INFORMED SOURCES e-Preview September 2022

A varied selection of topics in the September Informed Sources, from cyber security to maintenance reform plus the return of the boiling frogs.

Trans-Pennine – most expensive upgrade ever?

Network Rail's devolution wage bill

BTP takes on railway cyber security

Network Rail starts maintenance reforms

As the saying goes, a billion here and a billion there and soon you are talking real money. In July, Transport Secretary Grant Shapps announced that the overall investment in the Trans-Pennine Route Upgrade (TPRU) was being increased from the previous £2.9 billion to 'between £9.0 billion and £11.5 billion'.

Back around the turn of the century, when I was analysing pre and post-privatisation project costs, I applied the crude comparator of cost per route mile to projects ranging from the 1966 London-Liverpool/Manchester electrification to the, then on-on-going, West Coast Route Modernisation (WCRM). This led to the addition of 'boiling frogs' to the railway lexicon – shorthand for people not noticing the post-privation increase in project unit costs. The multiple ended up at around three.

To get a handle on the latest cost of TPRU, I updated the post privatisation section of table to 2021-22 prices. When I entered the TPRU data the frogs leapt from the spread-sheet.

Obviously, since 2011 TPRU has seen a major increase in scope and the recent National Audit Office (NAO) report includes a useful table detailing the progressive additions over the last decade. The table also gives the new total cost at each step from which you can calculate the cost of each enhancement. In the column I try to relate these cost increases to the additional work involved.

NAO also lists the change in delivery dates for the Project at each scope change. Completion is now scheduled for between 2036 and 2041.

There is also a reminder that a 'critical requirement' to achieve the full benefits from the upgrade is the procurement and use of electric trains to exploit the new infrastructure. NAO adds that DfT and Network Rail are 'developing a strategy' for the next business case approval in December 2022.

This will set out the additional rolling stock required and when it will be needed. Funding for this rolling stock will need to come from the DfT budget, presumably in the form of additional lease rental charges.

According to NAO, DfT has yet to confirm funding for TPRU rolling stock from its train operating budget, because 'this will need to be part of wider budgeting decisions for rail services'. Another of my GBR 'known unknowns.

Devolution costs analysed

'When you reorganise, you bleed' is one of the railways best known aphorisms. While attributed to British Rail manager Gerry Fiennes from his book 'I tried to run a railway', he was, in fact, quoting a staff college lecturer.

'Bleed' is a versatile metaphor. Recent history has confirmed the operational impact. The move of timetabling to Milton Keynes bled decades of experience. However, only recently has the financial cost been quantified.

In 2019 Network Rail launched Putting Passengers First (PPF), better known as devolution of more responsibility to the Regions. PPF saw the creation of five Regions, between them supporting 14 routes. As NR noted, 'as part of the changes, some centralised services and functions have been devolved to regions or routes enabling us to be more responsive to customers and passengers'.

Now, it seems obvious that if you have, say, a central team of 10 people covering the needs of the whole railway, if you then devolve that function to five Regions, they are each going to have to staff and support that function. Equally obviously, it will be prudent to keep a core capability at the centre.

Inevitably, devolution will increase the total number of staff employed across the whole railway. A recent analysis of Network Rail's organisation charts shows this to have been the case with PPF.

As expected, central employment fell, while the workforce in the same pay grades at the Regions increased. But then, in early 2020, the pandemic changed everything. Passenger ridership and revenue plummeted.

With DfT, and the Treasury, covering the gap between costs and revenue, costs became very important. Network Rail had

to reduce its head-count and introduced a Voluntary Severance Scheme (VSS). This applied to both the Centre and the Regions.

My analysis shows that VSS produced a further reduction in Centre jobs and also reduced Regional employment. When the dust settled, the net increase was around 5% of the pre-PPF Grade B1-B4 workforce.

Is this significant? Probably not, if devolution brings the expected benefits. But I also look at the cost of the exercise.

This total is a rounding error in the great scheme of things. But the PFF data does suggest that the quoted cost for the creation of Great British Railways of £318m is optimistic.

Cyber security our responsibility

Cyber-attacks on railways can be grouped under two categories, Information Technology (IT) and Operational Technology (OT). The classic example of an OT attack is the student who, in 2009, derailed a number of trams in Lodz, Poland, by hacking the infra-red based points control system. Most recently, Ticket Vending Machines on the UK rail network have been hacked,

Which brings us to IT. According to Richard Gentile, a Detective in the Cyber Crime Unit of the British Transport Police, '90-95% of cyber-attack problems are down to humans. Given the number of organisations, of all sizes that communicate with, and need to have access to, railway computer systems preventing such supply chain attacks are BTP's Number 1 priority.

All it needs is for someone working for Ford Railway Engineering to click on an email attachment for the cyber-criminal to achieve access to our customers. And preventing this type of way-in is the main subject of this item.

This includes 'phishing', the old 'Nigerian prince' e-mail scam, and its personalised version 'spear phishing' which targets specific individuals. Detective Gentile pointed me to the Centre for Protection of National Infrastructure (CPNI) – the UK government's National Technical Authority for physical and personnel protective security which has a campaign addressing this particular approach.

Top of the list of cyber-threats is ransomeware, so called because the criminals encrypt the target's data and demand payment to restore it. This is best known for the 'WannaCry' ransomware attack on the NHS in 2017. And as I was writing this month's column, the NHS 111 Helpline was shut down, possibly by a similar attack.

Overall the BTP wants more train operators and members of the supply chain to report all cyber incidents. The BTP Cyber Security section has two teams of 12 detectives and can respond rapidly if a crime is reported. 'We are here to help and investigate and we have a record of arresting hackers', was Detective Gentile's closing message.

Reforming maintenance methods

Network Rail announced on 28 July that it had started the legal consultation process with the trades unions on its proposed maintenance reforms. This followed the rejection by the RMT of the latest pay offer.

To support the changes, consultants Nichols undertook a short comparative study of the extent to which the proposed working practices are already being employed by other rail operators and organisations in similar industries. In addition to both heavy and light rail operators, including European rail networks, the study also included organisations from the water, roads, maritime and aviation sectors.

According to Nichols, these 'comparator' organisations share features with the UK rail network, notably safety critical assets, being linear in nature and subject to external safety regulation. I am not sure that these non-rail sectors are as complex as railways in terms of asset maintenance.

There is also a certain naivety when it comes to rail comparators. Nichols notes that, and I quote: 'some overseas rail companies set tolerances within which the asset needed to be maintained (such as track width) and had commercial arrangements to incentivise the contractor to maintain the network to this standard'.

Hmm, that's the theory. When it comes to downsides, Hatfield and Potters Bar come to mind. And don't mention Jarvis.

I also have reservations about the 'separate vans for separate disciplines' issue, which certainly appealed to Transport Secretary Grant Shapps. A van for signalling fault response would have to be fitted out with very different equipment and spares to the Electrification & Plant team.

But what really matters is not how the people get to the work-site but the ability at short notice to pull together the right people in a multi-disciplinary team for the job. And this is the focus of the current negotiations. As NR puts it 'quicker fault fixes by multi-disciplined response teams and individual rostering – enabling us to send the right number of people to fix a fault rather than fixed sized teams'. Network Rail argues for the ability to send 'three mixed specialists in one van to fix a fault rather than two specialist teams in two vans'.

As I say, vans are a distraction from the real task – the modernisation of maintenance staffing. The first task for the negotiators must be to establish the principle of multi-disciplinary teams. Then comes multi-skilling, with the provision of training so that technicians are competent to fix the most common cross-discipline faults.

Multi-skilling also offers the prospect of a career progression. The more tasks you can carry out on site, the more valuable you are to the company, which should be reflected in salary.

On the up-side, according to the Nichols report, Network Rail is already ahead of the comparator industries when it comes to the application of remote monitoring to proactive maintenance – detecting an incipient fault and responding before it can become an actual failure.

But application of new technology has slowed. As Network Rail Chief Executive Andrew Haines points out 'we have a raft of labour and life-saving technologies that have been stuck in 'trade union consultation' for over two years, holding up the deployment of vital safety upgrades that are ready to be rolled out'.

Going through a list of 18 projects making up the consultation backlog, I noticed pantograph monitoring. This is ready for rollout in Scotland but has been the subject of Avoidance of Dispute (AoD) since Match 2021.

AoD is the second stage of the acceptance process, where talks continue between Network Rail and the Unions after failure to reach an agreement during the initial consultation. Yet pantograph monitoring is far from a 'new' technology. British Rail Research developed PANCHEX in the early 1980s, so why is the 21st Century version being held up?

One thing to bear in mind is that Network Rail's current management are not responsible for the existing maintenance practices. They have inherited the bitter legacy of Railtrack which, in 1994, decided that maintenance and renewals could be contracted out to the just-privatised British Rail track maintenance and renewals units.

Following high-profile maintenance–related accidents, Network Rail brought maintenance back in house. Yet, somehow, since then, a series of chief executives failed to get to grips with the type of working practices now being addressed. And where was the Office of Road & Rail with its 'efficiencies'?

So now, with the railway facing its greatest crisis, we are where we are, as British Rail Chief Executive John Welsby was wont to say. While making maintenance more efficient is important, clearing that backlog of frustrated technical developments is vital.

Roger's blog

As predicted, August is proving to be very quiet, with the railway news dominated by the on-going industrial relations dispute. The impact of the record temperatures on railway infrastructure spawned another 'task force' and I have added getting back up to speed on stressing Continuous Welded Rail and the factors behind buckling, to the to-do-list for next month's column.

Site and factory visits are on hold pending an end to the current disputes. But I am looking forward to Waterfront's conference 'Achieving Rail Decarbonisation 2022' in London in September.
Meanwhile, in spare moments I am reading through the back numbers for the next in my series reviewing Modern Railways' Six decades – the 'noughties'.

We have now arrived at the 21st Century and what is standing out so far is how many of the concerns being discussed 20 years ago, are still hot topics today. To take one example, Chris Green's complaints about the loss of traditional operating skills after only five years of privatisation, anticipate the concerns of Network Rail Chief Executive Andrew Haines two decades later.

While the editor has allowed me a generous page allocation for this series, I had forgotten just how much was going on in 2000. For so many reasons, this year stands out from all the others I have revisited so far and would fill an article to itself. I say a 'year', in fact the Hatfield derailment in October 2000 marked the end of the privatisation adventure, and the start of the long retreat to Great British Railways.

But normal service should resume when the new Prime Minister enters Number 10. Who knows what September will bring for the railways? Until then, make the most of the break.

Roger