025 | - | TBC |
| HS2 Ltd | TBC | 54 | 432 | 2029-33 | - | £2bn* |

*Joint venture with Hitachi Rail Europe. See separate panel

CAF

| Operator | Nos. | Sets | Vehicles | Expected | Delivered | Value |
|-------------------------|------------|------|----------|----------|-----------|--------|
| West Midlands Railway | 196001-012 | 26 | 80 | 2019-20 | 2022? | £177m |
| | 196101-114 | | | | | |
| Transport for Wales | 197001-051 | 77 | 180 | 2021-23 | 2022-23 | £800m* |
| | 197101-126 | | | | | |
| West Midlands Metro | TBC | 21 | - | 2021-22 | 2021-22 | £83.5m |
| Docklands Light Railway | TBC | 43 | 175 | 2023-24 | - | ???? |

*Total order value including Stadler trains.

HITACHI RAIL EUROPE

| Operator | Nos. | Sets | Vehicles | Expected | Delivered | Value |
|-----------------------|------------|------|----------|----------|-----------|-------|
| Avanti West Coast | 805001-013 | 13 | 65 | 2022-23 | TBC | £350m |
| | 807001-010 | 10 | 70 | 2022-23 | TBC | - |
| East Midlands Railway | 810001-033 | 33 | 165 | 2022-23 | TBC | £400m |
| HS2 Ltd | TBC | 54 | 432 | 2029-33 | - | £2bn* |

*Joint venture with Alstom. See separate panel

SIEMENS

| Operator | Nos. | Sets | Vehicles | Expected | Delivered | Value |
|--------------------|------|------|----------|----------|-----------|--------|
| London Underground | N/A | 94 | 846 | 2025- | - | £1.5bn |

STADLER RAIL

| Operator | Nos. | Sets | Vehicles | Expected | Delivered | Value |
|-----------------------|------------|------|----------|----------|-----------|--------|
| Rail Operations Group | 93001-010 | - | 10+ | 2022-23 | - | £40m |
| Transport for Wales | 231001-011 | 11 | 44 | 2022 | 2021-22 | ** |
| | 398001-036 | 36 | 108 | 2021-22 | 2022-23? | ** |
| | 756001-007 | 17 | 68 | 2023 | - | ** |
| | 756101-117 | | | | | |
| Merseyrail | 777001-053 | 53 | 212 | 2019-20 | 2021-23 | £460m |
| SPT | TBC | 17 | 68 | 2019-20 | 2022-23 | £203m^ |
| Tyne & Wear Metro | 555001-046 | 46 | xxx | 2023-24 | 2023- | £362m |

+ Option for up to 30 locomotives

^Total project cost including trains

** Total fleet replacement orders valued at £800m

SPT = Strathclyde Partnership for Transport



Fears have also been raised about LNER's recently overhauled (and extremely popular) Class 91 + Mk 4 fleet and Chiltern's Class 68 + Mk 3 sets, as operators look to make the savings demanded by DfT.

Over the past three years, older EMU fleets that were expected to remain in traffic to either provide extra capacity or be cascaded to new routes as electrification spreads have instead made a one-way trip to the scrapyard.

COVID-19 and the controversial cancellation of Midland Main Line electrification (revived in 2022's *Integrated Rail Plan* but now disturbingly quiet again), truncation of Great Western Main Line wiring in 2017, and the ongoing TransPennine Route Upgrade saga consigned trains such as the Class 365s and Class 321s to an end

ScotRail 156435 stands at New Cumnock on January 16 2016. Transport for Wales, Northern, Great Western Railway and ScotRail all operate Class 150/153/155/156 'Sprinter' diesel multiple units built in the late 1980s and early 1990s, and which will need replacing before the end of this decade.
STUART FOWLER.



“Since the railway’s moneybox was snapped firmly shut by HM Treasury in 2020, the rolling stock industry has been on hold, awaiting clarification about what might come their way over the rest of this decade.”

that many felt was premature. Eversholt Leasing hopes to find new homes for the 30 rebuilt ‘Renuvus’ Class 321s released by Greater Anglia in April, but their future remains unclear.

Many other ex-BR fleets have also been disposed of or are in the process of being scrapped.

SWR’s Class 456 two-car EMUs were retired in January 2022, and withdrawals of the same operator’s Class 455s are under way despite the relatively recent investment in new Vossloh traction packages for the fleet.

SWR ditched its Class 442s in 2021 after deciding that reduced passenger demand did not justify their retention. Despite a recent £26 million refit, the popular EMUs were quickly scrapped.

Elsewhere, a steep decline in weekday commuter numbers since 2020 and the transfer of Class 707s from SWR prompted Southeastern to mothball some of its 1990s-vintage Class 465 ‘Networkers’ without replacement. Proposals to obtain a new EMU fleet for Southeastern have also been shelved.

From mid-1970s Class 313s and ‘315s’ to HSTs and Class 442s, the mass introduction of new trains over the past few years has triggered a generational change of a magnitude not seen since the 1980s.

According to Office of Rail and Road (ORR) statistics, the average age of British passenger rolling stock continues fall. At the end of March 2022 it stood at 16.9 years - and this figure will drop further in 2023 as elderly ex-BR trains such as the Southern ‘313s’ and Merseyrail Class 507/508s head for the shredder.

While there’s undoubtedly logic in withdrawing older trains that are dirtier, less energy-efficient and more expensive to maintain, the common theme across the fleet reductions is the alarming lack of replacements - new or cascaded - to maintain capacity at a time when passenger numbers (if not ticket receipts) are virtually back to pre-pandemic levels.

FLEET RENEWALS

In the second half of the 2010s, it seemed that every franchise renewal was accompanied by replacement of the inherited train fleet, whatever its age.

A combination of cheap finance, the need to meet new accessibility rules, and the DfT looking favourably on bidders promising new trains created a ‘bubble’ unlike anything seen since BR’s *Modernisation Plan* of the mid-1950s.

Remarkably, more than 8,000 vehicles have been ordered by British train operators since 2014 - many to replace life-expired trains, but also for expansion projects such as Crossrail.

But following the delivery of the giant contracts placed in the mid-2010s - IET, Thameslink and Crossrail - the number of outstanding contracts for new trains is steadily diminishing as fleets gradually enter service.

Meanwhile, projects such as the Alstom Class 701 ‘Aventra’ fleet for SWR continue to suffer delays caused by technical issues such as software problems, and exacerbated by supply chain disruption, restrictions on staff training, and a shortage of specialist staff to commission new trains during the pandemic. Worryingly for SWR and Alstom, there’s still no firm date for the introduction of the ‘701s’.

The former Bombardier Transportation factory in Derby, now ►

“Hydrogen and battery technology is not yet capable of providing the heavy haul capability required by large freight locomotives, so heavyweight bi-modes such as the Class 99 will offer a useful halfway house until more of the freight network is electrified.”

► part of the Alstom empire, remains fully occupied assembling Class 701s plus Aventra EMUs for London Northwestern Railway/ West Midlands Trains, and a smaller order for Trenitalia's c2c operation.

Production lines continue to churn out new trains, even if it's not possible for them to enter service.

Dozens of complete and part-complete Aventras are stored at various locations in the UK, awaiting commissioning. Good news for the owners of storage sites, but less than optimal for the trains themselves as they stand idle, subject to the elements and the attention of vandals without ever carrying a passenger.

Delays are not solely an Alstom issue. CAF's Class 196 DMUs for West Midlands Railway and Class 197s for Transport for Wales are finally entering passenger service, as are Stadler's Class 777s for Merseyrail.

Hitachi Class 810 'Aurora' bi-mode trains for East Midlands Railway (among others) are also running behind schedule for various reasons.

Avanti West Coast has started main line testing of its Hitachi Class 805 bi-mode and '807' electric units, which were ordered to boost capacity and eliminate diesel operation under the wires with Class 221 DEMUs.

Writing in 2018, I said: "While it is true that the current rate of orders cannot be expected to continue, there remains a number of potentially lucrative contracts on the near horizon that the global transport companies would like to secure. On the classic network, three large franchises are due to be re-let in late 2018 and 2019 - East Midlands, Southeastern and CrossCountry."

Of that trio, only East Midlands changed hands before the pandemic hit. And although they would likely be welcomed by passengers and staff, new trains seem a distant prospect for Southeastern and XC. Both operators have reduced their fleets in

recent months in response to changing travel patterns, although XC in particular suffers from regular overcrowding on its core routes.

Alstom's cunning plan to join forces with Stagecoach in February 2018 to bid for Southeastern and win a major order for commuter EMUs came to nothing, after the contest was abandoned. Stagecoach is now out of the main line rail business altogether.

WHAT'S NEXT?

Despite the gloom, there remains some hope for train builders in the coming years, with replacements needed before the end of this decade for the Class 150/153/155/156 'Sprinter' diesel multiple units (DMUs) built in the late 1980s and early 1990s.

Except in Scotland, where further electrification is planned (see below), few of the routes worked by these Class 15X DMUs look set to be wired. The Government's ambition to eliminate diesel-only trains by 2040 means that their successors are therefore likely to be hybrids featuring batteries and/or hydrogen fuel cells.

Currently, Transport for Wales (TfW), Northern, GWR and ScotRail operate Class 150/153/155/156 units, the oldest of which will be 40 years old in 2024.

Slightly newer are the Class 158/159s dating from 1989-92, operated by GWR, ScotRail, Northern, TfW, East Midlands Railway and South Western Railway (SWR).

No firm plans have yet been made public for replacing these hard-working trains, except in Scotland.

However, in October 2022 SWR said it would replace its Class 158/159 fleet (110 vehicles) by 2030. It is examining "innovative self-powered solutions" such as battery-electric with rapid recharging points or hydrogen power for operation on the non-electrified route beyond Worting Junction (west of Basingstoke).

It remains to be seen whether the trains would also be able to run on 750V DC electric power east of Basingstoke. SWR plans to



Transport for Wales is replacing its entire DMU fleet with Class 197s from CAF, Class 231 and Class 756 FLIRT's built by Stadler, and Class 398 tram-trains for the South Wales Metro network. TfW 197010 works the 1147 Liverpool Lime Street-Chester service near Mickle Trafford on December 15 2022. HUW ROWLANDS.

achieve 'net zero' carbon emissions by 2040.

TfW is in the process of replacing its entire DMU fleet with Class 197s from CAF, Class 231 and Class 756 FLIRTs built by Stadler, and Class 398 tram-trains for the South Wales Metro network.

However, there's currently little sign of when or how Northern and GWR will modernise their regional fleets.

Having acquired fast-charge battery technology and former London Underground 'D78' vehicles from Vivarail's liquidators earlier this year, GWR is keen to see the concept expand beyond the initial trials on the West Ealing-Greenford branch.

Rural branch lines in Devon and Cornwall are an obvious target for a fleet of battery-powered Class 230s to replace Class 150s and reduce emissions, noise and pollution. Beyond that, it will also need to find environmentally friendly replacements for its Class 158 and Class 165/166 DMUs within the next ten years.

INTEREST

Swiss train builder Stadler has made no secret of its interest in supplying replacements for the ageing Class 15Xs. A hybrid variant of its flexible FLIRT platform, similar to those ordered by Greater Anglia and TfW, would be an obvious candidate.

CAF and Alstom would also be keen to win new work for their UK factories in Newport and Derby. Having invested heavily in hydrogen technology, Alstom has proposed combining its British 'Aventra' platform with hydrogen fuel cell technology from its German iLint multiple units. After extensive testing over the past five years, iLint regional trains are now in regular service around Frankfurt-am-Main.

Currently run by the Government's Operator of Last Resort (OLR), Northern published an official notification in January 2022 seeking expressions of interest in supplying 20 new hybrid trains compatible with its 58 Class 195s built by CAF in 2017-20.

Intended to reduce diesel operation on the upgraded Trans-Pennine routes, the units could be diesel-battery hybrids or EMUs with traction batteries for operation off the wires. However, since the initial announcement, no further information has surfaced about this possible order.

Two more potential new train orders were floated by TransPennine Express (TPE) in 2021-22, although they are now likely to have been overtaken by recent events.

TPE had its eyes on fleet expansion to take advantage of electrification and capacity upgrades across northern England. Prior to the cancellation of FirstGroup's contract to run TPE in May, the operator had issued a Request for Expressions of Interest (EoI) regarding options for additional trains to operate across its network.

Four options were floated, consisting of: 25 five-car bi-mode trains with an option for up to a further 82 vehicles; 18 five-car EMUs with an option for up to a further 46 vehicles; 11 five-car bi-modes with an option for up to a further 44 vehicles; and 60 locomotive-hauled coaches with an option for up to a further 34 vehicles.

TPE was seeking flexibility in train configurations, with options for five, six or seven coaches per train to take advantage of the planned improvements on its routes.

In a separate tender, TPE also called for expressions of interest for up to 30 bi-mode locomotives, to replace Stadler Class 68 diesels sub-leased from Direct Rail Services to power the CAF-built 'Nova 3' trains and GWR's 'Night Riviera' Class 57s.

Currently, Stadler's Valencia plant is the only outlet capable of offering a suitable bi-mode locomotive within the British loading gauge. However, depending on how much of TPE's route remains unelectrified by the end of the decade, something more powerful than the new Class 93 tri-mode Bo-Bo may be required to maintain schedules off the wires.

The Co-Co Class 99 ordered by GB Railfreight and due to be introduced from 2025, with its more powerful diesel engine, is a possibility. But this is widely seen as a potential Class 66 replacement.

The big Co-Co is undoubtedly a strong contender to replace GBRf's Class 73/9s and '92s' on Caledonian Sleeper operations, and

| Current orders by leasing company | | | |
|-----------------------------------|----------------------|----------------|----------------|
| Owner | Order | Builder | Total vehicles |
| Angel Trains | GA Class 720 | Alstom | 665 |
| Corelink Rail Infrastructure | WMR Class 196 | CAF | 80 |
| | WMR Class 730 | Alstom | 333 |
| Merseytravel | Merseyrail Class 777 | Stadler | 212 |
| Porterbrook | c2c Class 720/6 | Alstom | 60 |
| Rock Rail | SWR Class 701 | Alstom | 750 |
| | AWC Class 805 | Hitachi | 65 |
| | AWC Class 807 | Hitachi | 70 |
| | EMR Class 810 | Hitachi | 165 |
| SMBC Leasing/Equitix | TfW Class 197 | CAF | 180 |
| | TfW Class 231 | Stadler | 44 |
| | TfW Class 756 | Stadler | 89 |
| Beacon Rail Leasing | TfW Class 398 | Stadler | 108 |
| | GBRf Class 99 | Stadler | 30 |
| | ROG Class 93 | Stadler | 10 |
| To Be Confirmed | HS2 Trains | Hitachi/Alstom | 432 |

GWR's unreliable quartet of Sleeper-dedicated Class 57s.

Speaking of Class 66s, with the oldest locomotives now past their 25th birthday and much of the fleet over 20 years old, thoughts are turning to their replacement.

However, decarbonising freight operations remains a difficult prospect without a nationwide plan for electrification.

Hydrogen and battery technology is not yet capable of providing the heavy haul capability required by large freight locomotives, so heavyweight bi-modes such as the Class 99 will offer a useful halfway house until more of the freight network is electrified.

With more than 400 Class 66s in service, the potential for large orders is obvious. Stadler will be hoping that the Class 99s make the same impact in the UK as their EuroDual sisters are currently making in mainland Europe.

AMBITIOUS

North of the border, Transport Scotland has much more ambitious plans for decarbonising its rail network. Driven by a need to replace life-expired ex-BR EMUs, its remaining Class 15X DMUs, and a political agenda to make the country's railway much 'greener', ScotRail plans to replace 65% of its train fleet between 2027 and 2035.

In August 2022 it issued a tender notice seeking legal support for the procurement of new trains. According to the notice, nine of the 11 sub-fleets of trains currently operated by ScotRail (Class 153/156/158/170/318/320/334) will be replaced as leases expire and it becomes uneconomical to extend their life.

All existing diesel trains will be withdrawn and replaced with new trains powered by overhead wires, battery or hydrogen. The number of train types will be consolidated from 11 to five, with just the Siemens Class 380 and Hitachi Class 385 EMUs expected to be retained.

Three phases of procurement are planned, starting with a new fleet of 120 electric suburban trains (550 vehicles) to be introduced between 2027 and 2030.

The Scottish Government has given the go-ahead to proceed with this procurement, with a minimum core order for 64 trains (295 vehicles). A mix of EMUs and battery-electric units (BEMUs) is planned, acknowledging that a few suburban routes around Glasgow and Edinburgh are likely to remain unelectrified.

Following the award of this contract, ScotRail will then move on to procure new fleets to replace Class 156/158 DMUs on its rural routes in the West Highlands, Far North and South West, and to replace HSTs on inter-city routes linking Scotland's eight cities.

With no prospect of fixed electrification, and with distances ➤

► beyond the range of even the most optimistic estimates for battery-electric trains, hydrogen currently looks like the probable solution for replacing DMUs on Scottish rural routes.

There have also been suggestions that the specification could include panoramic windows and space for bikes and hiking gear, to better exploit the tourism potential of the scenery on routes such as the West Highland Line and Inverness-Kyle of Lochalsh.

Away from the main line railway, Transport for London is awaiting the delivery of two new fleets to replace life-expired trains dating from the 1970s.

Siemens is building 94 new articulated 'Inspiro' Tube trains for the Piccadilly Line, as part of a £2bn renewal programme. Due to enter service from 2025, the trains will be built at a new factory in Goole (East Yorkshire).

Meanwhile, CAF is delivering 54 five-car driverless 'B23' trains for TfL's Docklands Light Railway. Of the new trains, 33 will replace the oldest trains in the DLR fleet, and the remainder will boost capacity across the network when they are introduced in 2025-26.

However, new metro and light rail schemes continue to be rarer in the UK than elsewhere in Europe. Apart from the 46 Class 555 EMUs now being built by Stadler for Nexus in England's North East, no other orders are currently outstanding.

In contrast to the late 2010s, where increasing capacity to meet growing demand was a major driver of new train orders, the priority now is more focused towards replacing life-expired stock.

Decarbonisation targets mean that like-for-like replacement of diesel trains can no longer be an option (although CAF continues to deliver new DMUs to TfW and West Midlands Railway).

This offers operators an opportunity to break with tradition and deliver something better suited to the needs of passengers and customers in the 2020s and 2030s. Will they grasp that opportunity or play it safe?

Although it may not last much beyond the next General Election, the renewed interest in open access passenger operations may benefit train builders over the next few years.

The current government's desire to encourage private enterprise back to the UK's railways has already opened the door to Grand Union Trains (GUT), which plans to acquire a fleet of bi-mode trains for its new London Paddington-Carmarthen service, scheduled to start in December 2024.

GUT also hopes to start a London Euston-Stirling route using ex-LNER Class 91 + Mk 4 sets.

TOO MANY TRAINS?

A huge question mark now hangs over the £2bn fleet of HS2 trains to be built by Alstom and Hitachi from 2025.

Will their design and construction be pushed back or rephased, to reflect the Government's controversial decision to delay completion of Phases 1 and 2a?

Will the full fleet of 54 very high-speed EMUs ever be required, as the project continues to be reduced in scope?

With the amputation of the eastern leg to Leeds and of the Golborne Link to enhance Anglo-Scottish services, plus further delays to the construction of Phase 2a to Crewe and the vital section between Old Oak Common and London Euston, how many trains will actually be required to run the service?

Any renegotiation of the contract will surely only add further disruption and frustration - and cost - in the supply chain.

It seems extremely unlikely that the proposed fleet of 'captive'



An aerial view of Loughborough station and the adjacent Brush Works in July 2018. Wabtec announced in April 2021 that it would close its Loughborough works, although part of the site has been taken over by UK Rail Leasing for the overhaul and maintenance of ex-BR diesel locomotives. PHIL METCALFE.

(probably double-deck) high-speed trains for services operating only on HS2 infrastructure will now be required, unless a future government reinstates the full Euston station expansion and the cancelled sections of the 'Y'-shaped network.

In northern England, the £96bn *Integrated Rail Plan* (IRP) also holds hope for rolling stock providers, but probably not until the 2030s at the earliest.

New high-speed lines and cut-offs providing faster and more frequent links on the Liverpool-Manchester-Leeds corridor will provide further enhancement beyond the current TransPennine Route Upgrade.

Assuming the projects promised in the IRP come to fruition, new electric and hybrid rolling stock will be necessary for the fully electrified Trans-Pennine route, Northern Powerhouse Rail and Midlands Rail Hub schemes over the next ten to 15 years. But until the final scope of these projects is fixed, their rolling requirements remain unclear.

That may come too late for some of the UK's train building industry. Although Alstom's Litchurch Lane factory and Hitachi Rail Europe's Newton Aycliffe facility are currently 'flat out' building new

“While there's undoubtedly logic in withdrawing older trains that are dirtier, less energy-efficient and more expensive to maintain, the common theme across the fleet reductions is the alarming lack of replacements - new or cascaded - to maintain capacity at a time when passenger numbers (if not ticket receipts) are virtually back to pre-pandemic levels.”



“Decarbonisation offers operators an opportunity to break with tradition and deliver something better suited to the needs of passengers and customers in the 2020s and 2030s. Will they grasp that opportunity or play it safe?”

And much of CAF's output comes from Spain.

Another issue for British-based train builders is a lack of export business - rail industry output remains overwhelmingly for domestic use.

According to figures from the Observatory of Economic Complexity (OEC), the UK has just 1.12% of the global rail exports market, valued at around US\$200 billion (£160bn). This is less than Hungary, Czechia or Slovakia, just a third of the share held by Switzerland, France or Italy, and far behind market leaders China (15.7%) and Germany (13.2%).

In terms of rolling stock, the export highlight of recent years was a surprising one - a fleet of monorail trains for Cairo, built by Bombardier/Alstom at Litchurch Lane in Derby.

Finding export markets helps to maintain the viability of factories, smoothing out the peaks and troughs of a volatile domestic market.

LIFE EXTENSION

Much of the impetus for the rolling stock boom in the second half of the 2010s came from the need to meet new accessibility requirements which came into force from January 1 2020.

Modifying trains to extend their life beyond the deadline also generated a significant amount of work for specialists in re-engineering and refurbishment.

However, worries that plants such as Wabtec Doncaster and Brodies in Kilmarnock would struggle to find work once the boom created by the PRM (Persons of Reduced Mobility) modification programme ended are unfortunately proving to be correct.

Wabtec announced in April 2021 that it would close its Brush Works in Loughborough due to a lack of work, ending more than 150 years of railway-related activity at the site. Part of the site has been taken over by UK Rail Leasing for the overhaul and maintenance of ex-BR diesel locomotives.

The repurposing of passenger trains for freight work and the increasing trend towards hybrid propulsion or alternative fuels has yet to deliver the promised benefits.

In fact, projects such as Porterbrook's FLEX conversions of Class 319s into bi-mode trains have been a disappointment, and the trains are already being withdrawn - or in GWR's case, were ditched without ever carrying a fare-paying passenger.

A proposal by Eversholt Rail and Alstom to deliver a similar transformation on up to 30 Class 321s was also dropped in favour of offering a hydrogen-electric version of the Alstom Aventura.

Refurbishing existing trains is a highly specialist activity. Once experienced engineers are lost to the industry, the skills are difficult to recover. With many older trains being withdrawn to cut costs, work will be harder to find as new trains require less maintenance, and mid-life overhauls are still a long way off for many fleets.

However, although there could be some reduction in capacity, there is likely to be an ongoing need for facilities able to undertake heavy overhaul and refurbishment programmes on behalf of rolling stock owners.

Although the current outlook for Britain's railways is somewhat gloomier than a few years ago, significant investment in new rolling stock is continuing. And if the UK is to get anywhere near its decarbonisation targets by 2050 many more trains will need to be procured before the end of this decade and into the 2030s. ■

trains for UK operators, there's some doubt over what could come next.

Beyond the current production runs for GA, SWR, WMR and c2c, which should be completed in 2024, no further orders have been placed for 'Aventura' EMUs. And once Hitachi has completed the Class 810 'Auroras' for East Midlands Railway, the only confirmed work is the HS2 order.

CAF's plant in Newport is busy assembling Class 196 and '197' DMUs for WMR and TfW, but both orders should be completed this year. Its future beyond that is unknown.

Siemens' new assembly plant in Goole has been the catalyst for a new rail technology and training hub, and it should remain busy building Piccadilly Line trains for the next few years. The German giant will be hoping that TfL secures investment from central government for the long-overdue Bakerloo Line renewal and desperately needed new trains that could follow on from the current order.

Alstom and Hitachi Rail Europe remain committed to their UK plants, but that determination will be sorely tested without a firm commitment to further new train orders in the second half of the 2020s.

In the worst case, both could cater for the comparatively limited UK requirements from their plants elsewhere in the world. Hitachi has already built UK trains in Japan and Italy, and Alstom has plants in France, Germany and Italy with the required skills and capacity.

Likewise, Siemens has delivered thousands of 'Desiro' multiple unit vehicles to UK train operators from its factories in Germany.

Stadler is content to make use of its factories in Switzerland, Spain, Poland and Hungary to build trains for the UK.

Great Western Railway 800006 speeds east at Uffington on April 3 as the 1028 London Paddington-Cheltenham Spa. The Great Western Electrification Programme was heavily criticised for being over-engineered and unnecessarily expensive. The industry will be tasked with delivering more affordable methods and solutions in CP7 and beyond. JOHN STRETTON.



The research priorities for Control Period 7

What are the priorities for rail research, as the industry prepares for the next five-year funding period? During that time, a new “world-class” test track will open in Wales. PAUL CLIFTON canvasses opinions

Where should rail money be invested? “Low-carbon cost reduction.” Professor Andrew McNaughton, former chief engineer at Network Rail, sums it up in four words. “The outcome has to be reducing cost, whether that is money cost or carbon cost,” agrees Professor William Powrie. The geotechnical engineer at the University of Southampton leads the UK Rail Research and Innovation Network (UKRRIN) and is convener of the UK Collaboratorium for Research in Infrastructure and Cities (UKCRIC).

“Climate change is a reality,” says Powrie. “Ageing infrastructure is a reality. For carbon-reduction purposes, we ought to be using that infrastructure more intensively, for more passenger trains as well as for more and heavier freight trains. Freight belongs on rail.

“All that adds up to a need for a better understanding of the condition of the assets, and their rates of deterioration.

“Understanding that deterioration curve is really important. But when we were looking at the Hook landslip, we found they had spent £22 million instrumenting 22 miles of embankment to measure movement. £1m a mile for the cost of the instrumentation does not seem to be cheap.”

Network Rail acknowledges that cost pressures will partly define the next period of research. Head of Technology Gareth Evans says: “There are some constraints, absolutely. As much as any other part of Network Rail. We’ve had to make a strong case for funding. The current financial challenges mean we are focusing more of the current programme on delivering returns on our investment as soon as possible.”

But Evans adds that level of funding is not the primary challenge he faces.

“We don’t have good records of how our earthworks were built or the loading they could take,” he says. “There are unknowns about the age and condition of some of our assets. We are looking for new technology that will help us understand asset condition and the risks associated with that.



“The railway will be around a lot longer than a five-year funding period; you can’t just fix today’s problems by tomorrow. Some research is about improvements in CP8 and CP9.”

*Professor Andrew McNaughton,
Former Chief Engineer, Network Rail*

“Last year’s hot weather, in particular, made a lot of people sit up and take notice of how ready the railway is for changes in weather and climate.”

Powrie says the mechanisms of infrastructure failure are changing, and insufficiently understood.

“The embankment that slipped at Edenbridge in Kent was a result of what we call a rapid drawdown failure. There is a river next to it. The water level in the river rose and stayed high for long enough to raise the water pressures in the embankment. When the river dropped, it lost what had been a stabilising force from the outside, leaving high pore-water pressure on the inside. We suspect something like that must have happened at Nuneham. It was possibly weather or river-level related - not necessarily the rise of the river, but when it fell again.

“My point is that we need to understand the mechanisms of failure that are associated with more intensive use and certainly with the effects of climate change.

“Climate change puts much more pressure on earthworks, foundations, bridge abutments and river scour from different flow regimes which can undermine railway structures. Nuneham was not a structural problem; it was a geotechnical problem. I am convinced of that.

“What we must not do is gold plate the solutions that we come up with because if you rebuild any old structure to modern standards, being conservative in your assumptions and adding layers of safety, you end up with completely over-the-top engineering.

“Look back to the Great Western electrification. It looked to make the foundations for overhead line equipment two or three times as deep as anyone had used before. They are totally bombproof, but totally unaffordable.

“Look at HS2: there seems to be a desire that nobody will see or hear it. Part of the reason it is costing so much is that we are hiding it. And where it is not hidden, we are building the most elaborate noise barriers, which then have to withstand wind pressures, not just from the environment, but from passing trains. The noise barrier engineering for HS2 is literally monumental.

“The industry has got used to a mentality of “because we’re worth it”. It has got used to assuming that it costs whatever it takes. There is risk in this. We need to develop remedial methods that are affordable in both carbon and cost terms.”

McNaughton develops the theme: “After 200 years of railways, a lot of our standards, specifications and techniques have been built up empirically, based on accepted practice. But when you look for the fundamental science underpinning it, you’ll find there isn’t any.

“Look at Hatfield: rolling contact fatigue. After the crash, extensive research was done to establish limits from first principles of what was happening at the wheel/rail interface. That research doesn’t happen so much with other aspects of infrastructure. For example, we now want to take a lot more freight trains. Will we ▶

► be putting weight limits on old bridges?

“We can’t just keep building new infrastructure; we have to extract more use from what we have already got. One of the priorities for CP7 is to research what the limits are, in a future with more traffic, because we are not going to spend tens of billions of pounds trying to renew it all. Then, when we do renew it, we are not going to do so with bonkers over-engineering.

“Example: the high-voltage lab at Southampton demonstrated that we did not need huge clearances when putting overhead line under existing bridges. We applied the new standards that came directly from that research to the Wigan-Bolton electrification. There are 14 bridges on that line - 13 were slated for reconstruction to fit wires underneath. But using the new standards, 13 of the 14 did not need reconstruction. That is fundamental stuff: an order of magnitude reduction in cost, from one piece of research.

“A few million pounds on research can lead to hundreds of millions of pounds of savings.”

Powrie chips in: “Part of giving engineers confidence is really understanding how structures behave over time. If they don’t really understand that, they choose massively over-cautious solutions.

“What has changed in the last decade is the ability to process tens of millions of data points, to provide that understanding and confidence. We have a track-testing rig. If we are doing three million cycles, with at least ten data points per cycle, you’re talking 30 million data points; tests that could not possibly have been done in the past, replacing a traditional method of design based on empiricism.”

Doing more for less: using sensors

Money will be tight in the next funding period. Unions warn of managed decline, and our sister publication, *RAIL*, has highlighted stories suggesting Network Rail will carry out fewer repairs over the coming five years, and prioritise maintenance on routes that make most money.

“We will have some money to dedicate to research, development and innovation,” reassures Gareth Evans.

“One of my objectives is to create a long-term road map. Managing more extreme weather events in a financially sustainable way, with minimum disruption to passengers, all kind of rolls up into a really strong need for the industry to have some dedicated R&D.

“We could envisage a time where the majority of our asset inspection is automated. Sensor technology is developing and becoming more reliable. We are getting better at monitoring large data streams through our intelligent infrastructure programme.

“Equipment to monitor track geometry can now be fitted to service trains. No need to run a special train; it can fit to a Class 800 that is doing ten or 12 journeys a day. If we then fit several Class 800s, we get a very large amount of data each day. We have to

“If you rebuild any old structure to modern standards, being conservative in your assumptions and adding layers of safety, you end up with completely over-the-top engineering.”

*Professor William Powrie, Geotechnical Engineer,
University of Southampton*

The South West Main Line was severed in February following a 44-metre-long landslip at Hook in Hampshire. Developing a better understanding of the mechanisms for infrastructure failure has been identified as a priority for CP7. NETWORK RAIL.



present that information stream in a way that is useful.”

“I think they will spend the money on research,” says Powrie. “My concern is about making sure it is spent on the right things and in a joined-up way.

“The things in my life that have gone well are the things that had a consistency of purpose throughout; a set of principles, some goals to achieve that I worked towards. It’s not an original thought; the Duke of Wellington said the same 200 years ago. The frustration is that the industry does not have this over-arching goal, this coherent strategy.

“That has got to be cost and carbon reduction, understanding asset condition and how the assets are going to evolve over time.

“We are not a commercial organisation, but it does seem that not everything is being done wisely. A lot of suppliers want to sell stuff to the railway in a manner that is not joined up. Opportunistic bits are being done here and there.

“We have done a lot of work on reducing settlement rates of ballast. It could save huge amounts of money, but I’ve found that nobody really has the incentive to apply it. Our concern is that they always measure work done by money spent. The danger with the industry is that it can spend a lot of money for little result.”

“The regulator has highlighted that we are not always successful



“There are unknowns about the age and condition of some of our assets. We are looking for new technology that will help us understand asset condition and the risks associated with that.”

Gareth Evans, Head of Rail Technology, Network Rail

at taking a research idea to adoption around the business,” admits Gareth Evans. “There are obstacles to overcome in terms of the way we are structured, the way we interface with our supply chain and run our procurement. We have to do that, and more rapidly.”

“We could be much better as an industry at rolling out research, and deploying it,” agrees David Clarke, technical director at the Railway Industry Association, which represents the supply chain. “We are not as good at that as we should be.

“We have had a boom and bust of activity. There is no shortage of innovation - what is missing is the infrastructure owner not always articulating the problem or saying what fixing the problem is worth.



“There is no shortage of innovation - what is missing is the infrastructure owner not always articulating the problem or saying what fixing the problem is worth. There is no pipeline of work for our members to invest in.”

David Clarke,

Technical Director, Railway Industry Association

There is no pipeline of work for our members to invest in. That does not make the industry efficient, fast or cost-effective.

“We have had situations where there has been a competition to find a solution to a problem, and the private sector has found only one workable solution. Then the procurement gurus have come along and told the public sector that it can’t just buy that solution; there must be a competitive process even though only one person has what is required.

“Everyone knows this: the private sector needs confidence to invest in a pipeline of work; it needs greater openness about what the challenges are and what the value of solving them will be. A whole-system and long-term view to make the right choices.”

Culture change

“A culture change is needed at Network Rail,” says McNaughton. “This is troubling me. For ten or 15 years, money was no object. It just went on the credit card that was the regulatory asset base. Real costs have risen very considerably as a result.

“The engineers have not been incentivised to save money. The best engineering happens when you can demonstrate that you don’t need to do something. You get more out of what you have already got.

“Renewing something is often seen as the easier solution. Tweaking something to get another 50 years of life requires some real engineering.

“Where the research community demonstrates how to do things better, ideas have to be taken up quickly and universally. The rail industry has a lot of distractions at the moment, but it has to learn to deliver more effective infrastructure at lower price. It should be seizing the results from universities.

“It’s a classic challenge in any society: you have early adopters on one side, and on the other, people who think the earth is flat. The bulk in the middle need to chase the early adopters and not the others.

“Too often at Network Rail, a cheaper, more effective, longer-lasting infrastructure design will appear. And the people in the middle say, ‘We’ll watch what happens to the early adopters’. For what? 30 years or 50? This is about engineering leadership.”

Powrie concurs: “Network Rail needs the nous and confidence to do things better and more cost-effectively. And it needs to want to do it. That is a cultural change. Our role is to support them, to help draft the new standards.”

McNaughton adds: “A challenge for CP7 is that money will be tight, particularly if there is rampant inflation on construction work. There will be a temptation only to commission research on short-term tactical problems and leave the strategic issues. The railway will be around a lot longer than a five-year funding period; you can’t just fix today’s problems by tomorrow. Some research is about improvements in CP8 and CP9.”

“A vision of creating a lower-cost, zero-carbon railway is important, but a cultural change is essential,” says Powrie.

“Without it, we get gold-plated, bombproof engineering that is unaffordably expensive and therefore doesn’t happen at all.” ➤

Testing, testing, one, two, three... four

There will soon be four rail test centres in the UK, each very different. Network Rail's Rail Innovation and Development Centres (RIDCs) at Melton Mowbray and Tuxford are the best known. Porterbrook bought the ex-military Long Marston site in 2021. Formerly home to Vivarail, it has a limited-use test track and is primarily for storage. The new kid on the block doesn't even have tracks yet, but GCRE Wales is set to become the dominant test and research facility in years to come. It is on the site of a former open-cast coal mine.

"We need to look at new technology that will make the railway more efficient, more effective, more globally competitive, making the supply chain work better," says Mike Noakes, head of rail at the Department for Business and Trade.

"It's apparent to me that the testing facilities in the UK, and indeed across Europe, are sub-optimal," Noakes says. "Velim in the Czech Republic is fine for whizzing round fast, but you have to wait months to get it. Wildenrath in Germany is used most of the time by Siemens. The only place we can test infrastructure properly is at Pueblo in the Colorado desert.

"There is a general feeling that if we get GCRE set up properly, we can get innovations onto the UK railway in something like two years, rather than between five and eight years. And sort out a whole raft of problems.

"If we get the risk-reward profile right, a lot of the money for this ought to come from the private sector, because that is where a lot of the advantage will fall. Coming from the Department for Business, my interest is focused on the supply chain and the benefits it can bring."

"The Network Rail centres tended to be for testing trains," says David Clarke, technical director at the Railway Industry Association. "They were about mileage accumulation. In more recent years, they have started to test infrastructure as well - a realistic environment where you can bash seven bells out of it to check reliability. But even more important now is integration testing of new technology.

"They have never really been able to satisfy demand. Getting affordable access has been a problem. GCRE offers to do all this and more, but I don't think that necessarily makes Melton and Tuxford redundant. And GCRE is offering things the others do not."

Noakes persuaded his Minister at the time, Kwasi Kwarteng, to

put money into getting GCRE off the ground. A larger sum came from the Welsh government.

"Crossrail is amazingly successful and in time will be found to be great value for money," Noakes says. "But we could have got it in earlier if we had tested all the integration issues in a different environment, which we could have done somewhere like GCRE. I am absolutely content there is a market for it. And the uplift for the local community is really good - it will make a major difference beyond the rail industry. It's not there yet, but this does feel like the real deal."

GCRE Wales

GCRE stands for Global Centre of Rail Excellence. Which is quite an ambitious - even grandiose - name for a brownfield site that so far has no tracks, no offices and no work. Just the black, bleak wasteland of a former coal mine on the southern edge of the Brecon Beacons. It sees itself as the future of rail research not just in the UK, but for EU customers as well.

The site is huge. At 700 hectares, it is about the same size as Gibraltar. Or Gatwick Airport.

Connected to the former colliery line, the plan is to build two loops and many sidings. The outer loop will be for testing trains at up to 125mph. It will have ETCS level 2 and 3 and be capable of automatic train operation. It will be gauged for European trains. The inner loop will have standard Network Rail signalling and ETCS overlaid.

The loops will be able to operate together or independently. The link to the external railway will be on a steep 1-in-37 gradient.

"Let's talk about through-life testing," says Andy Doherty. Previously Network Rail's chief technology officer, he now fulfils the same role for GCRE. "If we were in aerospace, or military, or oil and gas, we would talk about whole-life asset management. They test cradle to grave.

"A few months ago, Rolls-Royce ran up a brand-new Trent engine and blew it up. They took it to destruction. They wanted to know everything about the life of the engine, how and when it would start to fail, and what happened as it failed.

"The railway has traditionally not done that, because we have not dared to test on the main line to that extent. But we cannot afford

A strategic gap in UK and European rail

There has always been a missing piece of the jigsaw in rail testing and, particularly, infrastructure innovation

UK & Europe lacks an integrated facility to test infrastructure, rolling stock, signalling and new technology

Infrastructure design and innovation in the UK has been slow to move on owing to a lack of adequate testing facilities

Rolling stock is tested in over-subscribed European facilities and infrastructure tested in USA

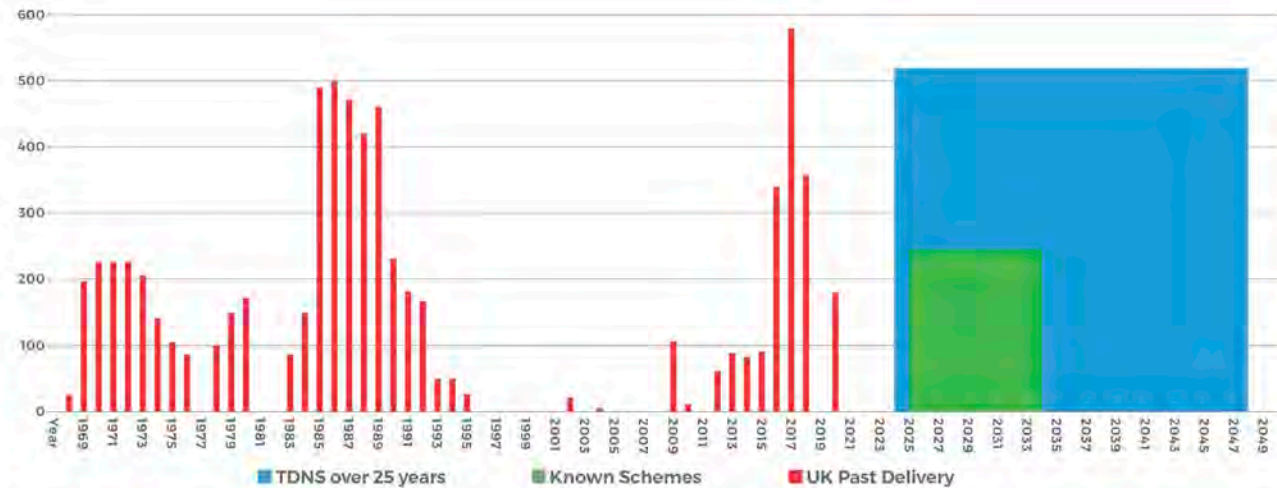
Results:
- Innovation deferred, delayed or denied - standards lag not standards led

- Inadequate testing on mainline

A facility for whole life, endurance testing & validation of infrastructure would make GCRE unique in the UK and across Europe

UK railway electrification has been uneven and is currently well below the levels required for a net zero railway.

Railway electrification (single track km per year)



NOTES: - The green histogram represents the volume of electrification indicated across: Transpennine Route Upgrade, Midland Mainline, Cardiff Valleys, Planned Scottish Decarbonisation programme. These are not all yet funded. - The blue histogram represents the volume of electrification (c13,000km) identified as necessary to achieve net zero in the Transport Decarbonisation Network Strategy.¹³

Source: RIA Analysis.

for things to go horribly wrong.

“So, our plan is to run a heavy train all day and vary the infrastructure. We could run it round and round, day and night, in a way that cannot be done elsewhere. Changing the various parts: switches, overhead line, and run again for weeks, until things fail; test to destruction.

“HS1 has a planned asset life of 40 years. The investors are keen to know if 40 years is accurate. If it’s 35 years, the bankers have a problem. If it’s 45 years, they’ve missed an opportunity. We can see when failure occurs. That means HS1 could plan more accurately: what could they do to extend operating life or avoid early failure?

“The government wants to know what Network Rail costs to maintain the average condition. Network Rail’s 40,000 bridges, viaducts and tunnels are getting older. It can change 200-250 a year. Meanwhile, 39,000 structures get five years older in each control period.

“I think Network Rail will move its whole R&D process to GCRE, because it cannot test on its own main lines. Then funding won’t be based on a guess on how the long the asset will last. Better tests and trials will bring better management of the asset.

“If you can get another five years of life out of something, across 20,000 miles of railway and 40,000 bridges and tunnels, the saving is substantial.”

Diggers are now moving 3.5 million cubic metres of earth around the former mine to create the base for the track. The plan is for sidings to open in a year or so. Laying the main track will start in 2024, with the whole site opening in 2025.

“Where GCRE has a huge opportunity is now, in the building of it,” says Professor Powrie.

“Because they’re on coal measures - a material engineers don’t know that much about - there is an opportunity to learn about building embankments with coal measures - useful for HS2. We can build the track in different ways. We can put in different sorts of drainage. But all of that needs to be done now; these are not things you can build retrospectively.

“It needs to trial innovative construction now, associated with laboratory tests and instrumentation to see how that construction evolves. The opportunity is to build in ways that could save money and carbon over the next three or four decades - a long-term plan.”

GCRE is owned by the Welsh government. It has £70m of public sector funding: £50m equity investment from the Welsh government and a £20m grant from London. Starting last January, it is now raising £330m from private sector investors, a process it hopes will be complete in October, when it will transfer to a majority shareholder in the private sector.

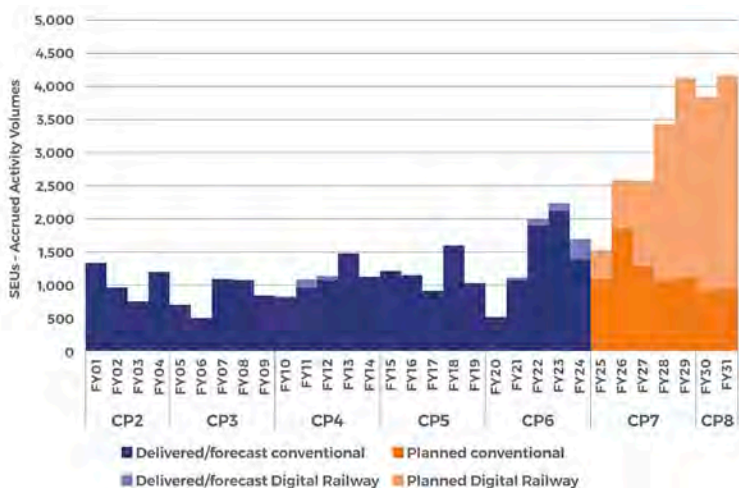
It has already signed a memorandum of understanding with Hitachi for testing rolling stock, digital equipment and battery technology.

Doherty points out that testing in Velim, Wildenrath or Colorado takes time and costs money. GCRE will have sections of normal rail, replications of HS1 and HS2, mixed with new composite overhead line systems and more.

“The outer loop is Class A signalling of the future, the inner loop is old Class B Network Rail,” says Doherty. “If you run them together as a figure of eight, you get the transitions, like Crossrail transitions between old and new. Crossrail spent £3 or £4 billion over four years to get those transitions right. We could have saved Crossrail years. Thameslink took a long time as well, if you remember. HS2 ▶

Source: Office of Rail and Road.

There is a substantial increase in signalling required, not currently funded



► is coming along. Brand-new railway to Crewe, then old railway. Wouldn't it be good to test all that off the operational network? Run HS2 over the outer loop, West Coast Main Line on the inner loop. A dynamic handover from signalling systems, one interlocking to another. Replicating the real world - we can do Crewe five years before Crewe can."

The whole site aims to be carbon net zero. There is a wind farm to the south and planning applications for two more on the site boundary.

"We have already bought ourselves a static frequency converter," Doherty enthuses, "which enables us to connect to the renewables on one side and to the railway on the other. We will be able to run off-grid. We will need to connect to the National Grid to stabilise the system, but in principle we will run our complete site net zero. We will make hydrogen on site and a biomethane process will come in."

There will be a research park and a hotel. Rail research from the University of Birmingham will move in. The model is based on Silverstone and MIRA in the car industry - create a spacious new site around a central world-class facility, and leading technology companies will come.

Andrew Johnson, GCRE's head of strategic communications, explains: "The Welsh government owns us, and for them this is an economic development play. This site is part of the South Wales coalfield, an area of multiple deprivation. We bring new skills, new jobs - as many as when there was a mine on the site.

"This will support research not just in Wales and across the UK, but will tap into a strategic gap that exists across Europe. Infrastructure owners in France, Germany, Belgium and Spain all have the same issues of where to test and certify new stuff. A number of European companies have already approached us. We've been talking to the EU.

"Since Brexit, for a British company to sell into Europe, it now has to be certified to European standards. To sell into the UK, a European company has to be certified the UK way."

"At the moment, that is a bit of a porridge, bluntly," Doherty interjects. "But this site will be set up to do certification, whether

for importing or exporting. The Government will like this, because it brings money into the UK. We are offering something that cannot be done elsewhere - that's what we are about."

Long Marston

Train-leasing company Porterbrook took over the Long Marston Rail Innovation Centre in 2021. Since then, it has invested £10m in the 135-acre site near Stratford-upon-Avon.

"It was a bit of a train graveyard for gently decaying old stock," admits Alice Gillman, head of business development. She transferred from former tenant Vivarail. Most of the site-stored stock of former London Underground trains owned by Vivarail has since been sent for scrap.

"We have been upgrading. The test track is useable and safe. We have put a 5mph speed limit on it. That's not ideal; we know that. Potentially electrifying it is a long-term project. In the meantime, we have opened an asset management facility - three roads with pits, power supply, heating and a roof. It's an upgraded Second World War military building, but you wouldn't know it."

The roads can take a six-car train set. The aim is to attract modification and refreshment work, along with inspections, testing and commissioning.

It's true that Long Marston - home to Rail Live - has seen better days.

"Short-term, it is storage, light maintenance and some projects with Network Rail," Gillman says. "We have improved the basics. From my perspective, the emphasis needs to be on new traction technologies. We know 100% electrification is never going to happen.

"We have such a depth of knowledge now about these technologies. Both Porterbrook (with its HydroFLEX train) and Vivarail (with battery power) went out on a limb, on the basis that government was going to encourage alternative traction, to help decarbonise. It's five years since these projects kicked off, but nothing has happened since they were both demonstrated at COP26 in Glasgow.

"What we all need is to avoid this constant switching and delaying of decisions. We need a pathway, a framework from government."

Network Rail's New Measurement Train stands at Melton Rail Development and Innovation Centre on September 5 2022. The 13-mile test track is currently fully booked for compatibility testing of rolling stock with the latest ETCS signalling technology as part of the East Coast Digital Programme. PAUL STEPHEN.



RIDC Melton and Tuxford

Network Rail has two test tracks - what it calls Rail Innovation and Development Centres.

Melton - known to many as Old Dalby - is a 13-mile rolling stock test facility, with 11 miles of both overhead and third-rail power. It can run trains at up to 136mph. Melton is busy with compatibility testing of rolling stock and infrastructure, and is fitted with the latest ECTS signalling, enabling trains to tell each other where they are on the track.

Tuxford (known to many as High Marnham) is ten miles of largely single-track, non-electrified line, where trains can only briefly reach 75mph. NR uses it for testing and validating its yellow machines. It has also been used for testing hydrogen and battery power.

"We've enhanced Melton with telecoms," says Peter Ellis, director of production services at Network Rail, "creating the backbone for a 5G system to improve connectivity between rolling stock and lineside equipment. We are working on the 'internet of things' to use telemetry and reduce the need to have people trackside."

Both sites are also used for staff training - Tuxford has recently had a £2m investment in training facilities.

"Melton has been used a lot for testing new trains and mileage accumulation prior to service entry," says Ellis. "But the dynamics are changing. We are unlocking capacity within the very large train depot we have there. And doing more infrastructure work."

"There isn't much new rolling stock coming. Starting about 12 years ago, the Department for Transport invested significantly in new trains. That brought the average age of the fleet down to 14 years. We are now hitting a plateau where that investment is going to decline. There will be fewer trains needing testing, which is why our sites are diversifying into infrastructure work."

"We did the testing of OLE mast foundations at Tuxford - High Marnham we called it," says Powrie. "They wouldn't let us do it on the actual test centre line, in case it wrecked their embankment. There was a spur on an old embankment, and we did everything there - a redundant bit of a redundant line. And we had to jump through more hoops to demonstrate we wouldn't damage anything than anybody had to do vibrating new piles for OLE beside the Great Western."

"The test centres have a role - they should fit between what we do in the lab and what happens on the railway - but we've been unable to get into the current test centres because they have got contracts for mileage testing of new trains. They are really no more risk-averse than the main railway; they don't want to test something that might not work, and which might need repair afterwards. Even the infrastructure loop at GCRE Wales is going to face the same problem, not wanting interventions that risk losing the railway for a period."

Are four sites too many?

"It's a good thing to have diversity of test centres," says Clarke. "And a degree of competition. GCRE looks like it will be pretty slick and professional. That will be a nudge to Network Rail to offer a competitive service to the supply chain."

"There is probably room for all of them," says Noakes.

"People will need a lot of research relating to a world with a changing climate - much will depend on how highly we value saving carbon, at which rail can excel."

"Long Marston is a short loop. You can't go round it fast, and it's not electrified. Melton is more of a straight line. And the neighbours won't allow testing day and night. GCRE represents a fresh start."

Gillman says: "RIDC Melton has a high-speed line, but it is straight and fully booked. When GCRE opens, it will soon be turning business away. And we will be there. There will be work to share."

"Long Marston can do testing of trains, but only at low speed," says Doherty, who was familiar with all the sites during his career at Network Rail. "Melton can test trains, but it is linear. And it has severe restrictions on use: it can only run 0800-1800 and not at weekends. Network Rail's safety case applies at Melton, which means what they can do is very restricted."



The GCRE was initially supported using £140 million in public funding while a tender has now been launched to secure a further £330m from the private sector. GCRE.

"At GCRE, we can exclude humans from the site, so we can test to failure. We can operate 24/7 - the neighbours here were used to a coal mine, so this will be much quieter. And we will be net zero."

"The GCRE threat is around going into infrastructure and endurance testing," concedes Ellis. "They will have the capability to accelerate the time it takes to validate on the short oval."

"We are in the same industry and face the same challenges. I think we need to work to complement each other in what we offer, for the benefit of the whole industry."

"I start with the question of what the testing sites are for," says McNaughton. "They are basically to shake down mechanical equipment. Run a train for thousands of circuits, to give confidence that it can run on the real railway."

"You can test a loading on a piece of physical infrastructure, but it takes a long time to build up the data. The University of Southampton can age that piece of infrastructure at a frightening rate in its centrifuge. The problem with these places is they are halfway between a laboratory and the real railway - testing tends to be somewhere that doesn't matter very much, because it isn't used very much. And then you don't learn very much."

"I've always seen the main value of test tracks for shaking down new designs of trains. New designs don't come along often. My worry about having another testing site is that there might not be enough work to go around. If GCRE takes off, it could be spectacular, but I am not sure what will be tested there."

Powrie adds: "It will be limited in the risk it can take. We can do a lot in the lab now, and we can do it very quickly. We can replicate a few years on the West Coast Main Line in a few days, in a way you cannot do with a train running around a loop."

"These sites have a real opportunity as training centres," concludes McNaughton. "Not testing, but training. You don't want a new engineer to install some new sophisticated kit first time out on the ECML on a Saturday night block. Training site technicians, artisan people and supervisors in a new technique requires a safe place."

"Why do the Swiss install a mast base every ten minutes - six an hour - when we are lucky to do six in a shift? Because the crews are trained off-site. I think there is a real commercial opportunity for the test tracks to train the next generation of infrastructure deliverers." ■

Control Period 7

This article effectively presents the challenges faced by Network Rail in terms of cost pressures, infrastructure condition, and the impact of climate change.

The contributors rightly emphasise the need for a comprehensive understanding of asset conditions and deterioration rates to inform effective decision-making. This understanding is crucial for optimising resource allocation and ensuring the long-term operational sustainability of the railway system. At RSSB, we are developing a number of tools and resources to assist in these areas.

As my colleague Ali Chegini noted in *RailReview* Q1-2023, the combination of new and existing data sources can result in a step-change of the information that is available to assist in decision-making, and is a good example of research becoming reality. Our T1269/PRIMA work are examples of using data to make sound, transparent decisions using RSSB's capabilities in big data insights and risk modelling - capabilities that would not have been available to the railway industry without investment in research.

Both Andrew McNaughton and William Powrie comment on standards and gold plating, so it's worth reflecting on the primary purpose of standards - to reduce cost. But this only happens when they are fit-for-purpose and used appropriately.

Standards often codify the learning and experience of those who have gone before, essentially documenting good practice for the benefit of all. However, with the challenges the industry faces, simply doing better what we've done before will be insufficient. We also need to do things in different ways and do new things!

Here, industry research is vital, and its findings need to be disseminated in practical ways so that end users can confidently use

“Investing a relatively small amount in research can result in significant cost reductions and improved efficiency in the long run.”

The Trades Union Congress recently published a report looking at the scale of public transport expansion required to meet the Government's carbon emission reduction targets.

By 2030, there need to be 80% more passenger kilometres travelled than today.

Achieving this capacity increase has been estimated to require an average additional £7.5 billion of capital expenditure per year.

Put it another way - capacity on our railways needs to nearly double by the next decade.

The targeted and significant increase of capacity on our railways is (and should be) considered mission number one, and in turn should be steering all other targets accordingly.

Secondary pressures therefore become: How do we do this while managing a degrading asset? How do we do this while dealing with increased extreme weather events from climate change? How do we deal with the chronic shortage of skilled people to maintain and build out the railway system? And yes, how do we make best use of available revenue and capital funding to achieve these aims, even if those numbers are currently woefully behind where they need to be?

You cannot steer a ship blind. Research is the key to unlocking opportunities that will enable the railway to chart a course through all of these questions to achieve that enormous capacity increase.

So, it is useful to read the tone of agreement between the voices that Paul Clifton has canvassed in his piece on research priorities for Network Rail's next funding period.

Indeed, straight off the bat we have railway grandee Professor Andrew McNaughton stating that we need to be using our infrastructure "more intensively, for more passenger trains as well as for more and heavier freight trains". It is critical that the need



Paul McLaughlin
Chief Commercial Officer, RSSB

them and gain the benefits from the research. This is exemplified by many RSSB standards being informed by the cross-industry research programme that we run, with standards driving the questions research needs to address and research findings driving changes to standards.

I appreciate the article's focus on reducing costs and carbon emissions, as these are key priorities for the rail industry. The Sustainable Rail Executive (industry leaders committed to driving improvement in environmental and social issues) has been working on a *Blueprint for Sustainability* across the railway, with carbon reduction being a key pillar.

The Blueprint is comprehensive, covering 11 priority aspects such as air pollution, noise and waste reduction, and it will help the industry achieve our sustainability targets and keep rail's advantage.

Rail is the least carbon-intensive mode - we often talk about the low carbon footprint as one freight train can take the equivalent of 76 lorries off the road. But what happens when road catches up?

Electric buses are already a common sight in London, with lorries bound to follow. Committing to Net Zero is a competitive advantage for rail, and one that we should not shy away from. And, of course, the Network Rail response to the PR23/CP7 funding review has already stated that it needs to cut back on investments aimed at capacity and performance enhancements, because of the



Gareth Dennis
Track Engineer

for the railway to grow, not just stand still, is appreciated at the top levels of industry.

However, the overriding theme is that the railway is being pushed into a position of managed decline. As we've seen in recent press coverage, Network Rail is being forced to reduce its expenditure across the board, so it is interesting to read that Gareth Evans believes that investment pressures are still secondary to the lack of understanding of the state of the railway asset.

And I would agree with him. It is just that the long-term road map of research funding he talks about doesn't seem to have any dedicated, ring-fenced funding associated with it - and that makes it difficult to see that the research objectives will be suitably funded, as good research requires longer timescales than a five-year cycle. Andrew McNaughton later makes this point himself.

Paul moves on to talk about the deployment of solutions, and it is here where the industry is weakest. I would argue that the failure to replicate British Rail's research division, with a direct pathway to industry for its innovations, has been a key post-privatisation failure.

Speak to any of the members of UKRRIN, be they university staff or the private suppliers who sponsor or input into the research,

ever-increasing financial burdens placed on the railway from climate change adaptation.

The article rightly emphasises the importance of research and innovation in not over-engineering new solutions, and of getting more from existing assets. RSSB worked closely with University of Southampton and Network Rail on electrical clearances, and the cost reduction achieved is a prime example of how targeted research can yield substantial savings.

Investing a relatively small amount in research can result in significant cost reductions and improved efficiency in the long run. The recently published research from RSSB on freight coupler strength is a good example of going back to first principles, re-looking at the assumptions which were used at the time, and re-engineering standards to modern levels. An increase up to 13% in the number of wagons in freight trains is now possible, and work close to completion on the tractive effort of freight locomotives will further unlock increases in freight train lengths.

The article would benefit from further exploration of the role of data-driven technologies and digitalisation in achieving these goals. The integration of sensor technology, automation, and intelligent infrastructure can provide valuable insights into asset conditions, enable predictive maintenance, and optimise resource allocation. These advancements can contribute to both cost reduction and carbon emissions mitigation.

This area is similarly missing from the excellent review of testing facilities. While it is clear that more (and better) testing sites are required in the GB rail sector, there is also opportunity to do less, more targeted physical testing and increase the use of virtual testing. Virtual testing fed by both main line data and data from test facilities where accepted limits can be pushed can get us to a point of much greater certainty prior to going anywhere near a physical test site, let alone the main line railway.

and the complaint will always be: "We have no route to market." In other words, researching the solution isn't the problem. Testing the solution at scale in the real world, such that it can be deployed as a product, is.

Andrew McNaughton goes on to talk about culture, giving the example of choices to replace rather than refurbish. I agree that the best solution from a cost and carbon perspective is to sweat the asset (albeit a lot of railway assets have been sweated half to destruction already). But he omits one key point - the replacement and renewal of bridges, signals and other assets is far less labour-intensive, particularly in terms of design skill, than refurbishing, retaining or otherwise reusing them.

And without any long-term pipeline of work, the pool of design engineers available to deliver any type of infrastructure upgrades is diminishing. It might cost less to refurbish a bridge, but if you have no engineers to design and build that solution, you have to go with the solution that gets built. When one bridge can take 20 weeks of design time alone, you can see the problem.

A last word on railway testing facilities. Given the need for railways in the UK and further afield to increase their capacity to reduce greenhouse gas emissions, there should be enough demand for all four of the discussed test tracks to function and indeed expand.

However, given the chronic lack of commitment to the future of the railways, I'm not so sure the four facilities Paul describes will survive long enough to reach this Utopia. We've seen what happens to multi-million-pound bespoke railway facilities in the face of zero long-term planning - like the excellent high-speed rail college in Doncaster, they close their doors and are abandoned, awaiting demolition.



Daisy Chapman-Chamberlain Innovation Manager, East West Rail

Looking to CP7, the excellent contributors to this article are entirely correct that climate, and weather impacts and readiness, must occupy a good chunk of the budget.

As Gareth Evans puts it: "Last year's hot weather, in particular, made a lot of people sit up and take notice of how ready the railway is for changes in weather and climate". An entirely accurate assessment.

Many people tend to think of snow and ice as being the main disruptors for rail, especially in the UK. But the reality of a warming climate, combined with more frequent and regular extreme weather events, must disabuse this notion.

The million- (or indeed billion)-pound question, however, rears its head when we look to spending. There is undoubtedly a need to optimise research, innovation and investment spending to maximise the impact of taxpayers' money (as Professor McNaughton phrased it: "A few million pounds on research can lead to hundreds of millions of pounds of savings"). But this cannot and must not be at the expense of safety.

We need a frank assessment of the financial, social and risk balance between spending, climate, safety, value, carbon and others - a complex piece of work to say the least. Proactive and predictive smart monitoring and maintenance, especially regarding extreme weather, must also take precedence. The tragedy at Carmont serves as a sad reminder of this, both in terms of drainage systems themselves and reactive weather procedures.

McNaughton's comment about 'engineering leadership' is also well-taken. Not only relevant to Network Rail, the ambitions of the Global Centre of Rail Excellence as outlined in this article represent the UK's ambition to remain at the forefront of rail technology development. This is also a central goal for East West Rail - enabling efficient spending to maximise innovation outputs, learning from our industry colleagues rather than duplicating work, and reducing carbon and environmental impact, all while minimising impact on local communities.

None of these goals are simple. But working in collaboration with national and global industry partners, and indeed those beyond the rail sector, will allow us to maximise spending benefits while minimising risk and carbon.



Construction continues in early May at Winslow station as part of East West Rail. KIM FULLBROOK.

The repercussions of HS2 delays on rail freight



In March, the Government announced that parts of the HS2 programme were to be delayed by at least two years, to save costs and rebalance spending.

The announcement was shortly followed by the cancellation of the smart motorways programme and the scaling back of some other road projects, suggesting a clear mandate from HM Treasury to the Department for Transport to reduce capital spending across the transport portfolio.

Given the current fiscal position, the struggling economy, and the short time remaining before the next General Election, the cutbacks perhaps come as little surprise, freeing up cash for more immediate issues. Nevertheless, they are not without their implications - not least for rail freight.

The delays to HS2 are multi-faceted and focus the development essentially on a core section between Old Oak Common and Birmingham, with all other parts delayed or paused.

This includes the section between Euston and Old Oak Common (where all work has stopped, including the imminent start of tunnelling which freight operators were ready to support), deferment of work north of Delta Junction on Phase 1, and deferment of Phase 2A works (although design work is to continue).

Phase 2B (Crewe to Manchester) will continue to be progressed through the Hybrid Bill, but no further design work will be undertaken. And minimal work will continue on the planning for HS2 East.

The most immediate effect of this for rail freight is the construction schedule. Rail freight is already well integrated into the build programme, both for removal of tunnelling and other waste, and for the delivery of construction materials including stone and cement.

HS2 recently held an industry event at Tunsted Quarry (near Buxton) to celebrate ten million tonnes of materials delivered by rail to date, with a further ten million tonnes expected over the remainder of Phase 1 construction.

This is indeed a huge success, but one that has required significant investment from HS2 and their contractors, the rail freight operators, and the suppliers - including construction companies such as Tarmac and Cemex.

This investment - including wagons, terminals, handling equipment and most importantly staff - was underpinned not only on Phase 1, but on the extended programme, with Phase 2A expected to follow seamlessly on.

There is a risk now that a hiatus between the phases means that equipment and people are deployed elsewhere (for example, Sizewell construction) or, in the worst case, that there will be job losses. In any case, it is damaging to business confidence and future investments, and will inevitably make the later phases more expensive as that increased risk is priced into future contracts.

However, the bigger challenge comes from the impact of the delay on network capacity, particularly on the West Coast Main Line. This affects the prospect of additional paths being released as passenger services move to HS2, and risks capacity crunches elsewhere on the route which could be to the detriment of other users, including freight services.

Getting those additional freight paths relies on existing high-speed trains on the WCML being replaced by HS2 services on the new infrastructure.

Between London and Birmingham this continues to be a possibility, but at a much lower level than before.

North of Birmingham, there will be no released capacity until the later phases are complete. And with new services wanting to go to Scotland, Manchester and elsewhere, this is unlikely to be terribly useful.

At the same time, terminating at Old Oak Common means that fewer HS2 trains will be able to run than anticipated, releasing fewer paths than current planning might have expected.

This should (in time) be resolved once the later phases are reprogrammed, but in the meantime the benefits that should have been realised for freight will also be significantly delayed. Little comfort to those spending £1 billion or more on new strategic rail freight interchanges.

Perhaps of more concern is the capacity implications for the WCML north of Birmingham.

The section to Crewe via the Trent Valley is already incredibly constrained, and there is a real concern that the additional HS2 trains simply will not fit alongside existing users.

Worse still is the section between Crewe and Manchester, which will not be resolved till Phase 2B is complete, and Crewe to Scotland, which remains unresolved with or without the Golborne link.

We raised these issues in our petitions for the Phase 1 and Phase 2A Bills and received some assurances over the phasing of works. But subsequent to this, there has been radio silence on the capacity issues and the plans for resolving them.

Some of this sits with the West Coast Partnership and their programme of work. But there are little or no publicly available outputs from this, and so little comfort for freight operators or customers on whether there will be paths available even for existing traffic, let alone growth.

Enter the Great British Railways Transition Team, and specifically the Commission for a Simpler and More Integrated Railway! In its recent position paper on planning the use of the railway, it cites HS2 and the WCML as

“There is a risk now that a hiatus between the phases means that equipment and people are deployed elsewhere or, in the worst case, that there will be job losses.”



Direct Rail Services 88006 Juno has just left Daventry with the 1216 departure to Mossend on September 19 2019. How will freight constraints on the West Coast Main Line, caused by delays to HS2, affect key freight locations such as Daventry? PAUL SHANNON.

an example of why a more flexible approach to access planning is needed, noting:

“An obvious large-scale example of the potential gains - or losses, if current practice is followed - is the enormous Government investment in High Speed 2 (HS2) and the *Integrated Rail Plan*.

“As HS2 is delivered, the use of two areas of the historic network will become critical to the value the investment delivers: the congested northern end of the West Coast Main Line (WCML), which will have to accommodate Anglo-Scottish services from HS2 alongside existing inter-regional and growing freight services; and the released capacity on the southern end of the WCML which was fundamental to the original case for the investment.

“In each case, if the traffic mix is allocated without regard to overall social and economic value, the losses would be significant.

“The complexity of the railway system in the Midlands and across the North of England creates great potential for perverse effects if the interests of the various parties are not considered together under a single framework with common criteria on value and affordability.”

Although these are just discussion papers, the sentiment is clear: Government does not wish to see the value of its ‘enormous investment’ diminished, so a flexible approach to access is needed to deliver the HS2 services.

Is this code for removing freight? It doesn’t say so exactly, but without some supporting

“This cannot be allowed to blight the most important route for freight in the country indefinitely, so a way forward has to be found.”

investment in the existing network this could well be the intention.

This in turn undermines the investment currently being made by the private sector in new locations such as Northampton Gateway SRFI or Daventry, and potential schemes such as Hinckley or Parkside. And although that combined investment may not be as enormous as HS2, is nonetheless still very significant.

Of course, some parts of this problem (north of Crewe, in particular) are not directly linked to the delay. But the potential slippage in Phases 2A and 2B brings a far greater part of the network into play, particularly if (as many expect) the two-year delay becomes a much longer hiatus in reality. This cannot be allowed to blight the most important route for freight in the country indefinitely, so a way forward has to be found.

This will require HS2 and DfT to be more open about their plans, both for the interim phase and beyond.

Will HS2 trains go beyond Birmingham once Phase 1 is complete? And if so, to where?

How many trains can run from Old Oak Common, and what will this mean elsewhere on the network?

How will those trains fit on the existing network and what are the compromises - with Avanti, other train operators, and freight?

And what planning is actually under way to ensure that freight is not the ‘loser’ when the full service is in operation?

The delay perhaps gives some more time for these questions to be properly addressed, ahead of full scheme development and construction. But, sadly, there is little sign of that in the announcements to date.

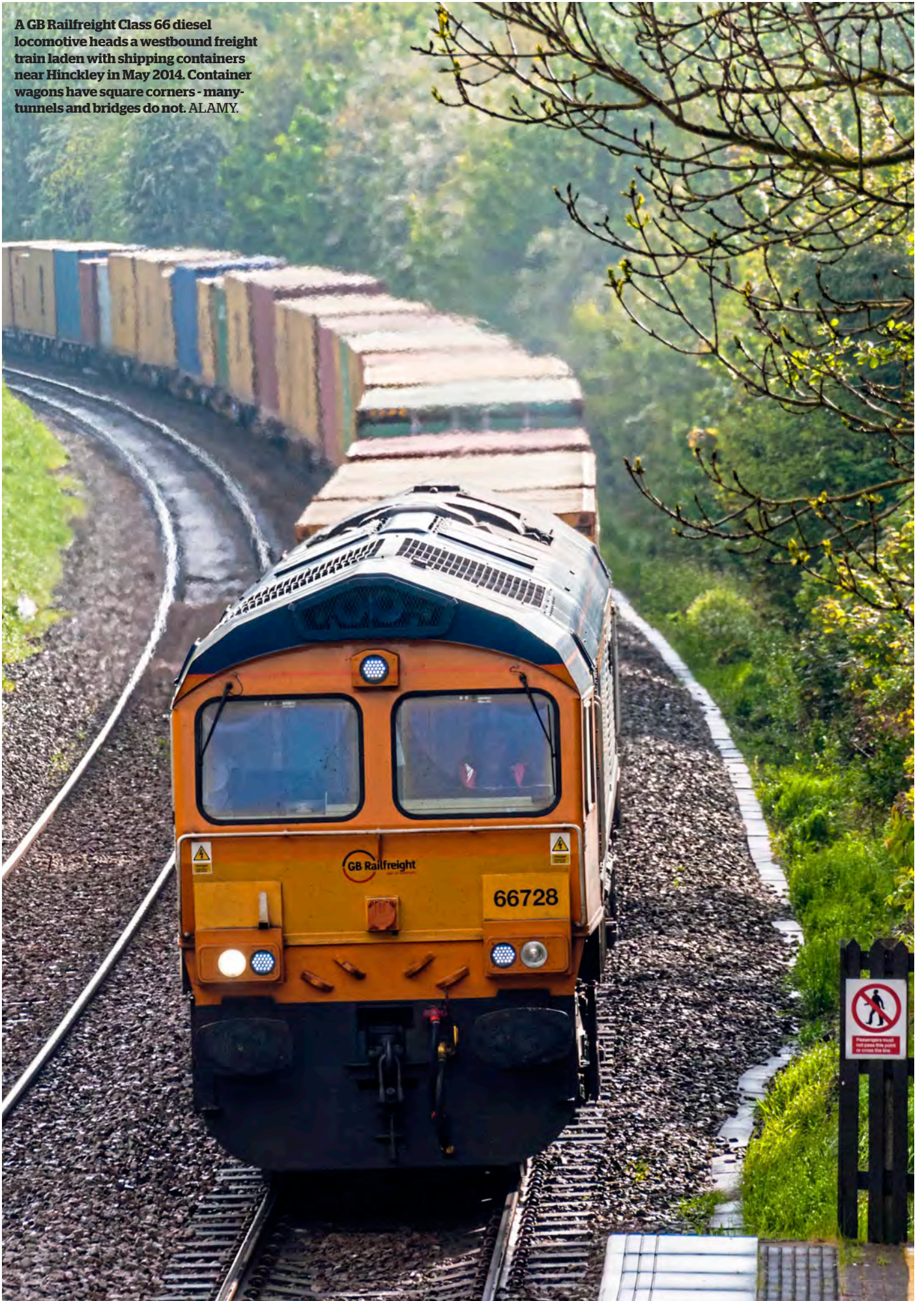
With a General Election looming, it is perhaps naive to think that any difficult decisions could be taken in the next 12 months, but that should at least allow for work to be done and options assessed.

Meanwhile, the demand for new freight services will continue, and the capacity on the West Coast demanded for growth. We cannot continue to delay the way forward for ever. ■

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.

A GB Railfreight Class 66 diesel locomotive heads a westbound freight train laden with shipping containers near Hinckley in May 2014. Container wagons have square corners - many tunnels and bridges do not. ALAMY.



Rail freight and the gauging challenge

To make commercial rail freight more attractive to customers, innovative solutions to gauging must be found and implemented. If only it wasn't such a hugely complex issue. **PHILIP HAIGH** reports

It's the essential item for a country goods yard, but now more likely seen on a model railway. Peco's catalogue lists a few, such as for catalogue number 411, yours for just £5.50.

It's a loading gauge. Essentially a curved bar suspended above the track, it allowed rail workers to check that every loaded wagon leaving the yard would fit under bridges and through tunnels.

Today, the railway has become more sophisticated, but the problem of trains being too large for bridges and tunnels remains. Spain recently provided an example when state operator Renfe ordered new trains in 2020, but manufacturer CAF realised in 2021 that their dimensions were too big for tunnels along the type's proposed operating lines and stopped construction. The problem led to the Spanish transport secretary resigning, as did Renfe's chief.

The problem is most acute for containers. As boxes, they have square corners and most tunnels and masonry bridges have curved sides. The problem comes in two parts: the first is to know where the top edges of the boxes are; the second is to know where the structures are. From this, engineers can assess whether there's sufficient space between the two to allow the train to run.

Over the years, since BR Chairman Richard Beeching suggested introducing 'liner trains' in the 1960s, containers have grown bigger both in height and width. At the same time, Britain has continued to wrestle with a rail network that its Victorian pioneers built too small.

There are various 'hacks' that can ease the problem. Putting containers on wagons with lower decks is one. Shifting the tracks away from the structure (usually downwards) is another. So too is rebuilding bridges above the railway or boring out tunnels to be bigger.

To add to the problem, lines slated for electrification need more room around them to accommodate overhead wires and maintain sufficient electrical clearances to keep people safe.

There's a further challenge: rail freight is commercial. It makes

money or it loses money. It's not paid by government to carry freight; it's paid by customers. Those customers have choices. If rail is too complicated or expensive, customers turn to road hauliers to shift their containers.

Rail Freight Group Director General Maggie Simpson explains: "For a route that's cleared up to what we call W12, you can pretty well get anything that you'd reasonable want to run under it on a normal wagon. So, the East Coast for the most part is W12 where it's cleared. It's not cleared where it's parallel to the Joint Line, but it's the East Coast corridor.

"On a W12 route, you can take a deep-sea container out of Felixstowe or London Gateway; you could take a short-sea container from Tilbury; Teesport will have a mix of deep and short-sea; you can take a refrigerated unit (or most refrigerated units) and you can take a European swap body.

"So, W12 is the gold standard. Coming down from that, there are then different versions which are more restrictive. W10 is the old-fashioned deep-sea container gauge, so if you're coming from the Port of Southampton, for example, pretty much all those boxes are deep-sea boxes, so that route is W10 and it's just a bit narrower. Those are the two main container gauges. Then you get into W9 and W8, which is old-fashioned container gauge.

"Where you've got a properly gauge-cleared route, W12, it's dead simple: you run what you want. Where you haven't, you get into mysteries which baffle everyone, frankly."

Gauges start at W6, which has straight sides and a curved top, essentially matching the profile of an old box van. From there, the envelope contained within a gauge steps upward, with each accommodating higher and wider corners of containers and swap bodies, hence W7, W8 and W9. W10 lifts the height envelope further than W9, but it is narrower. W12 has the same maximum height as W10 on the centreline of the train, but is higher in the outside corners and wider, but not as wide as W9.

Network Rail then adds the suffix 'a' to several of these gauges to show an incremental improvement on the parent gauge, for example W9a as a development of W9.

When combined with the different sizes of containers and swap bodies, and the different deck heights and bogie types of wagons, this results in a complicated matrix of combinations that can or cannot run.

A recent conference held by the Institution of Mechanical Engineers explained the situation. Tim Shakerley opened the event. He's an engineer and a former managing director at Freightliner, which is a major rail carrier of containers around Britain.

The essential mechanical engineering problem starts with the wagons on which containers sit. Shakerley said that track engineers want wagons that don't damage the track, which means wagons with soft, forgiving suspensions (sometimes called low track force bogies). Gauging engineers want rigid suspensions that prevent ▶



"W12 is the gold standard. Coming down from that, there are then different versions which are more restrictive. W10 is the old-fashioned deep-sea container gauge... Then you get into W9 and W8, which is old-fashioned container gauge."

Maggie Simpson, Director General, Rail Freight Group

► wagons, and hence containers, swaying. That's because a swaying container needs more room at its corners.

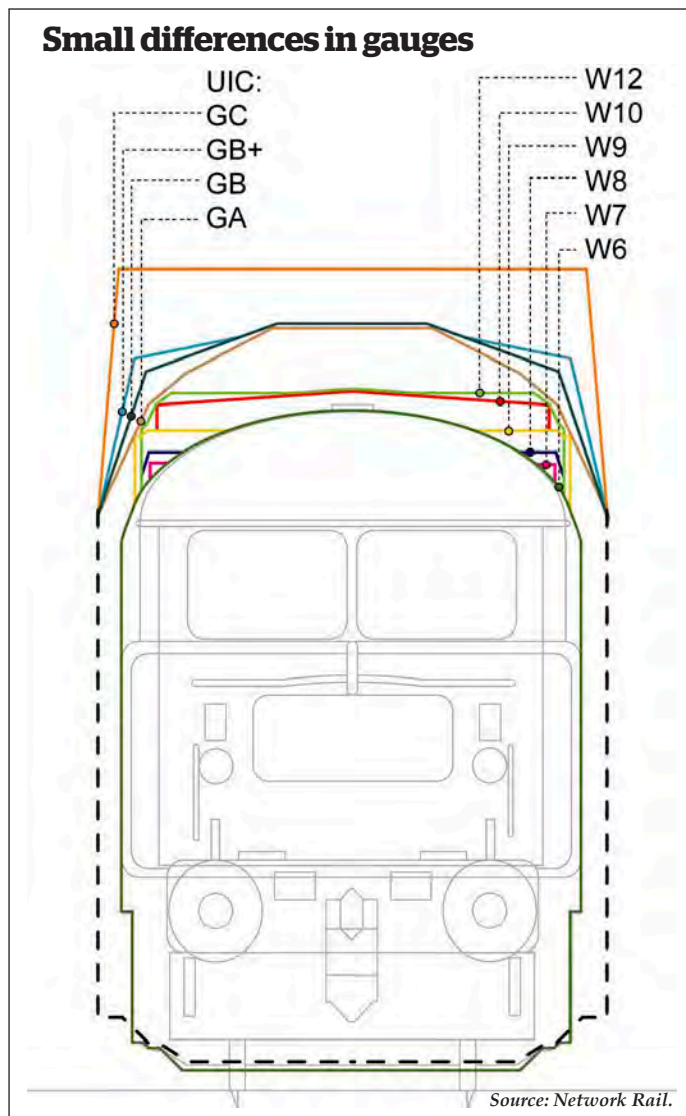
In trying to meet these demands, the bogies of container flat wagons have become more complicated and expensive. By way of example, Shakerley noted that bogie costs are now 40% of a wagon's cost where they had been 25%. And wagon costs had doubled, he added, while maintenance costs were also higher.

So, bogie type and ride characteristics are key characteristics for flat wagons carrying containers and swap bodies. So too is deck height, which ranges from 700mm with an FLA(I) wagon up to 1,230mm on a YXA(R) type. The KTA(A) well wagon gives a deck height of 475mm, which allows almost universal carriage of high-cube containers, but at the expense of lower overall capacity in a train.

A study for the Rail Safety and Standards Board in 2019 noted that a well wagon could carry one 40ft container for every 22 metres of train length whereas the most efficient flat wagon (an Ecofret) could carry one 40ft box for every 13.5 metres of train. Today, the longest freight trains run to no more than 775 metres.

A further important characteristic comes with the distance between the bogie pivots at either end of the wagon. The longer this measurement, the wider the sideways 'throw' of the wagon on curved tracks. While this can affect the top edges of a container, it also brings gauge in the lower sector into play, particularly when passing curved platforms.

This is where the low deck advantage of the KTA(A) can be cancelled out. It sits at the top end of bogie centre measurements, 15.7 metres, because the entirety of its well must sit between its bogies.



“Where you’ve got a properly gauge-cleared route, W12, it’s dead simple: you run what you want. Where you haven’t, you get into mysteries which baffle everyone.”

Maggie Simpson, Director General, Rail Freight Group

If wagons come in different sizes, so do containers. They are the staple of deep-sea freight traffic. The largest ships can carry up to 12,000 TEUs of containers. A TEU is a ‘20ft equivalent unit’, so a 40ft container would count as two TEUs. These 40ft boxes are very common and are mostly 8ft (2.44 metres) wide and mostly 9ft 6in (2.9 metres) high.

On a flat wagon with a deck height of 1,000mm, these containers need to run on lines cleared to W10 gauge. Using a Megafret wagon with an 825mm deck brings W9 lines into play. Swap-body boxes come with solid or curtain sides. They also include refrigerated boxes known as ‘reefers’.

Such boxes generally work short-sea crossings between Britain and Europe as well as Channel Tunnel and domestic services. They are mostly 45ft long, mostly 2.9 metres high (yes, the intermodal world mixes its units), but come in several widths: 2.5 metres, 2.55 metres, 2.56 metres and 2.6 metres. The most common swap body is now the S45 type.

They can run on Megafret wagons on W9a gauge lines (the incremental improvement on W9), but need W12 when on Multifret 945mm deck wagons.

The details of which wagon and box combinations can be run under which gauges comes in the 22 pages of ‘J Tables’ published by the RSSB.

NR provided *RailReview* with some more detail on ‘a’ gauges. It said: “W9a is marginally taller than W9 in the top corners to allow swap-body units conforming to the ‘S45’ UIC profile to be carried on medium-height Megafret-type wagons. S45 is the most common profile used in the domestic, short-sea and Channel Tunnel markets. We are currently in the process of implementing W9a over existing W9 routes, in most cases without the need for physical works.

“W10a has been in existence for several years and permits a wider range of suspension types than the original W10, which was limited to a small number of suspension types. This caters for the softer, more track-friendly suspension of modern wagon types.

“W10a is also marginally wider in the top corners. This allows UIC spigot fastenings, which require a bigger lateral tolerance than twistlocks, to be used on the standard wagons used in the deep-sea market, and also allows S45 swap bodies up to 2.5 metres wide to be carried on the standard Multifret-type wagons used in the domestic/short-sea/Channel Tunnel markets.”

Into this confusing picture come two schools of thought, according to Maggie Simpson. Both schools are right, she adds, before continuing: “School of thought one is that gauge clearance is really expensive and even if we do nothing or the bare minimum, we ought to open up the availability of the network to as much traffic as possible. That means saying on this route, these particular combinations of wagons and containers can run.

“That has the advantage of allowing some traffic to run on some routes that haven’t been fully cleared, which might be helpful for some customers in some situations. In some cases, it’s really useful and in some cases, it’s not very useful at all.

“The other school of thought says that this is incredibly complicated and ridiculous, and we should clear the route properly and then we don’t have all that complication and administrative burden. I tend to the second camp because that’s admin burden for the freight operators and the customers; it puts customers off because they can’t take all their volume and it makes it incredibly difficult for Network Rail’s gauging engineers to know exactly what

to put the track back to, so it has a habit of drifting off.

"Therefore, it's most often not properly articulated so it's run on temporary certificates, on bundles of bits of paper being shoved in drivers' cabs. And, of course, they can be withdrawn at any time. That's fine if you're just doing a bit of marginal traffic, but if somebody is

going to buy some boxes or some wagons or shift their supply chain across and it's only being done on a temporary certificate, that's not great.

"There are proponents

"Absolute gauging assumes that everything that can go wrong will go wrong at the same time. By contrast, probabilistic gauging assumes that everything can go wrong, but not all at the same time."

of this, particularly those people with very clever gauging software who can tell you exactly which box combos can and can't run at any time on any route. They're fans of this."

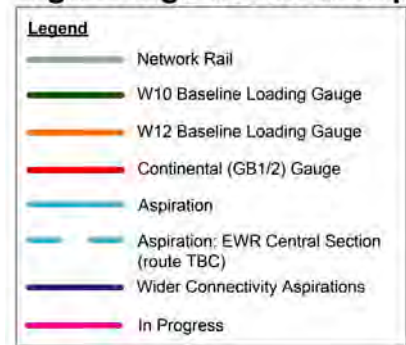
Simpson then injects a bit of 'real world' into the conversation. "I think the bit that saves us is that if you look at the network now, and where customers would want to go, there are only a very small number of strategic gaps on the main corridors.

"They are trans-Pennine, which is now firmly included in the scope of the [route upgrade] work for gauge clearance while capacity is in progress. Great Western is messy, but you can sort of do it. There is one route that is largely clear, but there's some bits and bobs that need sorting out to do a proper job of it.

"Then there's Channel Tunnel, which is a *cause célèbre* in some regards. You've sort of got a container gauge if you come up HS1, but it's really expensive and difficult to come up HS1. Then through Kent, you haven't got anything really. It's W9ish, it can take an S44 swap body, but there aren't any of them anymore - they're all S45 swap bodies in Europe, which are fractionally bigger.

"After years of asking, we still don't really know what would happen if you ran one. My guess would be that it would arrive in Willesden in perfect condition. However, that is unproven. But

High Gauge Network Map



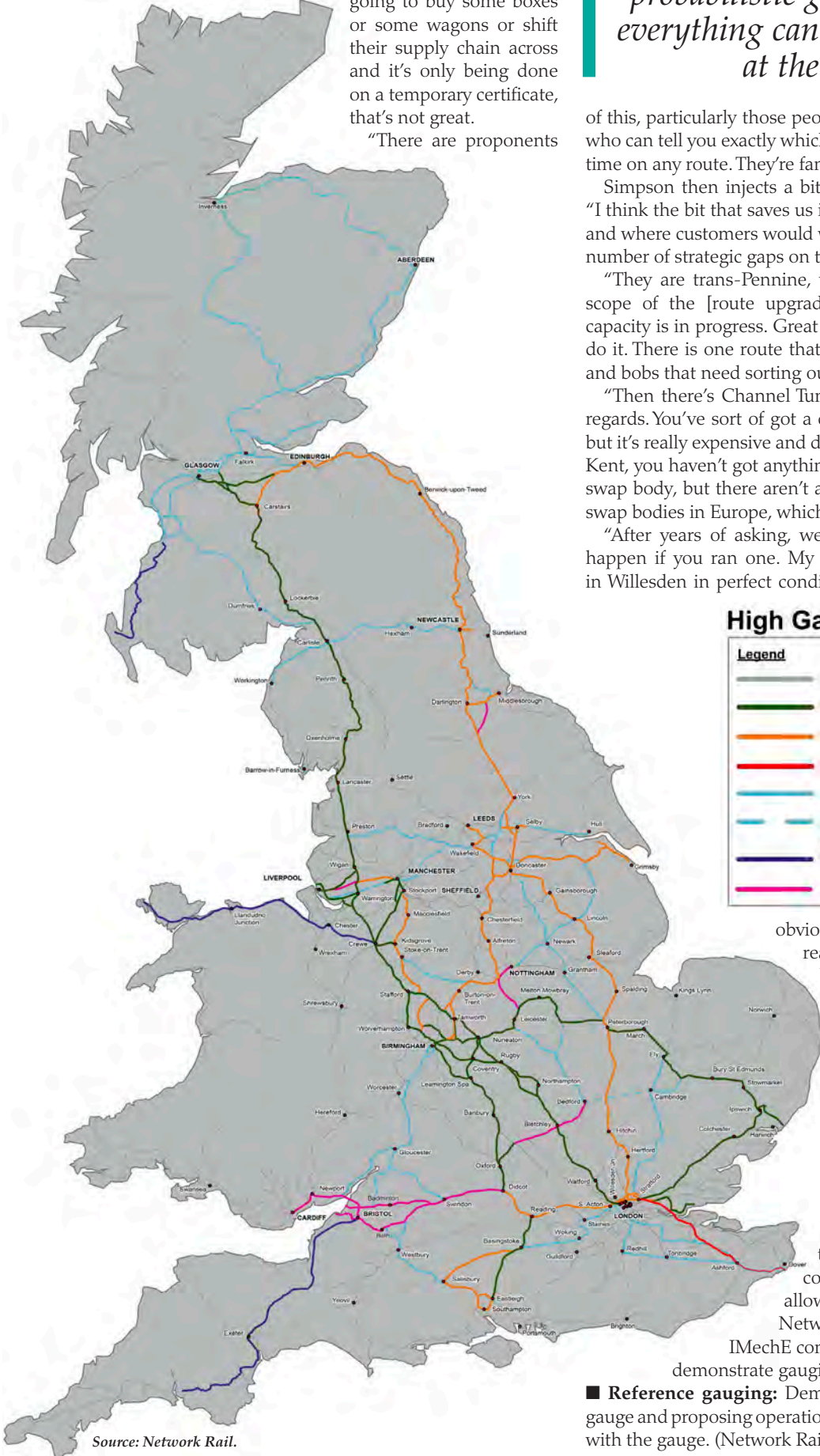
obviously that's only part of the market - you really need to be able to do containers. But because you sort of can up HS1, and because the market for the Channel Tunnel is so complicated, it's a really difficult one to crack."

It's all in the gap

The headache comes when clearances become tight, hence NR mentioning the difference between UIC spigots (which hold containers in a position with a tolerance of +/-12.5mm) and twistlocks (+/-6mm) when mounting containers on wagons. And W10a gauge allowing softer suspension than W10 itself. Network Rail's David Galloway told the

IMEchE conference that there were three ways to demonstrate gauging. They are:

- **Reference gauging:** Demonstrating conformance to a vehicle gauge and proposing operation over a route published as compatible with the gauge. (Network Rail publishes details of routes and the ➤



Source: Network Rail.

► gauge in its sectional appendixes.)

■ **Comparative gauging:** Demonstrating compatibility of the proposed vehicle by comparing it with one that operates over a route in significant and regular operation without incidents.

■ **Absolute gauging:** Demonstrating compatibility over a given route by calculating clearances against surveyed structures and other vehicles on that route for the maximum speed of the route or vehicle.

However, there's a fourth method known as probabilistic gauging which DGauge Technical Director David Johnson introduced at the IMechE conference. This takes as its basis an absolute gauging assessment and then applies a key difference.

As Johnson explained, absolute gauging assumes that everything that can go wrong will go wrong at the same time. By contrast, probabilistic gauging assumes that everything can go wrong, but not all at the same time.

This means that Johnson's team runs Monte Carlo simulations with many runs using different values in each and made random across different input variables.

He used a passenger example to make his point by examining what happens when a Class 357 train passes Platform 2 at Pitsea. The answer, of course, is nothing - '357s' pass this platform many times every day without incident.

However, absolute gauging suggests the train will hit the platform. It suggests the clearance there is -10mm with a Class 357's suspension inflated (as it would normally be). With deflated suspension, the train is even more foul of the platform, with clearance dropping to -17mm.

By contrast, probabilistic gauging suggests a clearance of 14mm and a chance of the train striking the platform of 0.00001%. Everyday experience tends to agree.

This led Johnson to suggest that probabilistic gauging could help where tight clearances are defining infrastructure maintenance or where they might be preventing routes from being electrified. By extension, these conclusions could be applied to situations where tight clearance are preventing containers running.

His maintenance point has application for Network Rail because it might allow it to relax the tolerances around track position in areas where it's traditionally expected them to need to be tightly enforced. This can then lead to lower costs.

It could also be used to decide whether to embark on costly work to increase clearances. Structures thought to be a problem might, with this technique, be found to be satisfactory.

Even when work is needed, it's not always expensive. At the same conference, GBRTT Freight Reform Programme Director Richard Moody told the story of Shugborough Tunnel.

It sits on the West Coast Main Line near Stafford. Within the tunnel was a drainpipe attached to the curved wall. It was the only thing preventing the tunnel being cleared for W9a gauge. NR removed the pipe during routine engineering work to give W9a a clear run between London and Scotland, which helps domestic freight in S45 swap bodies.

Moody added that the pipe's removal might allow W12 gauge to be run north from Northampton, although analysis to confirm this was still under way.

Finding obstructions like Shugborough's drainpipe comes from surveys. These have developed considerably since the days of sticking polystyrene foam blocks onto the sides of rail vehicles and



Maggie Simpson says W12 gauge would boost short-sea volume at ports such as Tilbury. ALAMY.

seeing where they hit structures.

Techniques such as LIDAR allow regular scanning of what surrounds the track, and the scanning equipment itself is small enough to be fitted to trains running in ordinary service. For example, GWR 'Turbo' 165104 has a Cordel LIDAR scanner on its front. From its Reading base, this train regularly runs to London Paddington, Gatwick Airport, Basingstoke, Bedwyn and Oxford via Didcot to provide lineside data.

Cordel Development Director Rebekah Sellick told the mechanical engineers' conference of the benefits, which included having up-to-date data centrally stored and easily accessible. From this, gauging assessments could be made easier and alternative scenarios could be quickly tested. She said she expected this Railway Gauging Data Solution (RGDS) to go live this August.

The collapse earlier this spring of a bridge abutment at Nuneham, between Didcot and Oxford, provided a good example of the sort of alternative scenario that might need testing.

When Network Rail closed the route, it severed the main freight route between Southampton and the West Midlands. This is one that's usually busy with container trains because it's cleared to W10 and suitable for shipping containers.

NR and freight hauliers quickly diverted trains via London and the West Coast Main Line because this route was already cleared. This prevented what Simpson told *RailReview* would have been "major national supply chain crisis".

But routing trains via London sends them through a congestion hotspot. In this case, the rail companies had little choice, but it's possible that with something like the Railway Gauging Data Solution up and running, they could have quickly assessed whether a westerly diversion via Swindon and Gloucester was possible.

This is the sort of clever software that Simpson referred to as she explained the second school of thought for gauging. It holds the potential to be combined with vehicle ride dynamics software such as Vampire, which SNC-Lavalin Atkins owns, but British Rail Research first developed in the 1980s from its previous modelling efforts.

"Techniques such as LIDAR allow regular scanning of what surrounds the track, and the scanning equipment itself is small enough to be fitted to trains running in ordinary service."



It combines vehicle models with track inputs to predict how vehicles will behave in service. Technical Director Ian Hills told the engineers' conference that Vampire can help designers develop trains, bogies and suspensions, test those designs and show they comply with relevant standards. It can investigate problems in service or explore changes in maintenance regimes or components.

For gauging, it can predict how vehicles might sway under different track conditions and estimate the effects of wind blowing onto the side of containers. However, it does all of this using sample stretches of typical track. Hills explained that Vampire wasn't used for gauging because it would need data for the whole network. This data might not represent the track as it actually is following maintenance work or through natural degradation.

He suggested that Vampire could be used at particular locations to investigate whether to embark on potentially costly infrastructure changes.

However - and this isn't something Hills said - it seems possible perhaps to combine the capability of something like Vampire with up-to-date information from the Railway Gauging Data Solution to create a complete network gauging model.

That's for the future. For now, Network Rail has ambitions to improve gauge clearance. GBRTT's Moody delved into some of the details at the IMechE conference.

For W9a (that's S45 swap bodies on Megafret wagons), he said the West Coast Main Line was now certified. That's London to Glasgow and Grangemouth serving Daventry, Birmingham, Trafford Park and Liverpool along the way. He added that he expected further routes to be certified in summer 2023. They include London to the West Midlands via Reading and Leamington Spa; the East Coast Main Line to Glasgow via Carstairs and Shotts, including the lines to Grimsby and Leeds, and running via Lincoln rather than Grantham; and the cross-country route from the West Midlands to Yorkshire via Toton not Derby to serve East Midlands Gateway and Doncaster iPort.

Moody said there was work to bring W12 to the WCML (it's currently W10) using incremental methods to avoid major spending,

"If on a particular route we find the incremental cost of providing W12 is very high, and the route is mostly used by 'deep-sea' container traffic, we may consider the option of W10 (or W10a) only."

Network Rail

but warned that high costs might be incurred south of Bletchley.

Network Rail's 'high gauge' map (essentially W10, W10a and W12) shows further ambitions, marked in blue as aspirations. Asked what this aspiration was, NR told *RailReview*: "The short answer is W12. The slightly longer answer is that it's W12, but if on a particular route we find the incremental cost of providing W12 is very high, and the route is mostly used by 'deep-sea' container traffic, we may consider the option of W10 (or W10a) only."

If NR achieves this ambition, it will bring to Britain an extensive network over which passing containers should be much simpler. It brings real potential to switch freight from road to rail. It will solve the will it/won't it fit question for much more traffic.

As Simpson notes: "What W12 does is that it opens up short-sea and it helps domestic intermodal. Because of Brexit, there's been a drop-off in ro-ro by Dover Straits so people are sending more unaccompanied trailers (which doesn't help rail) or more lift-on, lift-off so we're seeing a tick up from ports like Tees and Tilbury because they are getting more of that short-sea volume and more of that is W12 because a European short-sea box is a bit wider than a deep-sea box so that's why you need W12."

While W12 might be the gold standard for NR and freight hauliers, there's a final challenge in making the most of this gauge and that's double-stacking pallets within a box that fits within W12.

Back to Simpson: "If you can crack that, you can make a big impact in domestic markets so that's what people are looking at.

"What people are looking at is how we can make a W12-compliant unit that maxes out the payload so one design would have a lifting roof that lifts a little bit. You can stack two pallets in W12 in theory, it's just that you haven't got the manoeuvrability of the forklift to get them in."

That sums up the gauging challenge. It's a battle of incremental improvements, squeezing the most out of small changes to make commercial rail freight more attractive to customers. ■

Vehicle gauge

While this article concentrates on gauge for wagons carrying containers, the 'W' (for wagon) series aren't the only gauges.

Railway Group Standard GERT8073 lists three passenger gauges, PG1, PG2 and PG3 (for vehicles 20 metres, 23 metres and 26 metres long respectively), as well as two locomotive gauges, LG1 and LG2 for existing and new locomotives respectively.

W, PG and LG all apply to the upper sector of a rail vehicle, which is defined as those parts that are 1,100mm above the rails. GERT8073 classes anything below 1,100mm as the lower sector and it also has gauges. They are Lower Sector Vehicle Gauge (LSVG), which RSSB developed in 2012, and W6a Lower Gauge, which is the lower part of the standard freight vehicles. The standard takes into account the need for some part of vehicles to interact with the infrastructure (other than wheels), with third-rail and fourth-rail shoe gear and tripcocks falling into this category.

UIC gauges apply abroad, but also on High Speed 1, which can carry UIC GC gauge traffic.

Freight gauging



Julian Worth, Chairman
CILT Rail Freight Forum

For all that gauging is complex and something of a black art, we actually have quite a good gauge-cleared network in Britain, especially for Deep Sea containers. The only significant gaps in the W10 network are Trans-Pennine, which will be cleared as part of the Transpennine Route Upgrade (TRU - hopefully sooner than the current 2032-33 delivery plan), the West Country and Scotland north of the Central Belt. Low-floor wagons enable 9'6" Deep Sea ISO containers to operate in the latter two areas.

The GBRTT/Network Rail freight team are making good progress in driving gauge improvements, and deserve praise for what they've achieved. The market, however, always wants to go further and faster, so there is real pressure to accelerate delivery - which is not helped by current extreme spending restrictions.

Ultimately, it is for GBRTT/NR and the freight operators to deal with the inevitable challenges of moving larger containers over a railway built for small wagons, in response to market demand. Some customers (especially intermodal operators) take a close interest in the subject, but it is for the rail industry to deal with complexity and provide clear information to the market about what can be moved today on a given route and what is planned for delivery in the future.

The main challenge (and one of rail's biggest opportunities) lies in the movement of Short Sea and Domestic swap bodies which, although they are no taller at 45/50ft long and up to 2.55/2.6m wide, require more space in the top corners than a 40ft x 2.44m-wide ISO container. (Gauging is bedevilled by a mix of imperial and metric dimensions). Low-floor wagons help, but can encounter low sector gauge issues with platforms and lineside furniture, while pocket wagons such as the KTA are too narrow for swap bodies.

On an important point of detail, the largest Deep Sea container

ships now carry 24,000 TEU (not 12,000 as stated), which with a typical mix of 20ft and 40ft boxes equates to circa 15,000 containers. To put this number in context, that's 15,000 HGVs or 300 trains worth of containers on one vessel. The mix of container sizes varies by route and is driven by the commodities carried - heavy loads such as wine or vegetables will use 20ft containers, whereas for light consumer goods 40ft will predominate.

The 'a' gauges can be seen as a further complication, but W9a in particular is very helpful in permitting the ubiquitous S45 swap body to move without restriction on many major routes. For example, an S45 arriving on North Thameside, at Tilbury or Purfleet, will soon be able to travel on to Daventry, the North West and Scotland without restriction. It is the myriad of container-specific restrictions that make life difficult for operators and customers, so this is a major step forward.

The Channel Tunnel market is both substantial and a cause of much frustration. Around 30 intermodal trains a day were running



GB Railfreight 66718 rounds the curve to the east of Fieldhouse on April 19, with the fully loaded 1106 Mossend-Doncaster iPort container service. Julian Worth has identified the movement of Short Sea and Domestic swap bodies as the main challenge now facing freight operators. STUART FOWLER.

The dark art of gauging is something I've had to deal with from the very start of my career alongside the railways, working for Kent County Council with The Piggyback Consortium back in the 1990s, to see how and what could be done to allow taller containers and 'piggyback' lorry semi-trailers to be carried by rail through Kent.

BR and the DfT didn't do much to advance the cause at the time. The apocryphal tale goes that back in the 1980s, BR was asked at a UIC (International Union of Railways) meeting about what it would take to bring the British rail network up to the same standard of loading gauge as mainland Europe. Some hasty calculations on the back of the menu over lunch generated an official view of "several billion pounds", which they hoped would then keep the matter off the agenda for many decades to come.

Their collective view in the approach to Channel Tunnel opening was similarly parochial and anti-holistic, stating that the then new-fangled 9'6" containers, a whole foot taller than the previous international standard height, only represented 5% of the Deep Sea container pool. Hence their new W9 gauge, brought in to squeeze S44 (quasi-9'6") containers to and from the Channel Tunnel, would more than suffice.

Today, 9'6" (2.9-metre) containers account for more than half the international Deep Sea container pool, north American railroads



Nick Gallop
Managing Director, Intermodality Ltd

just about getting a double-stack through their own loading gauge, and hence why the dimension is likely to be around for a while yet.

Meanwhile on the continent, 3.2m "mega" swap bodies (S75 and above) have been embraced by the automotive industry to allow maximum internal cubic capacity and the ability to stack unitised loads in two- or three-high rows. The design and construction of the "megafret" low-platform (825mm high) intermodal wagon undoubtedly helped W9 achieve the capability of carrying S44 swap bodies through Kent, but it was actually built to allow S75 swap bodies to be carried across mainland Europe.

The more generous continental loading gauges built at

through the Tunnel in the late 1990s, but this has dwindled to a handful of trains today, driven by an evil cocktail of SNCF strikes and illegal immigrant invasions that led to poor service quality and unreliability.

Service quality is now good, but over the intervening 25 years swap bodies have grown from 9'1" high (for which routes through Kent were enhanced to W9) to 9'6". Use of megafrets in place of the original multifrets helps, but some further gauging work is required. Recent studies by Network Rail have revealed that a small package of work would give W9a gauge and thus S45 clearance from Dollands Moor to Wembley - a major improvement which it must be hoped will secure funding.

HS1 remains a hugely underused national asset and could carry substantial volumes of intermodal traffic. Its great advantage is its UIC GC gauge, which means that virtually all swap bodies can be conveyed on any European intermodal wagon, of which there are many tens of thousands. By comparison, there are only a few



government behest rather than British Victorian entrepreneurs also allow lorry semi-trailers to be carried (15% of all intermodal shipments). The only way of getting this 15% slice of the market into Britain is to pay a king's ransom to transport via HS1, as far as Barking. Beyond there, you'd have to be barking to take it any further west, watching in horror as your trainload of trailers would promptly have their roofs peeled off like sardine cans sparking off the disintegrating catenary.

If you look on YouTube or Twitter you can find footage of an American train of car-carrying wagons being similarly defenestrated, without any catenary to worry about.

As noted in the article, it all comes down to risk, as one of the original authors of the "ClearRoute" gauging software owned by Balfour Beatty showed me many years ago.

His laptop had the whole rail network modelled. And as he turned down the safety clearances imposed around the static loading gauge (to allow for vehicle sway and age of the structural data), the ability to move larger things around the network increased exponentially.

The counter to this is that as one of the safest railways in the world, we also have one of the most risk-averse. Hopefully, the various tools now available - from the laser scanning systems used by companies such as Inorail to quickly and cost-effectively get

hundred UK-gauge wagons available that can go through the Tunnel. And on anything other than a shuttle operation to northern France or Benelux, one round trip takes two or three days, which quickly exhausts available wagon capacity.

While European gauge wagons can only go as far as Barking, transfer to a UK-gauge wagon for onward movement to the Midlands, North West, Wales and Scotland is straightforward. With Eurostar services much reduced and long-distance commuting on Kent domestic high-speed services unlikely to return to pre-COVID levels, it should not be impossible to find an hourly off-peak freight path on HS1. One might expect that the infrastructure owner would welcome additional revenue (albeit the existing prohibitive access charging regime would need to be relaxed).

Probabilistic gauging and other advances such as RGDS hold great promise and could avoid having to spend millions on raising structures. There is, however, an innate conservatism among infrastructure engineers that can lead to a reluctance to embrace and apply such innovations.

Safety of Line is paramount. But as David Johnson's Pitsea example demonstrates, extreme risk aversion is inappropriate and unnecessary. A professional, data-led approach could open up significant potential, particularly in peripheral regions where the volume of intermodal traffic is unlikely to justify major expenditure on raising bridges and so on.

In summary, this is a good article that makes a complex subject clearer and interesting. The one point it addresses in insufficient depth is the challenge of double-deck road trailers in UK domestic trucking.

For light products, using the available height under motorway bridges, double-deck trailers offer around 60% more capacity, making it harder for rail to compete. While we will never be able to achieve full double-decking on rail, by using low-floor wagons on W12 routes it should be possible to achieve around a three-metre internal height within a swap body.

This would permit a mezzanine floor arrangement, with heavy pallets (for example, flour, sugar or wine) on the lower level and lighter roll cages of picked product on the upper deck. Alternatively, tall pallets of very light product (such as breakfast cereal, snacks or tissue) could be loaded floor to ceiling in the swap body.

a more detailed view of an offending structure, combined with software and more AI-type solutions promoted by DGauge - we can (as ever) muddle through as a nation and occasionally achieve some good pragmatic solutions, as well as the occasional bridge scrape or station de-valencing.

Assuming we ever get a government able to think strategically about the role of the railways for freight and passengers in a unified manner, it's worth pointing out that loading gauge isn't just about freight (as CAF has found to its cost).

As with electrification, if the industry can sustain a specialist team on a rolling programme of gauge enhancement at a price that the taxpayer/end user can afford, all sorts of additional modal shift/decarbonisation can occur. More generous interiors and double-deck stock (making better use of existing paths and station platforms), as well as the step-change in freight when you can add an extra row of pallets (or a line of lorry trailers, or larger SUVs and 4x4s) into an entire 775m train.

This may need the Digital Railway, but it also needs some joined-up, cost-effective thinking. Or a successor to the abortive work by Central Railway Group, to deliver a privately financed freight railway built to a decent loading gauge - this time with the benefit of the National Policy Statement on National Networks and a Development Consent Order to help it along...

An estimated 28% of the UK population lives with a visible or invisible disability. ALAMY.



Expanding the family and disabled markets

The needs of disabled people, families and elderly people often overlap. Is enough being done to encourage growth of these passenger sectors? asks **ANTHONY LAMBERT**

As the railway adjusts to post-COVID travel patterns and demand, a radical rethink of market segments and their needs is vital to reduce the £2 billion funding gap. Although the starting point of this article was the '70 years before all stations are made accessible' headline, it is self-evident that many of the requirements for disabled people will also make the railway a more welcoming place for families and the elderly.

The Family Resources Survey indicates that there were 14.6 million people in the UK with a disability in the 2021-22 financial year - 28% of the population according to the Department for Transport. In the same year, there were 19.3 million families in the UK, 8.15 million of them with children. In 2022, there were 11 million people aged 65 and over, and it is estimated that by 2050, one in four of the UK population will fall into that category.

Given that the Rail Safety and Standards Board calculates 48% of the total passenger fatality risk relates to the Platform Train Interface (PTI), and almost 13 fatalities each year, improvements for disabled users can also benefit safety.

Virtually all our railways were built at a time when no thought was given to the disabled, so it has taken a Herculean effort and billions of pounds to get as far as we have in retrofitting measures to facilitate access.

As a measure of the difficulties, recent work to provide lifts to the two platforms at Streatham entailed moving a waiting room to free up space for one of the shafts and extending the entrance concourse to meet one of the lifts. This pushed up the cost from the usual average of £1 million per lift to a project cost of £5m.

Such work now comes under the £390m Access for All programme, launched in 2006 to address the issues faced by disabled passengers and those encumbered with luggage or pushchairs. The programme was extended in 2014 with an additional £163m and again in 2018 with publication of the Government's Inclusive Transport Strategy and further funding of up to £350m for Control Period 6.

Like all public expenditure, Access for All has to compete with other deserving demands. For example, how can you justify spending a couple of million pounds installing lifts at a station

such as Achnasheen, which has 2,420 annual users, when that sum would buy a life-saving machine for a hospital? How do you decide on a minimum number of annual station users to justify that expenditure? How is the "reasonably practicable" yardstick applied? Do you prioritise three easy stations or a difficult one, or should the aim be to reduce gaps between accessible stations to create more even coverage?

Alan Benson, co-chairman of trustees at Transport for All, says that Access for All funding is usually the first pot of money to be raided in search of savings, and he is critical of the waste of time and money in holding competitions for funding. A clear investment strategy would prioritise projects, irrespective of the budget available at any time.

To address the Public Sector Equality Duty under the 2010 Equality Act, which requires public bodies to consider everyone's needs in their day-to-day work, Network Rail uses a Diversity Impact Assessment (DIA) to examine the effect of a project or business change. DIAs help embed thinking about diversity and inclusion and also increase Network Rail's understanding of the potential barriers to access.

Our progress in adapting stations has been audited under the *Williams-Shapps Plan for Rail*, with the last of 2,575 stations being completed at Marylebone on February 27 and marked by a YouTube piece by Rail Minister Huw Merriman. The data is now being crunched by the Great British Railways Transition Team as part of its work in formulating a five-year National Rail Accessibility Strategy and a longer 30-year strategy.

Although 90% of journeys are already between stations that are step-free, that can't measure the untapped potential of those that don't take place, and there are 1,200 stations with no good step-free access. Work to install tactile paving at platform edges will be complete by 2025 under a £75m programme.

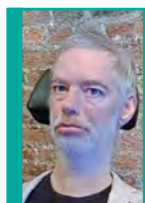
All the work at improving accessibility reflects the UK's adoption of the social model: that people aren't prevented from taking part in society by their personal circumstances, but by physical and societal barriers.

WHAT ARE THE BARRIERS?

Research by the DfT on the experiences of disabled non-users of rail was published in December 2021. It examined the reasons why 41% of disabled people - 7.9 million people - either don't or can't recall when they last used rail. Of those, 30% (2.37 million) said they were very or quite likely to use rail in future.

In talking about their feelings towards use of rail, no single factor stood out, but the largest at 27% was lack of confidence. This was followed by "not easy to move around the station or train", "very difficult" and "uncomfortable".

The changes that would persuade disabled non-users to use trains were predictable: providing easier access, and designated >



"Everything we do takes so long. Whether it's a train or a station, it can be ten years from design to implementation and we're then stuck with any shortcomings for decades."

Alan Benson, Co-chairman of Trustees, Transport for All

► staff who could offer full assistance. Less-frequently cited were seat guarantees, simpler booking, less crowding, a more reliable service and more staff at stations and on trains. Confidence in a predictable outcome was important. Encouragingly, younger disabled non-users showed a greater willingness to travel by rail than those over 55.

But the dominant barrier had nothing to do with physical attributes: at 49%, it was the cost of tickets.

Some of the reasons for disabled non-users not using rail are also common to non-users of rail among the general adult population. The research highlights the dilemmas in overcoming disabled non-users' barriers to rail - there are no one-size-fits-all solutions to address the needs of this diverse group of people when travelling by train.

This is echoed by Benson: "Nothing can ever be 100% because needs are different and not necessarily obvious. A visually disabled person needs tactile edges to the platform, but it is incredibly uncomfortable for me as a wheelchair user. The visually impaired need audio announcements, but for autistic passengers the noise on the railway can be a problem. Standards may set out an ideal, but we need the best fit for the most people. There is a tendency for Network Rail to insist on not deploying anything until it's considered 100% fit for purpose (and often over-engineered).

"The railway is still using standards of 10-15 years ago. It's very bad at keeping up to date with the latest design standards. An example is the new footbridge, which is lightweight and easy to install, but inaccessible to many disabled people. Only now is thought being given to an accessible version. Why?"

Network Rail responds that the Wistanstow site in Shropshire, like many other footpath crossings, has no accessible route to the bridge and in this case, there is a level accessible crossing of the railway nearby. Benson counters that the bridge will be there for many decades, and it precludes upgrading the route.

Clearly, there are many country footpaths that could never be suitable for wheelchair access, but Benson argues that we need to think what a piece of infrastructure might be required to do in 30 years' time, not just today; in other words, future-proofing improvements.

An obvious barrier is created by the multitude of platform heights and train floor heights. The time and money that would be saved by having universal unassisted access for wheelchair users are incalculable. Although bringing 6,000 platforms up to the 915mm standard would be prohibitively expensive, platform humps are a partial solution, as at core stations on Thameslink.

But Benson insists it isn't all about multi-million-pound projects. "Getting the signage right, setting the acoustics at the right level and making sure lighting is at a frequency that will not trigger an adverse response - these can all make a significant difference."

Confidence depends on numerous elements of a journey all working well to create a pleasant experience. Will the lifts be working? Anecdote suggests that lift repairs are often slow. Will there be a clear boarding point for my reserved carriage?

Confidence also relies on the certainty of assistance through Network Rail's Passenger Assist service when requested. In cases



where advance notice cannot be given, operators have a 'turn up and go' service or equivalent provided by station staff or mobile units for unstaffed stations. The notice period has come down to two hours, and Benson recognises the effort that has gone into that reduction.

The Passenger Assistance app and website developed by Transport in partnership with Network Rail makes it much quicker and simpler to request assistance for a journey.

INCLUSIVE DESIGN FOR EVERYONE

Use of this phrase by Network Rail testifies to recognition of the wider benefits of making stations accessible. Yet pressure was required to insist that Crossrail should be step-free. Only the new stations on HS2 will be step-free, and there is even debate over whether Old Oak Common will be step-free.

Within the last four years, all train operating companies have set up access panels of disabled people, generally led by disabled people. But as Benson points out, "That resource is only beneficial if it's used. If managers don't think about using it or understand how to use it, it's of little value."

"When Mark Wild was managing director of LUL, he trained his senior team and continued down the organisation through project managers and station managers. He took people out on the network with a variety of disabled people, which transformed their understanding. As a consequence, noise levels in lifts were changed, conflict between disabled and walking routes were minimised - changes that made the railway a more considerate and friendly place.

"Welcome as this outreach is, there is a presumption that accessible advice on design should be given free - that wouldn't be the case with other inputs to the design from consultants.

"Architects and designers understand the regulations and design requirements, but don't understand their application or think about their use in practice, so grab handles can be sited in such a position that it's impossible to get a wheelchair alongside it.

"At Nine Elms station, the lift doors open for the regulation time, but the lift is so deep that it doesn't give time for the lift to empty of people.

"We are taking steps in the right direction, putting structures in place, making the right connections and talking to local communities, but everything we do takes so long. Whether it's a train or a station, it can be ten years from design to implementation and we're then stuck with any shortcomings for decades."

Benson points to the need to learn from innovations abroad,



"All investment needs to be looked at through the lens of 'does it achieve greater efficiency, decarbonisation or revenue?'. Accessibility is a natural fit for this because we know that if a station is step-free, up to 20% more passengers will use it."

Russell Jackson, Global Transit Director, AECOM



Above left: Despite the presence of a hump, the height different at the platform-train interface remains substantial at North Llanrwst, creating difficulties, particularly for those with pushchairs and users of wheelchairs. An accessibility audit has been completed of all British stations to create a public database and help target future investment. PAUL BIGLAND.

Above right: Work to provide step-free platform access at Eridge was completed in late 2021. The £1.9 million project was funded by the Government's flagship Access for All scheme. NETWORK RAIL.

such as the Japanese escalator that can switch to a wheelchair lift by three steps becoming level with a 5cm block to arrest the chair.

Alison Smith, head of accessibility and inclusion in the GBRTT, recognises that even operational decisions can have a bearing on passenger experiences, for example not stopping a short-formation train unnecessarily at the extreme end of a platform. DIAs are applied to new works and projects, but not always to operational decisions.

As Russell Jackson of AECOM pointed out during a recent RAIL webinar, the risk of design omissions has been reduced by the now universal collaborative working and by community engagement - he praised the effectiveness of this on the Northumberland Line.

He argues that accessibility should be viewed less as a cost and more of a revenue opportunity: "All investment needs to be looked at through the lens of 'does it achieve greater efficiency, decarbonisation or revenue?'. Accessibility is a natural fit for this because we know that if a station is step-free, up to 20% more passengers will use it." Dutch Railways has made a commitment that all its stations will be step-free by 2030.

RETHINKING TRAINS

From a train operator's viewpoint, the ideal passenger travels with nothing more than a coat and small case or backpack, and one has sympathy with Lumo when it was confronted with a passenger wishing to travel with a full drum kit. But the growing importance of the leisure sector should impel a more imaginative approach to the design of train interiors that will be of equal benefit to disabled users.

Key to passenger satisfaction is consultation and testing. Would we be enduring ironing-board or high-back seats in some trains if proper consumer testing had been done? The warm reception given to Merseyrail's Class 777s owes much to Transport Focus's survey into what customers wanted. The result is a train that meets

the needs of a variety of passengers, with clearly marked areas for wheelchairs and others for bikes. The trains are step-free and have a retractable step.

Nick Flynn, of the Campaign for Family-Friendly Trains, has been pressing for more family-friendly features in Version 7 of RSSB's Key Train Requirements, which will be published this summer and focus on many of the factors that will help families, the elderly and the disabled alike.

"We have had meetings with the drafting group to make the case for new clauses about pushchairs and the needs of families. It's so much cheaper getting it right at the design stage than retrofitting."

An obvious benefit is space for a wheelchair or pushchair at the end of a carriage within easy reach of an accessible toilet with nappy-changing table and combined adult and toddler lavatory seat.

On the website of the Campaign for Family-Friendly Trains (familyfriendlytrains.com) are comments from passengers who have had trying experiences: "I'm angry that long-distance trains have no dedicated space to put an unfolded pram; fed-up at the many times I've changed my daughter on a train toilet floor; and annoyed at a lack of convenient space to breastfeed on trains."

For those with an alternative, such experiences could terminate their use of trains.

Design ideas can be easily borrowed from continental railways: Austrian Railways' Railjet trains have a family zone with board games and children's cinema; trains in the Czech Republic, Finland, Slovenia and Switzerland all have play areas, some with slides; all German ICE trains have a reservable family compartment with space for unfolded pushchairs. Yet in Britain, trains are still being refurbished without even space for pushchairs, and there is no provision for unfolded chairs on GWR or LNER trains.

However, it is LNER which opened Britain's first family-friendly lounge, in October 2022 at King's Cross, complete with Hornby train set and video showing what it's like being in the cab of an Azuma at speed.

Such initiatives are all too rare. To grow and delight these huge market segments (paraphrasing the late Adrian Shooter), much more creative and imaginative thinking, freed from micro-management by the Treasury, will be required. ■

"It's so much cheaper getting it right at the design stage than retrofitting."

Nick Flynn, Campaign for Family-Friendly Trains

Accessibility

Anthony Lambert makes a compelling case for expanding the markets, stating that “it is self-evident that many of the requirements for disabled people will also make the railway a more welcoming place for families and elderly people”. After all, familiarity with trains from an early age and an ageing population should be leading to rail travel being a favoured option.

However, Anthony cites that alongside cost, a lack of confidence in achieving a successful journey is a key factor deterring many from using our railways. He also quotes Nick Flynn, of the Campaign for Family-Friendly Trains, who highlights the lack of appropriate facilities at stations and on trains.

I have advocated the need for a User Experience and Service Design-driven approach. Indeed, Anthony cites some UK and overseas examples where rail service providers have been creative and considered what would attract customers.

And yet, one often hears the term Minimum Viable Product (MVP) being used on new projects, without the full appreciation that an MVP approach only works well if it is part of ongoing iterative improvements, where there is follow-on investment soon after. One fears that it may be used by some to argue for designs that will fall short of an excellent user experience for some time after.

Anthony notes that among the things that will have a negative impact on people’s confidence is lack of staff awareness of the issues they face, and lifts not working.

I would add that the availability of toilets and the means of

“I would add that the availability of toilets and the means of getting assistance while purchasing tickets would increase many people’s confidence. But I wouldn’t stop there...”



Steve Maslin draws attention to problems for passengers with the platform-train interface. Merseyrail’s new Class 777s from Stadler, however, provide level boarding. PAUL BIGLAND.



Steve Maslin

Technical Authority for Inclusive Design, Atkins

getting assistance while purchasing tickets would increase many people’s confidence. But I wouldn’t stop there. Lifts in themselves are a good thing, but what can deter people is the perception that lifts create a vulnerability to crime and anti-social behaviour. I believe that the presence of local enterprises, people living on or close to stations, and better and more evident surveillance, whereby those monitoring CCTV cameras could use PA to deter such behaviour, could help significantly.

Furthermore, there is mention of the desirability of level and independent boarding, while acknowledging how difficult this would be to achieve.

Indeed, a study that we at Atkins conducted for a client found that the technical challenges were exceedingly great, and would require much capital investment and much more consistency of rolling stock design and platform configuration. Addressing this issue nationally would require much greater cross-industry co-ordination, were it to ever become more universally achievable than the few routes where this has been achieved.

Anthony also makes a link with safety, arguing that improved accessibility improves safety. Having written a paper on the subject of Inclusive Health and Safety, I wholly agree. It makes a big difference when we consider what some may not see or what is





Gareth Dennis
Track Engineer

likely to pose a significant physical challenge to some individuals.

Having dislocated both my knees (once, as it happens, when trying to get my bicycle on a train), I have to be very careful when stepping off the train with luggage at my local station, owing to the excessive vertical platform to train interface. I wonder what goes through a person's mind when stepping down at this station for the first time when they can't see, wondering when their foot is going to land on the platform!

Finally, Anthony makes a reference to customers commenting on the lack of comfort. I too can identify with this issue. An operator in my part of the country brought in new rolling stock with seating that not only has thin cushions, but also seats through which one can feel a fixing under the cushion that just so happens to impact where the underside of my pelvis is - hence my journey on these services often feels like I am perching on a thin bar. Ironically, as I write this review, the train that I am in is also subjecting me to excessive juddering, owing to the transfer of vibration from the engine mounted under the carriage.

Alan Benson, Co-chairman of Trustees, Transport for All, is quoted as arguing that while there are costly items, there are many less costly improvements to wayfinding, lighting and acoustics that could give rise to better customer experiences.

AECOM's Russell Jackson also emphasises the value of community engagement and collaboration. I would concur with this, having also been quoted in a *RAIL* Special Report feature (titled Aiming for Greater Accessibility), saying: "The more local people are engaged, and stations are integrated into their local community, the better."

Some of the issues are not going to be solved by the rail industry alone, but within a context where there are joined-up approaches in which our rail infrastructure feels very much part of our local communities.



Not just as a co-founder of the Campaign for Level Boarding, but as a new father personally negotiating how hopeless British train travel is for accessibility, I'm very glad to see the subject being discussed more frequently, and with an eye to the lost revenue that results. Indeed, Anthony Lambert has corralled several important voices and a good chunk of valuable data for those of us who advocate for improvements to accessibility across the railway.

Anthony starts by pointing out that the Access For All (AfA) fund has indeed been renewed for CP6, to the tune of £350 million (or £70m a year). For scale, based on the safety risk at the platform-train interface alone, the rail industry's own safety model would suggest that more than ten times that much (£770m in 2019 prices) ought to be spent on alleviating the 13 annual fatalities and weighted injuries that Anthony highlights.

I must correct Anthony's use of a common - and economically false - example of the trade-off between spending on railways and spending on healthcare. No such trade-off exists.

Government spending is not like household spending, where we have hard limits on our monthly outgoings. When government invests in something like a set of station lifts or some intensive care beds, those enhancements to the way our society functions creates a little bubble of opportunity that (put crudely) increases the value of our economy and repays the expenditure - often many times over.

Within this fiscal context, we can see that the choice to not spend £770m on accessibility (a sum that would be genuinely transformative) is a political one, not an ethical or economic one.

Long-time collaborator Alan Benson is spot-on in his assessment of the limitations of the AfA fund and its wasteful competitive process. As with essentially all enhancements of rail infrastructure, accessibility upgrades would be achieved far more cheaply and quickly by a rolling programme of work delivering a strategic plan on a regional or national basis.

Taking a broader view, Alan makes a point worth reiterating, which is that accessibility isn't a uniform problem with a uniform solution.

People's needs vary and can indeed be in conflict with each other. This is why it is vital to have diverse, informed teams specifying and delivering this work, backed up by detailed and comprehensive data about the people who may use rail services.

It's good to see another collaborator pop up, this time Nick Flynn from the Campaign for Family-Friendly Trains. But it's the statistic from AECOM's Russell Jackson that really stuck with me, and it's one I've not heard before but matches my understanding and experience: that step-free stations attract 20% more passengers. Bluntly, there's an obvious revenue incentive to do this work. We can see what my "bubble of opportunity" looks like in practice, and it's not so little.

Anthony ends his piece perfectly, and his conclusion applies not just to accessibility but to the country's transport system as a whole. We need to kick Treasury out of the funding loop. Until we do, we will be stuck with a second-rate railway system, unable to deliver the services we need for the future.



The evolving role of the rail regulator

Structured simplification (rather than anything more opportunistic) of industry structure must rearrange the roles of the key industry entities.

In principle, current proposals involve a shift from relying on parties defending their own interests to make the structure work efficiently, to a more centralised planning of output.

This should be simpler because there are fewer interfaces, fewer parties with a personal interest, and fewer procedures to go through to make sure everyone's rights are respected.

However, the result must not become less dynamic or less willing to push for improvements, otherwise the end customer (passenger or freight client) will not get the best service. For example, if operators are less incentivised to fight to maximise network capacity for their services, the pressure to realise that capacity must come from somewhere else.

In this example, Great British Railways is in charge of the capacity, so would need to have its own incentive to stretch the service which can be offered. How will it have that incentive?

Of course, to a degree, pressure will come from the Department for Transport as the guardian of policy and funding. But applying pressure for the end customer is also, classically, a regulator's role. Which is one reason why getting the regulator's function right is a necessary part of making simplification function well.

The theory of industry regulation is well known and commented on. It arises (among other things) from the need to make a market work where large amounts of public investment and infrastructure are involved, where there is an imbalance between supply and demand, and where free-market economic theory breaks down due to monopolies.

All these considerations apply to GBR. You would therefore expect a powerful

regulator to stand alongside the monopoly provider with a parity of strength (to make up for the imbalance between the commercial power of the infrastructure manager/industry specification guiding mind on the one hand, and operators delivering services on the other).

This reflects what the Department for Business, Energy and Industrial Strategy's *Economic Regulation Policy Paper* (2022) describes as "the important role of regulators in setting conditions to encourage private sector involvement into natural monopolies for the benefit of consumers".

As BEIS noted: "The design of regulators' duties is crucial to the conduct of both regulators and the regulated as they set objectives for the regulators to refer to in informing and guiding their decisions.

"At the time of privatisation, duties were used to provide a clearly defined role for economic regulators and have since been regarded as an important and stable part of the UK's regulatory landscape."

The Office of Rail and Road's economic regulation role (in its various incarnations and forms) has been to follow statutory duties (Railways Act 1993, s4) while it "regulates Network Rail's activities and funding requirements, regulates access to the railway network, licenses the operators of railway assets, and publishes rail statistics" (DfT).

This is in addition to ORR's other multiple roles - including consumer protection (now including the Ombudsman), information gathering and advice, and safety.

There cannot therefore be any doubt that the role of the regulator throughout the privatised industry has been to consider and apply government objectives in the interests of making the market work for consumers.

However, that is not all a regulator is for. By way of example, in its paper on the *Governance of Regulators*, the Organisation for Economic Co-operation and Development (OECD) notes: "Regulatory activity has become increasingly important in the modern state in both policy formation (regulatory design) as well as in policy execution (regulatory delivery) because regulators have special expertise in drawing on relevant evidence from the natural and social sciences, including economics, finance and behavioural theory..."

"In addition, regulation has become an increasingly important mechanism for managing the space within which society, the economy and environment interact. Most notably it is also the mechanism to manage between the domains of politics and the market."

Alongside that is a critical role in providing expert knowledge, input and advice. As the *Williams-Shapps Plan for Rail* put it: "[ORR] will provide expert advice to the Secretary of State and devolved administrations, and will have powers to require improvement plans, encourage best practice and support problem solving across the sector."

In other words, in theory an economic regulator can (should?) be used to balance both:

- The interests of contracting parties in a market which would otherwise fail.
- The effective functioning of that market vs political imperatives from time to time.

This, while also providing specialist sector advice, research and guidance.

How much of this is actually different to ORR's current role?

Arguably only a limited amount is different on paper. Among other things, ORR will monitor the infrastructure manager's compliance, review infrastructure spend and outputs, hear appeals on access, approve access contracts, and enforce a rules-based access regime.

Despite some of the

"It will fall to ORR to police the risk of an overly conservative or unbalanced approach from GBR to access - but at the same time further GBR's access policies."

The rebuilding of Morley station is well under way on January 29, as part of the Transpennine Route Upgrade to electrify the route between Manchester and York. The regulator must continue to review infrastructure spend and outputs. MIKE BROOK.



implications of comments in the *Plan for Rail*, that is not massively different to what currently exists. However, the practical reality around these activities may actually become quite different in context - ORR will be required to do those roles in a different environment.

A simpler structure means more authority in one set of hands. ORR needs to regulate an entity with fewer constraints and fewer external stakeholders than Network Rail, and arguably work harder to ensure efficient market treatment of contractors (including operators) who have less commercial and contractual clout. But it must also not stand in the way of properly developed GBR policies.

For example, DfT (consultation) described “a new duty, which they [ORR] will need to consider and weigh up alongside their other duties, to facilitate the furtherance of Great British Railways’ policies on matters of access to and use of the railway, where these have received Secretary of State approval”.

This is a direct duty to support the policies of the entity ORR is primarily regulating. Which brings us back to the capacity example.

GBR will (probably) be developing the services to be delivered - that is part of being a guiding mind.

Unlike NR, GBR is unlikely to be under substantial pressure from operators trying to maximise the use of capacity for their own revenue objectives - that is part of simplification and avoidance of fragmented decision-making leading to timetable meltdowns.

So, it will fall to ORR to police the risk of an overly conservative or unbalanced approach from GBR to access - but at the

same time further GBR’s access policies.

That appears to be a challenge requiring a careful and highly informed balancing act, differentiating between clear agreed policies and the actions taken to implement those policies. ORR’s role of standing alongside contracting parties to make the market work may need to develop as a practical matter accordingly.

The other role identified for a regulator involves brokering the position between the market and political imperatives. That means ORR’s various relationships with DfT and political actors from time to time, as well as GBR and other stakeholders.

The Secretary of State for Transport (Bradshaw address February 2023) stated: “Taking politics out of the railways is the only way to build a truly commercially led industry and, for me, that is non-negotiable.” He went on to describe GBR’s independence. But he didn’t mention the regulator.

As described above, ORR must obey objectives in the legislation and the policies of government. But it must also stand firm to allow the market to function without undue interference. It must look both ways and satisfy both groups without having its independence undermined or suffering commercial capture.

How that will look in a simplified structure needs to be clear and openly acknowledged, because when difficult decisions are taken which are not popular with someone, it must be understood that the regulator should not be ‘blamed’.

The role of the regulator in respect of the policies and spend of devolved administrations and local public bodies will also need consideration. A wide

range of competing interests can arise between such bodies (including successive administrations), and the economic regulator needs to have it clearly spelled out how far its role extends into trying to balance them in a ‘simplified’ structure.

The regulatory function is extremely valuable and important when done well. Regulators often get criticised for their decisions, and the braver their decisions the more they open themselves to inspection.

There have been recent high-profile attacks on regulators in other sectors (examples are Microsoft’s open objections to CMA decision-making in relation to Activision, and wider international complaints that regulatory action in the UK is undermining investment).

That does not (in itself) mean that regulators’ powers or their freedom to exercise their powers should be limited. Where (as here) the role of the industry regulator places them in a critical role to make a ‘simplified’ structure work, simplification must respect that and give them the powers and clarity to do so.

Success of a simplified industry structure will rest more heavily on ORR. The link between the regulator and designing such simplification should therefore be recognised. ■

About the author

Ian Tucker is a Partner at Burges Salmon. A specialist rail lawyer who has acted for sector clients for over 15 years, his background is in UK and EU rail regulation and industry dispute resolution.

On March 23 2022, GB Railfreight 66768 leads the 1054 East Midlands Gateway-Seaforth intermodal service at Gateway West Junction at Hemington (Leicestershire). The business cases prepared for freight enhancements could be made stronger through the inclusion of less-quantifiable societal, environmental and economic benefits. PHIL GRAIN.



Railway funding in a post-COVID world

When it comes to the often fraught and complicated subject of funding rail schemes, some are pointing to greater levels of devolution as a way of changing things. PETER PLISNER has been investigating

Seasoned rail observers maintain that the Treasury often sees capital expenditure in the railways as a grant and not an investment.

This comes despite the fact that funding a rail scheme can sometimes bring big returns in terms of economic and population growth, as well as direct additional industry revenue from ticket sales. In many cases, investing in the railways can also mean operational savings, particularly in the case of electrification.

But when it comes to grants, all too often those promoting rail schemes have to go cap in hand to the government for the cash and join a competitive queue of many other worthy rail enhancement bids.

Not only that, but the waiting time can be made much longer by the need to jump through multiple hoops, including a lengthy assessment, which some say can disadvantage schemes which might not be financially sustainable, but could bring quick wins in terms of social value benefits.

According to the latest *Draft National Policy Statement for National Networks*, applications for road and rail projects (with the exception of those for strategic rail freight interchanges) will normally be supported by a business case prepared in accordance with the Treasury's Green Book principles and the Department for Transport's (DfT) business case guidance and Transport Analysis Guidance (WebTAG).

The document states: "Transport Appraisal Guidance assesses the costs, benefits and risks of alternative ways to meet government objectives. It helps decision makers to understand the potential effects, trade-offs and overall impact of options by providing an objective evidence base for decision making."

But does the current assessment methodology fully encompass social value impacts, which are often difficult to monetise and could be the difference between a rural scheme getting funded or being pushed into the sidings?

Assessing social value in rail schemes involves evaluating the wider impacts of a project on society and the environment beyond

just the direct financial benefits. Those benefits are clearly easier to prove when it comes to projects in busy metropolitan areas, but leaving the hustle and bustle of the major cities, proposals for a new station in a sparsely populated area can often be much more difficult.

A DfT spokesman says: "When making investment decisions, we carefully consider a project's potential benefits not just for the economy, but for society and the environment too. We recently published further guidance on how we calculate the impact of schemes on their local area."

A social value assessment can help to identify and quantify the wider impacts of a rail enhancement. These can include factors such as environmental sustainability, social inclusion, health and well-being, and cultural heritage.

In the context of rail schemes, a social value assessment might consider factors such as accessibility and establish the extent to which the scheme improves access to transport for different segments of the population, including those who face mobility challenges, or where connectivity is limited across a wide geography.

It could also look at a scheme's impact on job creation potential and economic development, particularly in areas that may be currently underserved by transport infrastructure.

Clearly, any assessment needs to take in the impact a scheme might have on the local environment and what contribution it makes to reducing carbon emissions, improving air quality and mitigating noise pollution. The extent to which the scheme promotes social inclusion and reduces social inequalities by improving access to transportation for disadvantaged communities is also an important factor. So too is any cultural heritage, including impacts on the preservation of historic sites and buildings.

The DfT assessment methodology - WebTAG - is focused on a typical 'five case model' of business cases, including aspects such as volume of traffic and commercial performance.

The WebTAG criteria gives advice to those promoting and assessing schemes on what it terms 'Social Impact Appraisal'. Designed for all transport schemes and not specifically rail, it suggests that "social impacts cover the human experience of the transport system and its impact on social factors, not considered as part of economic or environmental impacts".

The document encourages assessment of eight key factors including the scope for fewer accidents, increased physical activity, better security, any severance caused by a scheme, as well as journey quality, option and non-use values, accessibility and, lastly, personal affordability.

Transport expert and former head of the Campaign for Better Transport, Stephen Joseph is a consultant who agrees that more should be done to include a greater weighting of social values when it comes to rail schemes.

"When they reopened the Borders line after devolution in ►



"The railway can stimulate development and fresh markets for travel with it, not only from new local populations but, as with Worcestershire Parkway, by providing new regional access to the National Rail network."

Ian Baxter, Strategy Director, SLC Rail

► Scotland, the business case was based on the value of providing accessibility in the Borders. Someone at the Department for Transport said to me they'd never have spent money on that scheme - it all came down to devolution and social value."

He also maintains that city regions might have similar issues: "I'm sure there are things they really want to do, but they can't get them over the line because the benefits of them - for example, enabling housing around railway stations - isn't taken into account."

Joseph cites a rail scheme in the Wisbech area of Cambridgeshire which is also struggling to pass the test: "It's seen by the locals as something that could enlarge the Cambridge travel-to-work area and avoid some of the housing and other pressures around the city, but that kind of thing isn't taken into account in social value."

Ian Baxter, strategy director at rail consultancy firm SLC Rail, also worries that current assessment criteria can overly favour places with existing large populations.

He explains: "Traditional business cases can sometimes overly depend on historic and contemporary markets for travel. The railway's task is seen as responding to externally defined population and economic growth, rather than shaping its volume, spatial distribution and sustainability."

He cites the recent example of Worcestershire Parkway, opened in 2020, where the new station has proved to be the vanguard of a plan to build a new garden town of 10,000 homes around it over the next 20 years.

"The railway can stimulate development and fresh markets for travel with it, not only from new local populations but, as with Worcestershire Parkway, by providing new regional access to the National Rail network. Business cases, and the data that underpins them, are essential in planning the railway's future, but are not the end in themselves. They are tools in a wider way of thinking about the future, bringing together planning, transport and sustainability in a holistic way."

And that's when the social value attached to people living in the new and expanding communities comes in.

Devolution in Wales has allowed for some flexing of the WebTAG assessment approach. In some places, it's allowed for more social value benefits to be included. Back in 2008, Welsh transport officials developed their own version of WebTAG, dubbed 'WelTAG'. The latest version has just been out for consultation. It forms part of what the Welsh government called 'a new approach to transport in Wales', starting with a new transport strategy and flowing through into everything the government does in the transport space.

The foreword to the consultation from the Deputy Minister Lee Waters says: "We need a new approach because we have very little time left to change the way we think and behave. If we don't do things differently now, we won't be able to tackle the climate emergency. Transport is one of the biggest sources of greenhouse gas emissions in Wales and tackling transport is one of the key issues for Net Zero Wales, our plan for decarbonisation."

In addition to suggesting a more important weighting for issues related to decarbonisation, the document also brought into the assessment for new transport schemes, among other things, a 'well-being' appraisal. The document stated a full business case should explain how a programme or project will contribute to well-being under the 'Well-being of Future Generations Act (Wales) 2015'.

This ground-breaking legislation aims to improve the social, economic, environmental and cultural well-being of Wales. It provides a broad framework for thinking about well-being that is the basis of the economic case in WelTAG.

The Wales Transport Strategy shows how transport can contribute to the well-being goals through four long-term ambitions. They include transport schemes being good for people and communities, good for the environment, good for places and the economy and good for culture and the Welsh language".

Transport business cases in Wales need to show how new projects will deliver well-being using a more detailed integrated well-being appraisal. This uses a mixture of quantitative and qualitative



measures to assess well-being impacts in a structured way, based on the four ambitions in the Wales Transport Strategy.

Kate Clark, policy advisor at Transport for Wales, says: "Economics is not just about pound, shillings and pence. So, by titling it the 'Well-being' case, we've stressed that it's about how transport can deliver well-being using that whole 'future generations' approach."

For Wales, it's now a case of designing well-being into all projects and that clearly means considering more social value impacts, including issues such as equality. Clark adds: "There is now much more emphasis on assessing well-being in the widest sense rather than just using Benefit:Cost Ratios that focus on travel-time savings."

She does admit that some projects will still need a heavier weighting on a Benefit:Cost Ratio (BCR), and to reflect this they have developed three distinct levels of WelTAG: WelTAG Lite, WelTAG Standard and WelTAG Plus: "If you're doing an active travel project, you might not need a complex BCR calculation, but what you do need is to design well-being into the project including social benefits."

While Wales (and Scotland) are able to widen assessment criteria to include social benefits, can the same be said for places such as Manchester and the West Midlands?

Both have recently concluded negotiations on a second devolution deal. Details are still a bit sketchy, but guidance from those connected with these latest deals talks about "greater local accountability" and a "greater role in leading and distributing funding for community rail activity in the region".

This is something that's currently carried out by the DfT. Overall, the aim in the West Midlands is to make its local transport network significantly closer to the standards of London by 2030. One of the biggest changes appears to be the concept of a 'single settlement' funding arrangement. It could mean that the region won't have to keep on going cap in hand to government for funding for rail and other schemes. And it will hopefully be free to flex the current



CrossCountry 220009 calls at Worcestershire Parkway on November 13 2021. Opened the year before, the station was given the green light based on the mass housing development it would go on to stimulate. JOHN STRETTON.

assessment criteria for some of its most-needed schemes.

Guidance on the latest devolution deals published by the Department for Levelling up, Housing and Communities (DLUHC) in March admits that the current system of funding for mayoral combined authorities is “fragmented overly and reliant on centrally administered funds and lacks clear, lean and proportionate accountability structures”.

It adds: “The government therefore commits to give the West Midlands Combined Authority (WMCA) single capital and revenue funding settlements at the next Spending Review, agreed directly through a single process with the government”.

This will include the establishment of a streamlined, overarching, single accountability framework coordinated by DLUHC, rather than multiple frameworks administered by different departments. This settlement will increase WMCA’s autonomy and its ability to prioritise decisions locally and reprioritise across its own budgets.

WMCA will no longer access certain funds. As part of the Spending Review, the government will set out how the settlement has been calculated and which funds WMCA will not be able to access during the Spending Review period. WMCA will receive the same level of long-term certainty over funding as government departments receive.

It’s certainly progress, but the big question will be how much of it will be co-ordinated by DLUHC and whether the new framework will be flexible enough to take social value benefits fully into account when making crucial funding decisions.

Anne Shaw, executive director for Transport for the West Midlands (TfWM - WMCA’s executive transport arm), says: “We have expended a lot of time and energy submitting bids and securing approvals through what our West Midlands Mayor called the ‘begging bowl’ system.

“Given our track record on transport infrastructure and investment over many years, we have earned the right to set our own priorities for investment and make the best decisions for our

residents, and the single-pot settlement should allow us to do that. We want to be judged on outcomes and trusted to deliver.”

If the assessment criteria are too rigid and narrow, what hope is there for the Government’s much-publicised ‘Levelling-up agenda’ actually working?

That’s a point raised at a recent Transport Select Committee hearing by Paul Howell, the MP for Sedgefield. He suggested that one of the historical reasons that there has been inequality across the country was the way BCRs have worked. He maintained that the levelling-up process is supposed to address that.

Questioning Dame Bernadette Kelly, Permanent Secretary at the Department for Transport, during the hearing in April, he asked: “Can you give those of us who require levelling-up to happen an assurance that something will actually be delivered through the evaluation process?”

In her response, Dame Kelly admitted that it was a topic that regularly came up. She said: “First, in the Department for Transport, we have very rigorous and robust analytical models, built up over many, many years, to ensure that we are able to do really rigorous BCRs. We hold ourselves to a higher standard than pretty much any Department. I think the Treasury, if they were here, would acknowledge that. That is because we think it is important that the very large investments we make are underpinned by good evidence.”

However, she did admit that “historically” there had been criticism that the process was focused too narrowly on economic considerations that tend to favour investments in the South and South East.

She added: “There are some points of debate there. I am not sure I would necessarily accept all those arguments, but we recognise the criticism, and we have done a lot of work in recent years. We have a levelling-up toolkit and other things to ensure that the appraisal methodology does not unduly prejudice investments beyond the south and southeast, but I don’t think that’s enough actually.”

She further explained how changes to the Government’s Green Book assessment process had amended to focus on the strategic case for a scheme, which in turn allows for more evidence and arguments that go beyond the quantitative underpinning of a BCR.

As a result of the changes, she said: “We have been working hard to ensure that we understand how best we can use the flexibility that the Green Book has given us.”

Some have been using wider economic, employment and social benefits in rail scheme assessments, such as uplifts in gross value added (GVA) to the economy and new jobs.

Ian Baxter remembers developing a service enhancement case on the Cambrian Coast Line between Shrewsbury, Aberystwyth and Pwllheli when he was working for Network Rail in the 2000s.

“The permanent population along the route west of Shrewsbury was then around 250,000 people, limiting the potential for a simple financial case for change. But taking account of the role of tourism, ►



“Given our track record on transport infrastructure and investment over many years, we have earned the right to set our own priorities for investment and make the best decisions for our residents.”

*Anne Shaw, Executive Director,
Transport for the West Midlands*

► the University of Wales and the Welsh Assembly functions at Aberystwyth, as well as the social and connectivity needs of the resident population, significantly extended the parameters of the case.”

The Cambrian experience sparked Baxter’s interest in calculating the GVA and jobs benefits of rail connectivity, whether upgraded by new destinations, better frequencies or faster journey times, and linking these to housing, population and employment growth set out by local government in Local Plans.

“Together with colleagues at consultancy firm SYSTRA over the last ten years, we have evolved modelling techniques, consistent with the DfT’s WebTAG, to work out not only the formal business case for rail connectivity improvements, but their direct GVA and jobs benefits to the economy and new jobs.

“In doing so, we have helped combined authorities such as the West Midlands Rail Executive and shire counties including Warwickshire, Worcestershire, Leicestershire and Gloucestershire to determine their key strategic rail priorities, their relationship to wider economic, population and spatial growth over 20- to 30-year periods, and when is the right time to develop and deliver projects.”

And strategic priorities are high on the list for Network Rail, which runs the Restoring Your Railway (RYR) programme in partnership with DfT, and where assessing the more than 150 applications submitted isn’t easy. Not surprising, when you consider that many of them envisage reopening lines that were closed because they weren’t making any money.

Mike Smith, programme director for RYR at Network Rail, admits there does need to be a more balanced approach that doesn’t only look at a scheme’s BCR: “I often think of a set of old-fashioned scales balancing the strategic case with the economic case.”

He maintains that since COVID and the effective renationalisation of the railways, there has also been more emphasis on the financial case.

“We have had to make sure that proposals coming forward don’t significantly increase the current subsidy requirements. Each of those cases play out in different ways across the portfolio.”

He says it has been a challenge. Two and a half years into the RYR programme and only one project has been finished (the Dartmoor line), with five currently under construction - including the Northumberland Line and four standalone stations. Others, including the Ivanhoe Line in the East Midlands, are now in the development and design stage.

Smith adds: “Some of those projects reconnect significant populations. The Ivanhoe Line reconnects nearly 200,000 people within a three-to-four-mile radius of the railway that will be restored to passenger service. That will have a significant impact, given the amount of people reconnected.

“Whether that translates to a strong BCR is based on subjective judgement, but the sheer quantum of people affected by the transformational benefits generated proves the need for the strategic case to have some bearing.”

Nevertheless, he reflects that it’s important that new train services are as efficient as possible. Since the 1960s, around 200 new stations have reopened, including many closed during the Beeching era. Add that to what’s happening around the world, and there appears to be a weight of evidence allowing more of the social benefits of rail enhancements to be much more quantifiable.

Smith said: “Following the reopening of the Borders Line, we’ve seen housing growth expand, triggered by people changing their work-life balance and moving house because the new railway offered them an opportunity to live somewhere else, but still work in the same place as they did before. We’ve been helped by the Dartmoor Line running at a far higher volume of passengers than the standard models forecast.”

Social values and benefits, in terms of additional connectivity, appear to prove the point of the old saying, “If you build it, they will come”. BCRs certainly don’t take that into account.

However, Smith prefers an amended version of the saying: “I

think that phrase is fine for the Restoring Your Railway programme, except that with many of them, it’s not they will come, it’s that they’re already waiting!”

Assessment of rail schemes can also be challenging for some sub-national transport bodies like Midlands Connect. Within its latest transport strategy, all its proposed schemes are assessed for strategic alignment against its main criteria of ‘Fairer’, ‘Greener’ and ‘Stronger’. The problem is they are three things that aren’t really measured by a traditional BCR.

Midlands Connect Head of Rail Karen Heppenstall says: “While aspects of Fairer, Greener and Stronger can be quantified, this can only be done within the Strategic Case, and not considered with the value-for-money appraisal.”

Heppenstall maintains that rail funding still relies on very traditional assessment methods and she agrees with others that it can leave rail enhancements, particularly in the Midlands and the North, at a disadvantage, when compared with other transport schemes because of “the types of tools that are used and the emphasis that continues to be put on the BCR, even following Green Book changes, that say that the strategic case is important.”

Midlands Connect, through its new *Strategic Transport Plan*, is breaking out of what some have called an inward-facing insular approach to rail improvements where proposals are normally around running more trains and the capacity improvements that would allow that to happen. Midlands Connect’s ethos is to look more at what rail can do for wider society and Heppenstall admits that the Government has started to recognise that.

She points to the *Williams-Shapps Plan for Rail* and some of the work of the Great British Railways Transition Team (GBRTT), which has been asking questions about rail’s role in society.

“GBRTT’s objectives are very much about social mobility, economic growth and decarbonisation. The challenge that they have is about striking the right balance around the question of financial sustainability and what does that mean for the rail industry - cutting costs or increasing revenue?”



And organisations such as Midlands Connect that have clear strategic objectives would seem to be in an ideal position, as those objectives are likely to resonate with the GBRTT team, which last year conducted a 'Whole Industry Strategic Plan' (WISP) consultation.

It asked respondents to consider ways in which rail and the rail estate can find new ways to catalyse economic growth and prosperity over the next 30 years in the context of wider economic, social, environmental and technological trends. Having strategic objectives will allow GBR to think about what weight decision-makers put on the financial, economic or strategic case.

It's thought that the view being taken by the transition team is not to try and monetise everything. That policy is expected to lead to the development of a new framework, along with the DfT, that's anchored (in part) on strategic objectives rather than simply taking a ranking of schemes according to their BCR values.

Exactly how strategic objectives will be weighted remains to be seen, but it's clear that, given the current constraints in Government funding, that financial sustainability will continue to be an important factor in any decisions going forward. However, the GBR that emerges from the transition period does look like it will allow a broader case for schemes that encompass more than just financial sustainability and that will be a major step forward in helping many schemes that have thus far failed to make it off the drawing board.

And when it comes to financial sustainability, some in the industry are concerned that, following the COVID pandemic and the billions that the Government has put into the industry, we are now in a situation where the Treasury prefers an approach that reduces the cost of running the railway rather than increasing revenue.

If the Government is serious about achieving net zero, meeting sustainability targets and achieving economic growth and social mobility, there may need to be an increase in rail services that are considered marginally viable yet more attractive and accessible, rather than focusing on those services where patronage is low.

Rail services aren't just there to make money, they are also there to provide a socio-economic need. There's a clear risk that by cutting



"If you do grow freight then you don't get a farebox like you would in a passenger railway. However, you do get social and economic benefits and some of those can be included in a BCR."

Maggie Simpson, Director General, Rail Freight Group

rural or infrequent rail services, the Government could make social mobility worse and at the same time increase the gap between what London and the South East have and what rural parts of the country don't have.

And then there's the issue of freight enhancements. Again, not all the benefits of carrying more goods by rail are quantifiable in terms of cash-value savings. This includes things such as reduced congestion or carbon savings.

Rail Freight Group Director General Maggie Simpson says: "A rail freight scheme wouldn't generate any cash back to government because any revenue gain goes to the freight operating company or the customer. There might be some performance saving, but fundamentally, if you do grow freight then you don't get a farebox like you would in a passenger railway. However, you do get social and economic benefits and some of those can be included in a BCR."

Simpson makes two other points about other wider benefits which currently aren't considered: "People have looked at those quite hard, but they become very difficult to quantify. Some things like the agglomeration benefits or the benefits that a user gets through better resilience, reliability or economic performance through using rail are hard to quantify."

She remains concerned about how the government would decide between two rail schemes that have a good BCR, but with one returning large amounts of cash and the other a much-needed freight upgrade that returns large amounts of social and environmental benefits.

"I suppose that could polarise decision-making in a cash-constrained world," she says.

Simpson also maintains that there must be a price for how efficient moving freight actually is: "We know that when moving freight goes wrong, we get an economic impact. We have seen that during COVID, so there must be a price for the economy, and a particular rail scheme could be considered more effective. Intuitively, there's a price attached to that, but how you value it is quite hard."

In closing, it's also worth mentioning that the business models being pursued are all pre-COVID models often based on peak journeys and Monday-to-Friday commuting, and now it's clear that the whole demand structure has changed probably forever.

Latest models do need to reflect the ever-changing post-COVID world we are now in. No one quite knows what it will be like yet. If nothing else, that means that we will need to be more sophisticated in the breadth of our thinking going forward.

Baxter says: "We are going to need to look at the form of assessment being used to take account of the post-COVID world, and to recognise that the railway can stimulate growth and development. It doesn't just respond to it."

"We therefore need to relate railway developments much more effectively to broader housing growth, housing spatial distribution and distribution of jobs and economic growth."

He maintains that we shouldn't just view things solely in terms of normal commercial business cases and think more about how rail schemes support the economy and the environment. A final point he makes is about applying judgement and experience and that's certainly something that could come as part of the new Great British Railways. ■

Transport for Wales 153369 approaches Abergavenny on February 14 2022. The Welsh Government has used devolved powers to allow more social value to be included in traditional WebTAG assessments. JACK BOSKETT.



Enhancements



Noel Dolphin
Head of UK Projects, Furrer+Frey

The history of railways is inextricably linked with spatial planning and development, shaping society and demand rather than merely responding to it. Relying solely on the current business case models only reinforces the current system - it cannot build a new one.

An excellent historic example of this proactive role can be seen in the creation of MetroLand in the Home Counties. The development of the railway system in this region led to the establishment of new residential areas, effectively shaping the societal and economic landscape of the region. This clearly demonstrates the railway's potential to stimulate development and create new markets for travel.

Ian Baxter's example from Worcester is a rare shining light, as it seems that the rail sector has largely forgotten its role in shaping society and demand, focusing more on responding to existing demand. The Treasury has been at the forefront of this collective memory loss.

The potential of the railway system to shape society and stimulate development is not limited to urban areas. In rural regions, the railway system plays a crucial role in providing essential services, opportunities, and supporting tourism. This is a role that extends beyond simple financial considerations, taking into account the broader social and connectivity needs of the resident population. It is here that the current business cases fail most dramatically.

The role of devolved governments and regions in leading change in the railway sector cannot be overstated. Uniquely, these entities have a clear strategy and vision for what they want to achieve. However, they need the freedom to fund themselves within their own fiscal limits to realise these goals. This is a crucial aspect of ensuring the continued development and relevance of the railway system. To quote Anne Shaw, the current system is a "begging bowl" system.



Giving proper weight to Social Value is an important objective which appears in a number of forms across all government activity. The Public Services (Social Value) Act is one obvious wider example, with its implications for including social value considerations in public procurement (in that case, social value themes to be prioritised are currently centred on COVID-19 recovery, tackling economic inequality, fighting climate change, equal opportunity, and wellbeing).

The levelling up agenda, and in some respects the Climate Change Act (and climate change strategy), are also forms of imposing social value obligations on public spending decision-making. Identifying what social value is, which forms of social value should be prioritised, and how it can be given adequate weight in decision-making, is consequently not a matter confined to rail.

Unfortunately, as the article describes, finding ways to give the right weight to particular types of social value in projects is both tricky and contentious. In part, that is because of the range of topics which 'social value' can cover (and which sometimes conflict - for example, economic inequality and climate). Sometimes it is because money is scarce and partially self funding investments allow it to go



Ian Tucker
Partner, Burges Salmon LLP

further than investments which do not generate financial returns to government, and sometimes because a lack of data or reliable modelling precedents means that it is harder (or impossible) to justify certain types of social benefit using SMART requirements (The M being 'Measurable').

Amid a clamour for funding of all kinds across all sectors, the Green Book is intended both to justify the spend of public money and to allow some comparison between the options for spending it by trying to introduce some consistency. It does (generally) try to do that by use of business cases (designed around five 'dimensions'). And as the article describes, DfT's draft National Policy Statement

A London Underground Metropolitan Line service passes Neasden on January 21. The railway needs to get back to its traditional role as the shaper of society and demand, just as London's Metropolitan Railway gave rise to Metroland in the early 20th century. ALAMY.



Different lines and services within the railway system play different roles. For instance, the role of the London commuter belt is different from that of rural Wales in terms of access to essential services, opportunities, and tourism. The importance of freight, previously overlooked in business cases, has now become apparent, especially in the wake of the COVID-19 pandemic - something for which the Rail Freight Group has long campaigned. Adding freight to the mix can turn a project BCR into something worth investing in - we have seen this on several large projects.

Decarbonisation is another crucial factor that must be considered in the planning and development of the railway system. This is particularly important in the context of the current global focus on reducing carbon emissions and promoting sustainable practices. A future Government must continue to align the Green Book to this new priority.

The railway system needs to re-embrace its role as a shaper of society and demand. It needs to work closely with devolved governments and regions to achieve their strategic objectives. It also needs to recognise and leverage the different roles that different lines and services play within the system. The importance of freight and decarbonisation in the post-COVID world cannot be overstated.

The railway system has a crucial role to play in shaping our society and our future, and it must rise to this challenge. But it comes down to political will. If a Government does not want to invest in the railways, it won't, no matter what the BCR.

We know we can shape a better economy, improve the productivity of the UK, and support decarbonisation. However, we need a government that has confidence in the rail industry to make that happen. We also need a Treasury that can let go of some of its power and release them to devolved governments.

for National Networks adopts that approach "to identify the proposal that delivers best public value to society, including wider social and environmental benefits".

This is supposed to capture (or at least allow) social value and benefits of all types to be considered. Such benefits are (largely) included in the strategic and economic dimensions of the business case, and recognise that non-monetised impacts of a project need to be appropriately taken into account. Arguably, this is where the difficulty lies - not in these being taken into account, but how they can be taken into account in the context of the available evidence.

Where there is lots of data, prior examples, financial costings and modelling for prior similar projects, it is easier to build and support a case which turns out positive.

The units of measurement are pounds and the analysis can be done in pounds. Where a benefit is not expressed in pounds (for example, wellbeing), or where economic realities simply involve less money (anywhere outside London), or where data does not exist to show what users may make of a project (the Borders Railway is a good example of where the absence of precedent/established modelling rather than the absence of actual demand will have

undervalued business plan assessments), the conclusions become vulnerable to challenge.

Decision-makers who are looking for evidence to justify their decision will consciously or unconsciously defer to a recommendation where there is lots of positive evidence, rather than one where there is little concrete to show other than 'common sense'. They say no one got fired for hiring IBM. Similarly, no one gets criticised for a decision (even a wrong one) based on lots of evidence.

Perhaps one option is to consider clear guidance that decision-makers will need to take some decisions on trust and faith in non-quantifiable externalities, and will not be criticised for mispending public money if they do so in good faith. Arguably, at least, those who are closer to the community who will benefit may be better positioned to act bravely in that respect.

“Decision-makers who are looking for evidence to justify their decision will consciously or unconsciously defer to a recommendation where there is lots of positive evidence.”

Rail's role at the hustings

With a General Election guaranteed to take place within the next 18 months, *RailReview* asks two industry leaders what they think the main political parties should be including on rail in their election manifestos...

John Davies, Vice President Industry Relations, Trainline



How is transport policy best presented in a political party's manifesto?

Few votes are won and lost over the detail of retail policy, so arguably we shouldn't propose a transport section at all.

Instead, let's portray transport policy through the outcomes that politicians (and voters) care most about - economic growth, cost of living, levelling up, climate change.

Rail is an enabler that can unlock benefits in these key priorities. Let's showcase targeted interventions to address these issues, and that will go a long way to both improving customer experience and boosting rail's reputation in the corridors of power.

Thanks to digital ticketing, we have the capability to study passenger behaviour in detail and in real time.

We are generating data about our customers like never before, so let's utilise it and act on what it tells us. We live in a world where supermarkets have long bombarded us with targeted offers and short-term sales, because they know they have to fight hard to attract our custom. Now the rail industry can finally equip itself to follow suit, so let's do this and start upping our commercial game.

How about a year of trialling radical fares reform to boost the economy? Implementing incentives that are right for local market conditions would be real levelling-up in action.

Germany recently trialled the €9 (£7.70) ticket and subsequently refined the proposal into an unlimited monthly ticket for €49 (£42.11).

Scotland's upcoming six-month experiment with scrapping peak fares is a bold idea, and the lessons learned will be useful for the Westminster Government.

But why stop there? The list of potential commercial incentives we could trial is endless - anything from a new subscription model to introducing free-travel Fridays.

We know one size doesn't fit all, and that the London-Manchester market obviously needs different incentives to rural Cornish railways, for example. But the best approach would be to start experimenting now so we can confirm in practice what does work well where.

My home station of York has been transformed in recent years, with the space formerly occupied by 16 busy ticket windows now home to a retail unit, thanks to the huge popularity of e-tickets with customers.

The rollout of e-ticketing is close to completion, and this programme should be accelerated. In turn, this creates space on stations which can be reimaged. Let's offer these to address other Government priorities - depending on the location this could be revitalising town centres, creating community hubs, or even allowing redevelopment for housing.

How does doubling rail's share of the inter-city market versus road and air sound for an environmental policy?

This has been the outcome of introducing competition on inter-city routes within Italy. On the Rome-Milan route, over the course of a decade the competition between Trenitalia and Italo has led to passenger numbers doubling, average prices falling by 40%, and rail's modal share increasing from 36% to 75%.

In Spain, competition between operators is much more recent, but the results are still striking. The Madrid-Barcelona route has gone from one operator to four in little over 15 months. At Trainline we've tracked the data and seen average prices fall by 49%.

How about a commitment to expand inter-city open access in England, to see if we can achieve the same results? Halving the cost of inter-city rail travel would make for an attractive cost-of-living manifesto policy.

To support levelling-up, let's accelerate the benefits of pay-as-you-go travel across the country. London has a great success story that the rest of the country is jealous of, but the good news is that it can be replicated without requiring huge capital investment in new gates or readers. We can use tech to develop a new answer (it's something the team at Trainline is currently working on), which would offer many of the same benefits at the fraction of the cost.

Another idea: create a green railcard to help reduce carbon emissions from transport (the single largest contributor to UK domestic greenhouse gas emissions).

At Trainline, we have been arguing for a while now that sustainability is rail's secret weapon for growth, but we need to make it less of a secret. A green railcard would provide better incentives for travellers to make the sustainable travel choice, and help the industry market our sustainability benefits to potential customers. It also sounds snappy enough to appeal as a politician's soundbite.

So, there's my manifesto. No grand plan for rail, but instead a series of radical reforms which are laser-focused on helping the customer and deliver against political priority issues.

Combined, they can boost customer numbers, help industry finances, and put rail in a stronger, healthier and happier place.



Passengers wait to board a Great Western Railway service at Chippenham on November 10 2022. Both John Davies and David Pitt argue that fares reform and retailing should be front and centre of rail policy for an incoming government. JACK BOSKETT.

David Pitt, Vice President UK, SilverRail Technologies



Prior to the pandemic, rail passengers were already unhappy with the rising cost of travel. And whether HM Treasury likes it or not, the dependency on rail for commuting purposes is not what it was.

This does not mean that the railway has no future. It does... and it's a very strong future. But it requires a very large shift in mindset if this future is to be realised.

In 2024, there is going to be a General Election, and whichever way the tide turns, the government of the day has to bring forward some radical thinking that is not controlled and/or vetoed by the Treasury.

Over the past 24 months, since the publication of the *Williams-Shapps Plan for Rail*, we have all noticed the vacuum in which the industry has had to operate.

Looking ahead, whichever party finds itself in government after the next election, there are many areas of improvement that need to be progressed quickly.

Manifestos should be clear on how the current industrial action is to be resolved and the underlying issues removed, for good.

The railway network, even when operated by private companies, remains a public service. Having a dependency on private operators to train a sufficient number of drivers, for example, with the alternative being cancelled services, does not feel like a wise position for the industry to be left in.

Clearly there needs to be more safeguards in place to protect

the 'service' if confidence is to return and remain. Equally, having the public suffer a catastrophic loss of services at the behest of unions also does not feel like a good place to be, for either the industry or the country.

Policy should also take account of the never-ending pace of change in technology. Until now, the industry has done a great job at trying to remain in the last century, with the complexities of the Ticketing and Settlement Agreement that was written before most people had heard of the internet. Flexibility has to be built into the system, which includes any agreements that dictate operational activities and services.

Looking ahead, either party would do well to think about how railways can be placed at the heart of mass transit, with a long-term affordable plan to bring back some of the lines closed in the 1960s so that communities can once again be joined up.

One example that I find astonishing is that there is no direct line between Derby and Manchester and the numerous towns inbetween, because it's possible to travel via Crewe or Sheffield. The fact that these journeys just aren't viable when considered alongside driving seems to have no impact on the debate.

As first referred to in the 1998 White Paper - *A New Deal for Transport: Better for Everyone* - it could also be argued that there is now a strong case for government policy to finally develop a national plan to integrate rail with the wider transport network.

The 'first and last' mile (as it's become known) is a difficult nut to crack for local authorities in isolation, primarily due to the high cost and almost zero margins in solving this problem.

With a national plan, however, a centralised marketplace could be created that allows both private and public operators to offer their services within a payments framework whereby micro-payments would pass between providers and joined-up service contracts, ensuring that any delays with one operator do not cause the customer to be out of pocket with the next provider.

This level of service operates well in Sweden and is underpinned by 20-year-old technology.

Every aspect of the journey needs to be considered - including the cost of parking, which at some stations can also be prohibitive.

With the creation of Great British Railways, we now have an opportunity to incorporate the railways into the fabric of society and to support future economic growth across the country.

Whether you think Nationalisation is the saviour of our railways or a stepping back in time that will pitch our trains against the NHS for funding, it is clear to see that the centralisation of our railways has clear benefits to offer - including a national centralised retail service that would help bring competition into this space, along with innovation across retail channels and new markets.

Manifestos must recognise that fares cannot keep increasing year on year when the service simply isn't good enough. Instead, any future government has to be prepared to invest to ensure that the rail industry does not fail, by developing with a growth mindset in place of a downward spiral of cost savings.

Whichever party forms the next government, we need to see imagination and action. But above all else, the rail industry needs some very clear leadership. ■



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. If members would like to submit a report for inclusion, please email: paul.stephen@bauermedia.co.uk



High Speed Two: Euston

National Audit Office - March 27 2023

The Government should use its two-year pause of new construction at HS2's Euston station to develop a design that is affordable, deliverable and value for money, says the influential

National Audit Office.

The cost of HS2's revised and postponed London terminus has almost doubled to £4.8 billion since 2020, according to the public spending watchdog. The forecast cost of a redesigned station with fewer platforms has also expanded way beyond

the initial £2.6bn budget.

The NAO says £568 million was spent on the station to the end of 2022, and £1.5bn spent on land purchase and preparatory work in the area. It warns that the pause will lead to a spending deferral in the short term, and to additional costs and potentially an overall increase in costs in the long term.

The report recommends that the Department for Transport works with the Euston Partnership, HS2 Ltd, Network Rail, LendLease and local partners to reassess the expectations for the HS2 Euston project, its budget, and the public benefits.

RSSB 2023-24 Business Plan

Rail Safety and Standards Board - April 3 2023

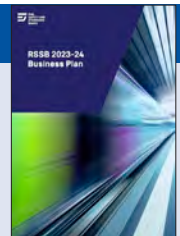
Reducing cost while continuing to deliver its core projects is the ongoing primary focus for the Rail Safety and Standards Board.

The organisation's priority in 2022-23 has been delivery of its two key financial targets: to build financial sustainability by closing Control Period 6 with reserves of £4.6 million; and to provide value for money by delivering efficiencies of £7.1m over the final three years of CP6.

"We are conscious that 2023-24 is likely to be as challenging as 2022-23," the report notes.

To help control rising costs and in response to changed working patterns since the pandemic, RSSB says that ahead of the lease at its offices (near London Liverpool Street) expiring in December 2024, it is planning to change office location.

CEO Mark Phillips added: "At this time of acute financial pressure, RSSB will focus on providing value for money and delivering cost saving solutions in our core areas of standards, safety, health and wellbeing, and sustainability."



Public transport fit for the climate emergency

Trades Union Congress - April 12 2023

A public transport upgrade to meet net-zero targets could deliver a £52 billion productivity boost by 2030 and create high-quality jobs in transport and manufacturing throughout England and Wales, claims this new report from the TUC.

The TUC, which represents 5.5 million workers in 48 unions, argues that its investment plan "fills a gaping hole" in the Government's recently published net-zero strategy, which failed to explain how it will achieve the modal shift from cars

that the Committee on Climate Change says it necessary.

The plan would require an average of £9.9bn in annual capital expenditure up to 2035. Additional operating costs for expanded bus, tram and rail services would reach £18.8bn annually by 2030.

This would be offset by productivity gains estimated to boost annual GDP by £52.1bn by 2030. The plan would also create 140,000 new jobs in bus, tram and rail operation, plus a further 830,000 jobs in manufacturing, construction and infrastructure for buses and trams up to 2035.

Data and Digital Technologies in Rail

Railway Industry Association - March 29 2023

RIA has issued a report outlining the challenges and opportunities facing the rail industry on data and digital technologies. It follows the Government's publication of its *Transport Data Strategy*, which ministers say will improve passenger access to digital apps and websites.

Having first consulted RIA members, the report includes six key 'asks' of government, policymakers and clients, to ensure the success of rail's digital transformation.

They include strong cross-industry leadership, upskilling and

empowerment of talent, placing customers at the heart of everything, investing in innovation, and greater collaboration.

"From smart sensors to the use of cutting-edge AI, data will play a critical role in a fully integrated railway in the years ahead," said RIA Innovation Director Milda Manomaityte.

"Rail industry leaders and policymakers need to ensure everyone in UK rail is ready for the transition to an increasingly data-led network over the next ten years."



Freight rail usage and performance - October to December 2022

Office of Rail and Road - March 28 2023

Strike action by Network Rail signallers has been cited as the key reason for a decline in rail freight in all but three sectors in October-December 2022 (Q3, 2022-23).

At 3.7 billion net tonne kilometres moved, freight was down 9% compared with the corresponding quarter in 2021-22. It is the lowest level of freight moved in Q3 since current records began in April 1998.

With freight trains unable to run for a full day (if at all) on strike days, the impact was exacerbated by strikes falling on consecutive days.

Freight lifted (the quantity) was 17 million tonnes in Q3, down 17% compared with a year ago.

And the proportion of freight trains arriving within 15 minutes stood at 80%, also the lowest since current on-time performance records started in 2013.



Left behind Londoners

London TravelWatch - March 15 2023

One in six people in the capital (1.5 million people) say they are unable to buy a train ticket as they can't use or don't have access to a smartphone or internet connection.

A further one in five Londoners have paid more for travel because they are not able to buy tickets online or via mobile apps, claims London TravelWatch.

The transport watchdog says these "left behind Londoners"

feel cut off from using public transport because they are "digitally excluded or disadvantaged".

LTW's research report, based on 100 telephone survey interviews and extrapolation of other data sets, calls for transport authorities and operators to maintain non-digital options, make sure staff are visible, implement a travel mentoring scheme, make online discounts available offline, and work with digital inclusion specialists to ensure that information is as accessible as possible when planning changes.

RAIB Accident Report - Near miss at Farnborough North footpath level crossing

Rail Accident Investigation Branch - April 2023

Accident investigators have recommended that Network Rail improves its risk assessment at footpath level crossings, following a near miss at a high-risk crossing in Hampshire.

At 0822 on May 19 2022, some 144 people were waiting to use the footpath crossing at Farnborough North station. Most were schoolchildren and students who had just got off a train.

After the train departed, miniature stop lights at the crossing changed from red to green and the audible warning stopped, indicating that it was safe to cross. When about half the group had crossed, the lights turned from green to red, but crossing

users continued to hold the gate open, unintentionally preventing it from locking, until a crossing attendant left the cabin to intervene manually.

The people still on the crossing came within six seconds of being struck by a GWR train travelling at 70mph.

RAIB concluded that NR had not developed a plan or training to enable the crossing attendant to effectively manage the risk that remained following the installation of lockable gates in 2013. It also found that a plan to construct a footbridge had not obtained planning permission over a prolonged period.



Passenger rail usage - October to December 2022

The Office of Rail and Road - March 16 2023

A total of 369 million rail passenger journeys were made in Great Britain during the latest quarter (Q3: Oct-Dec 2022).

This represents 80% of the 461 million journeys made in the corresponding quarter in 2019 (pre-pandemic). It might have been higher had industrial action not resulted in reduced timetables being put in place on strike days.

Total passenger revenue was £2.1 billion in the latest quarter. More than half (54%, £1.14bn) of industry revenue came from leisure trips, despite 11 days of industrial action.

Business travel rose by 6% on the previous quarter, but still accounted for a small share of the overall market (£179 million).

Meanwhile, the second stage of opening the Elizabeth line in November 2022 helped to lift revenue from commuting by 3% (£781m).

Potential rail industry initiatives

Transport Focus - May 5 2023

This research seeks to understand the extent to which 59 potential initiatives could have an impact on passengers' satisfaction with their experience of travelling by rail.

The initiatives were designed to be specific things that the railway could implement, such as CCTV on every train or being able to tap in and tap out at stations using a contactless card.

In a survey of 3,979 passengers across a broad cross section of frequencies, purposes and regions, Transport Focus concluded

that keeping passengers informed was the top priority. Passengers want accurate information, however and whenever they wish to receive it - whether from staff, via an app or departure boards.

Initiatives around the provision of information should therefore be the top priority for the industry for increasing overall satisfaction, such as real-time information about busyness and crowding, onward travel information, and so on.



We've read it for you

Keep up to date with developments in the rail media. Read more on www.railreview.com

International Railway Journal

April 2023, p6



France to invest €100bn in rail infrastructure

French Prime Minister Elisabeth Borne has announced a further €100 billion investment in rail infrastructure by 2040. She stressed the need to improve “everyday transport” and the move towards zero carbon emissions from transport.

Investment will be concentrated on new high-speed lines and RER systems in cities outside Paris, as well as delivering cross-city links, more frequent passenger services, and new interchange hubs.

Borne emphasised that the package would be financed not only by central government, but also by French National Railways (SNCF), the European Union and French regional authorities in change of passenger services. An extra €1bn a year will be allocated to the rail network renewals and €500 million a year to network modernisation.

Today's Railways UK

May 2023, p17



Show staying power on Northern Powerhouse - NIC

Rail services across northern England are in an “appalling state” and the Government must “demonstrate staying power” in delivering even its slimmed-down version of Northern Powerhouse Rail, the chairman of the National Infrastructure Commission has warned.

Sir John Armitt CBE made the comments in a progress report which said that work towards major infrastructure objectives has “stuttered further just as the need for acceleration has heightened”. He warned that “in a range of areas Government is off track to meet its targets and ambitions”.

The NIC report also called for a “greater sense of certainty” around HS2, following recent announcements of delays to the mega-project and a study yet to start into how to bring HS2 to Leeds.

International Railway Journal

March 2023, p7



German domestic air passenger switching to rail

A German plan to attract air passengers to rail is proving successful, with passenger numbers on rail services growing at a faster rate than comparative air services.

The German Aviation Association (BDL) and German Rail (DB) launched a joint action plan in April 2021 to strengthen integration between air and rail.

In the first half of 2023, domestic air travel is expected to reach 56% of 2019 levels. Although air travel is increasing after the pandemic, DB says there is evidence of a further shift of domestic short-haul traffic to rail. In particular, the use of DB's ICE Sprinter services is increasing, with passenger numbers 45% higher than in 2019.

Expanded feeder services and offers such as Lufthansa Express Rail, which enables the airline's passengers to book a journey including train travel to and from Frankfurt Airport on a DB ICE service using a single ticket, are also thought to have contributed significantly to the success of the plan.

Modern Railways

May 2023, p18



Leisure drives rail travel

The Great British Railways Transition Team says leisure travel accounted for 54% of rail industry revenue in the final quarter of 2022 (October-December), despite industrial action and a post-summer dip.

Revenue from leisure travel was £1.14 billion, with 214 million journeys made. This is a 15% (£199 million) drop from the July 1-September 30 period. Commuting revenues increased by 3% to £781m, with 131 million journeys made, and business travel revenues increased by 6% to £179m, although only 24 million journeys for this purpose were made.

The findings are contained in the first *Train Travel Snapshot*, which the GBRTT intends to publish regularly alongside other data from the Office of Rail and Road and the Department for Transport.

Passenger Transport

March 10 2023, p6



NEG profits rebound after strike windfall

Industrial unrest on Britain's railways has contributed to a robust set of results at National Express Group for the year ending December 31 2022.

The London-based global group reported underlying pre-tax profits of £145.9 million, up from £39.7m in 2021, with annual worldwide revenues (£2.8bn) surpassing pre-pandemic levels for the first time since COVID-19.

NEG attributed much of this growth to strong patronage across its bus and coach operations in Spain, Morocco, the UK and Germany.

International Railway Journal

April 2023, p14



€1.1bn scheme to support electric traction approved

The European Commission has approved a €1.1bn (£970 million) German scheme to compensate operators using electric traction, following the recent major increases in electricity prices.

The EC says the support will help ensure that the rail sector remains competitive while preserving the superior environmental performance of electric operation, in line with the objectives of the EC's Sustainable and Smart Mobility Strategy and the European Green Deal.

Aid will take the form of monthly reductions in the operators' electricity bills. Electricity suppliers will then be reimbursed by the German Government only for the support provided to the operators.

Modern Railways

April 2023, p9



MML electrification could be shelved to pay for HS2

Full Midland Main Line electrification to Nottingham and Sheffield is at risk of being cancelled, amid escalating costs on HS2.

On December 1 2022, Network Rail's board approved a request to commence procurement activities for the next phase of electrification. Work is currently in progress to electrify from Kettering to Wigston South Junction, with completion due in 2024-25.

Last year, NR held a market engagement event for electrification north of Wigston to Nottingham and Sheffield, and proposed to award contracts in 2024.

However, *Modern Railways* now claims that sources have suggested this will be sacrificed for money to be diverted to HS2 instead. A Government written statement in March confirming delays to the mega-project referred to "significant inflationary pressures and increased project costs".

International Railway Journal

March 2023, p7



Renfe president resigns over metre-gauge train gauging error

The president of Spanish national operator Renfe, Isaias Taboas, has resigned following delays to the production of 31 new trains for Renfe's 1,000mm-gauge network in Asturias and Cantabria.

Delivery of the first train is expected to be three years late, after manufacturer CAF informed Renfe that the infrastructure on which the trains would operate did not comply with the published specifications, notably for clearances in tunnels.

Renfe is reported to have specified gauging standards for new infrastructure in its tender, rather than requiring the new trains to fit within tunnels. CAF says the error was detected in the early phases of the design process and that no manufacturing costs were incurred.

The final design of the new trains is now expected to be ready this summer, enabling CAF to start production by the start of 2024 and begin delivering vehicles by 2026.

Modern Railways

April 2023, p16



Scotland to trial Sunday and Monday blockades

Scotland's Railway is to trial the use of two-day engineering blockades on Sundays and Mondays, rather than the traditional weekend closures.

Managing Director Alex Hynes highlighted that ScotRail revenue had returned to 80% of pre-COVID levels with 80% of services running, but peak business had dropped by 40% with Saturday now the busiest day of the week.

Scotland's Railway's response to the changed market will extend to looking at how it carries out engineering work, with a route in Scotland to be selected to trial the move to a Sunday/Monday shutdown instead.

Which route will be chosen is yet to be confirmed, but it will be a route served solely by ScotRail so that the trial does not affect other operators.

Railway Gazette International

April 2023, p8



Decolonisation programme launched

Ukrzaliznytsia has unveiled a new zero point at Kyiv's main station for measuring distances on the national rail network, replacing legacy measurements based on Moscow.

The move marked the start of what outgoing CEO Oleksandr Kamyshin described as a "comprehensive programme of Ukrainisation, which does not just remove Soviet symbols and Russian names, but fundamentally changes Ukrainian Railways".

Legal and technical studies for 'decolonisation' were started following the Russian invasion in February 2022, with the changes to be implemented in 2023-25.

Station names and Soviet artworks are to be changed, and the Russian language on tickets will be replaced by English.

Passenger Transport

April 21 2023, p5



Research probes strike responses

The Department for Transport has revealed the results of research conducted by Savanta which seeks to understand the travel behaviours of more than 17,000 rail passengers, in response to widespread industrial action.

It shows that just over half of respondents had planned to make a journey during a strike week, with 29% planning at least one commute journey to/from work and 17% a leisure journey.

In terms of the impact on passenger journeys, half of those who planned to travel by rail made none of their planned rail journeys during the weeks when strike action took place. A total of 21% reduced the number of rail journeys they made, and 9% opted to travel on a different day.

Among those who planned a rail journey for work, 8% reported using bus or coach while 13% switched to private vehicles.

Passenger Transport

April 21 2023, p6



ICE consultation over transport strategy plan

The Institution of Civil Engineers (ICE) has launched a consultation to determine whether England could benefit from having a national transport strategy - and, if so, how such a strategy could be developed and implemented.

The consultation (which ran until May 12) sought input from infrastructure and transport professionals, civil engineers, civil society groups, and other interested parties.

ICE said an effective, accessible and reliable transport network is critical to enabling the UK to achieve its long-term strategic objectives. These include decarbonising the economy to reach net zero by 2050, adapting to the impact of climate change, and achieving the 2030 Sustainable Development Goals.

It originally recommended developing a national transport strategy in a policy paper on accelerating the delivery of the Government's £96 billion *Integrated Rail Plan*.

The consultation will gauge the views of consultees. ICE will then make recommendations in a follow-up paper.



**It's
time to
secure
your
place...**

The National Rail Awards, organised by *RAIL* magazine, will be presented on **September 14** at the Grosvenor House Hotel, Park Lane, London. Regarded by many as the most important networking event in the rail industry's calendar, it is an evening dedicated to acknowledging exemplary performance, and an event that should not be missed.

This is your chance to meet the rail industry on one night, all under one roof. Book your places now by visiting www.nationalrailawards.com

NATIONAL RAIL AWARDS



2023

September 14
Grosvenor House Hotel
Park Lane, London



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You can read any issue of *RailReview* back to the first one published in September 2014, even if you have not been a *RailReview* reader since then.

Upcoming events

Next *RailReview* published - October 2023.

RAIL 100 Breakfast Club - October 12 2023.
Guest speaker: **Mark Thurston.**

National Rail Awards - September 14 2023.

Further information about upcoming events will be available on www.railmagazine.com.

Behind the mask... Norman Baker

PAUL STEPHEN fires the questions at the former transport minister who is now Director of External Affairs at the Campaign for Better Transport

If you could buy any type of food (right now) what would you buy?

A still warm, freshly baked loaf.

What is one of the things you would put on your 'bucket' list?

This is a problem, as I created one about 40 years ago and have ticked them all off! Maybe visit Venice.

Morning or night person?

Increasingly morning.

What annoys you the most? Injustice.

Strangest thing you've ever eaten?

Tripe when I was very young - horrible.

What is one of your weird quirks?

I file my huge LP collection by catalogue numbers, as that's what we used to do in the record shops I used to run. It's much easier to find what you want provided you can remember the number!

What is your biggest addiction?

The printable answer is music.

What book are you reading at the moment?

I'm not really. I have a pile awaiting my attention when I eventually retire.

What is your lifelong dream?

To be happy.

How long does it take you to get ready in the morning?

This morning - about ten minutes.

What is the one thing you have always wanted to do?

See above. I've ticked off all my bucket list. I would have liked to have met George Harrison. (I have met Paul McCartney a handful of times - lovely man.)

Prized possession?

Two: a 1971 Triumph Herald convertible, and a 1946 Wurlitzer that plays 78rpm records.

If you were stranded on a tropical island, what two things would you want with you?

An affable companion and a satellite phone.

Pet hate?

Stupid and repetitive announcements on

trains and in Underground stations. Hear it, bin it, sorted.

What have you done that you are most proud of?

Helped save a man's sight.

What is your favourite song?

So many, and it changes by the hour. At this precise moment, *We Have All The Time In The World* by Louis Armstrong.

What is the best advice you have ever had?

Be yourself.

Person that influenced you the most?

No one answer to this. There are many.

What is one food you wouldn't want to give up?

Milk chocolate.

If you had access to a time machine, where and when would you go?

If I could be well off, England in about 1930, provided I could opt out before we got to 1939.

What was your favourite cartoon show growing up?

Tom And Jerry.

Greatest sadness?

Relationships that didn't work.

Favourite film?

Casablanca/Defence Of The Realm.

Temptation you wish you could resist?

I'm not telling you!

Best childhood memory?

Being on a steam train from Aberdeen to London.

The book that had the greatest impact on you?

Flat Earth News by Nick Davies.

Takeway: Indian or Chinese? Indian.

"I host three music shows each week on my local FM station, Seahaven FM."

Introvert or extrovert? Both.

Beer or wine? Both.

Egg: scrambled or fried? Poached.

Cats or dogs? Cats.

Adventurous or cautious?

Cautiously adventurous.

Saver or spender? Saver.

What nugget of wisdom would you pass on to your grandchildren?

Be kind.

Favourite poem?

"Before you start to moan / About the muck on someone else's glasses / you make sure you're not on about the muck on your own" (John Hegley)

The hidden talent that would surprise people?

I'm a singer/songwriter. Also, I host three music shows each week on my local FM station, Seahaven FM.

TV programme that you wouldn't miss?

Sportscene on BBC Scotland, so I can follow Aberdeen FC.

Last time you shed a tear? Last week.

First record you ever bought?

First LP was *Abbey Road* by the Beatles (showing immaculate taste at age 12). First single was *Ruby Don't Take Your Love To Town* by Kenny Rogers and the First Edition (perhaps not showing immaculate taste).

If you could pass any new law?

To require business premises on main streets to put street numbers on the outside of their buildings.

What do you drive? See above.

Perfect Sunday? Yes, hopefully.

Who would you like to play you in a film?

I'm not good at playing other people.

Favourite UK place? Lewes.

How would you like to be remembered?

I don't really mind. I won't be here.



RailReview

Q2-2023