



NETWORK FAIL

Getting UK rail back on track

By Nigel Hawkins

BRIEFING PAPER

EXECUTIVE SUMMARY

- Following last year's decisive General Election result, this Paper addresses the key issues affecting the UK railways sector – and especially those relating to its financing. It advocates the need for concerted action on several railway fronts.
- Network Rail, with its £41.6 billion of net debt now on the public balance sheet, should be progressively sold down. An initial 49.9% sale to long-term investing institutions is proposed; in the interim, its finances need major over-hauling. The eventual aim should be to create a railway equivalent of National Grid - now worth over £40 billion - in the electricity sector.
- Whilst the re-imposition of vertical integration of the railway network would be immensely challenging, some smaller lines could be progressively divested by Network Rail as part of a local transportation policy. The Merseyrail structure offers a possible template. In the longer term, integrated regional railway companies could emerge. In the utility sector, National Grid's sale of some gas distribution networks also provides a relevant precedent.
- Currently, open access concessions account for less than 1% of passenger journeys. However, this figure would rise sharply if the Office of Rail Regulation (ORR) were more pro-active in promoting open access schemes – and made its abstraction formula less onerous to such applicants. Alliance Rail has been at the forefront of winning open access approvals.
- Although the much-criticised franchise system should be retained, the Department for Transport (DfT) and ORR should crack down hard on under-performing rail franchise holders. Substantial fines could be levied, senior management changes demanded or the ultimate sanction - franchise withdrawal - could be imposed.
- The controversial £50+ billion High-Speed 2 project should be scrapped on grounds of excessive cost compared with the questionable benefits that may accrue. The numbers, including the projected Benefit/Cost Ratio, simply do not stack up.
- Instead, a far less grandiose, more piece-meal, investment approach is needed to deal with understandable concerns about the overcrowding at some peak periods

on the southern parts of the West Coast Main Line (WCML). Overall seat occupancy on the WCML remains well below 60% compared with the near 90% figure achieved by leading budget airlines.

- The embryonic Northern Powerhouse initiative merits detailed study. Designing new railway infrastructure, centring on the Manchester/Leeds hub, is pivotal. In time, this should embrace points west at Liverpool and points east at Hull. It is important, too, that the delayed London to Sheffield Midland Mainline and the TransPennine Express electrification schemes are accorded a high priority.
- With EU regulation creating far more opportunities for the railways sector, UK companies are planning to expand overseas. Indeed, Arriva – now owned by Deutsche Bahn – has recently won several train franchises in Europe. Network Rail is well-placed to develop a sizeable overseas business, given the UK’s extensive railway construction activities during the days of Empire.

BACKGROUND

Whilst the UK developed the world’s first railway network during the high point of the Industrial Revolution, the current structure of the UK railway network derives predominantly from its controversial privatisation in the mid-1990s, which created the former Railtrack at its centre. The various Train Operating Companies (TOCs) owned primarily by bus companies, such as Stagecoach, become responsible for the customer-facing aspect of the UK railways sector. At privatisation, three rolling stock companies (ROSCOs) were formed – Angel, Eversholt and Porterbrook – with whom TOCs concluded a series of leasing contracts; these train-leasing companies are now owned by infrastructure and pension fund investors.

Following a series of fatal rail crashes, most of which had poor infrastructure and inadequate maintenance as major contributory factors, Railtrack was effectively re-nationalised in 2001 and replaced by Network Rail, an unwieldy non-for-profit company; the latter has a formidable investment programme. Even so, the UK railways sector has grown substantially over the last 20 years – and especially the number of passenger journeys; this is illustrated in Table 1.

TABLE 1: RAILWAY INDUSTRY DATA

YEAR	PASSENGER JOURNEYS (M)	TRACK LENGTH (MILES)	PASSENGER SERVICES PER DAY	STATIONS	PASSENGER VEHICLES
1995	735	c20,000	c16,000	c2,500	c11,000
2014	1,660	c22,000	c20,000	2,537	c12,500

Source: Interim Shaw Report

Whilst passenger journeys have more than doubled since 1995, there has also been a increase of at least 60% in passenger miles since 2000. Over the same period, freight tonnage on the railways has risen by over 20% - although the on-going decline of coal generation will reverse this trend.

MAJOR RAILWAY ISSUES

Against this background, there are various railway priorities that are placing heavy demands on the limited financial resources. They include:

- The very heavy on-going cost of railway line maintenance;
- The need for a concerted approach to unblocking bottlenecks on the rail network;
- Heavy investment to deliver electrification schemes;
- Substantial expenditure on new rail networks in order to address wide-ranging concerns about inadequate capacity levels;
- Preparation – assuming it is not cancelled - for the impact of the controversial High-Speed 2 (HS2) project and, in particular, Phase 1 of the scheme.

As for railway passengers, there remain abiding concerns about the fare levels, which are considerably higher than those of most EU countries, even when full allowance is made for the varying levels of state subsidy. In particular, despite price regulation limiting the level of price increases for many tickets, many train commuters believe they are being substantially over-charged.

Yet, recent data from the Office of Rail and Road (ORR) indicates that - once the figures are adjusted for longer journeys - average fares have increased by around 1% per year over the last decade: considerably more tickets are now being sold at discount rates than previously.

Many passengers also complain of regular over-crowding at peak travel periods. Morning peak period services from Bristol Parkway to London Paddington consistently attract criticism whilst the 7.29 am Brighton to London Victoria service is notorious for its diabolical time-keeping; apparently, there was not a single day in 2014 when it arrived on time. More recently, the performance of Southern Railway in Sussex has been dire.

In fact, many of the seemingly intractable problems on the UK railway network are directly related to its structure. Empowering Railtrack as a national monopoly, without a significant customer inter-face, was a serious failing at privatisation. Instead, like the water companies, a small number of integrated railway companies could have been given responsibility for maintaining their own regional network and running services upon it. Furthermore, a highly complex series of legal contracts was established, which has engrained bureaucracy within the railway industry. In pursuance of these contracts, a bewildering series of money transfers goes round the system taking in TOCs, Network Rail, the ROSCOs, the Department for Transport (DfT), ORR and the Treasury *inter alia*. Network Rail itself remains far too unwieldy, all the more so since it unquestionably lacks the disciplines of private

sector management. For the first few years of its existence, making the railways safer was understandably the over-riding priority.

Much of this vital work has now been done and, mercifully, there has been a sharp fall in the number of serious rail accidents. Indeed, 2014/15 didn't see any passenger fatalities in UK train accidents - the eighth consecutive year that this has been the case. To that extent, the focus now should be towards the future and how Network Rail can be over-hauled.

VERTICAL INTEGRATION

When Railtrack was floated in 1996, it owned virtually all railway lines in England, Wales and Scotland. Controversially, too, track ownership was separated from the provision of passenger services: by contrast, its predecessor, British Rail had been – for better or worse – fully integrated. Railtrack's own successor, Network Rail, as the owner of the industry network, is in a similar position to British Telecom's Openreach division and to National Grid's UK operations; neither has a significant retail base. Not surprisingly, Network Rail has been widely criticised for its lack of accountability to the public, a major defect of the pre-privatisation decision to split the ownership of the rail network from the TOCs.

If vertical integration had been undertaken, this shortcoming would be far less apparent since a vertically-integrated railway company would be more directly accountable to its customers. However, to re-design a vertically-integrated railway system virtually from scratch would be immensely complicated and expensive. However, where realistic opportunities to introduce vertical integration do arise, as in the case of Merseyrail, they should be carefully considered.

One possible template to extend vertical integration on the railways is provided by National Grid which also owns the UK's backbone gas supply network. Following its acquisition of British Gas' Transco business – subsequently re-named Lattice – it became the owner of all eight regional gas distribution companies. Due in part to the attractive prices placed on these assets, four of these local gas distribution companies were subsequently sold; the remaining four are due to be sold by the spring of 2017. In driving ahead integrated local transport networks, this gas-based model could be profitably adopted. Hence, in time, some of the smaller lines could be sold off as vertically integrated operations, without having a pronounced impact on Network Rail's overall finances.

Whilst even privatisation prevented the Isle of Wight railway network being broken up, some smaller railway lines have considered embracing the vertical integration model. Merseyrail, which runs the local Northern and Wirral lines, has been to the fore in this respect, although the enthusiasm to go down this route has waned given the on-going costs of maintaining the rail tunnels in Liverpool. Other smaller lines at the periphery of Network Rail's eight-route matrix – six of which branch out from London - could be possible candidates.

In any event, there is inevitably a close commercial relationship between Network Rail and franchise holders. One revealing illustration is provided by the Shaw Report, which highlighted the Paisley Canal Line Electrification Scheme; it was managed jointly by Network Rail and FirstScot Rail. The initial budget estimate for completing the project was between £20 million and £28 million. In fact, the final cost was a comparatively modest £12 million. Other such devolved initiatives should be encouraged to improve local transport integration. In the longer term, integrated regional railway companies could emerge.

Furthermore, by introducing more devolution, Network Rail could focus on the larger and more challenging inter-city routes, including the West Coast Main Line (WCML) and the East Coast Main Line (ECML), notwithstanding its various electrification schemes, some of which are now well behind schedule.

From a regulation aspect, the operating performances of comparatively small vertically-integrated lines should enable a better overall performance by the railway sector as ‘best practice’ techniques became more firmly entrenched. Importantly, there is undoubted ORR support, at least in principle, for expanding comparative competition, which should provide more price tension – to the eventual benefit of customers.

Comment: In seeking to reverse the policy of track separation that was implemented at privatisation – and has been found wanting – the priority now should be to allow vertical integration to evolve on a case-by-case basis. Smaller railway lines on the outer periphery of Network Rail’s eight-route matrix are the most suitable candidates.

NETWORK RAIL

Having controversially replaced the failed Railtrack in 2001, Network Rail lies at the heart of the railway network. However, post 2001, it experienced a difficult few years as it sought to undertake a heavy investment programme.

Even so, the cost of its current investment plan over the five-year period - between 2014 and 2019 - amounts to £38 billion; this presents a formidable challenge. Indeed, several of its key investment projects are currently way behind schedule, including the electrification of the Great Western Railway (GWR) line between London and Swansea.

Furthermore, the electrification of both the London to Sheffield Midlands Mainline and the TransPennine Express was deferred on financial grounds. Work on the former has now resumed whilst the award of a new franchise to FirstGroup covering the latter’s region should give the complex Transpennine Express project much-needed momentum. At the operating level, Network Rail, which currently employs c35,000 people, has an £11 billion cost base; track renewals, at £3.7 billion, and enhancements, at £3.0 billion, are the largest cost components.

Encouragingly, Network Rail has been able to report good progress on cost reduction. Over the last two control periods, according to ORR, there has been a 35% reduction in the day-to-day costs of the network infrastructure. The next control period will start in April 2018 and there is every expectation that further reductions in underlying controllable costs will be delivered.

On the financial front, there is a powerful case for selling part - or all - of Network Rail, despite the infamous collapse of its predecessor, Railtrack, back in 2001. However, in her recently published Final Report for the Government, Nicola Shaw barely addressed the issue of possible flotation. Aside from the granting of concessions or time-limited licences - both potentially off Balance Sheet initiatives - no other private sector capital proposals were put forward. Importantly, there is undoubted financial appetite from institutions - seeking secure and durable returns to meet long-term pension-related liabilities - for such investments as recent sales have demonstrated, notably the Government's 40% Eurostar disposal. They recognise, too, that there remains considerable scope for further cost savings within Network Rail.

The ideal scenario would be a Government sale of an initial 49.9% stake in Network Rail, which would be expected to raise c£8 billion of proceeds, based on the latest Regulated Asset Value (RAV) of c£56 billion. To achieve such a sum, major financial restructuring would be needed; it should seek to provide the financial headroom for Network Rail to pay a decent dividend. Furthermore, some element of debt write-off would probably be required. The financial drivers remain the level of track access charges and the various subsidies when set against the cost base as well as the costs of financing the existing £40.1 billion of net debt. In fact, this latter figure - assuming no debt write-offs - is expected to rise to almost £50 billion by March 2018, although the RAV should be approaching £70 billion by that date.

Whilst successive governments have been disinclined to go down the privatisation route for Network Rail, this stance may be shifting given the recent - and fundamental - changes in accountancy treatment of the not-for-profit Network Rail. From 1/9/2014, its £40.1 billion of net debt has been included within Public Sector Net Debt (PSND), which now exceeds c£1.6 trillion.

In the long term, hopefully as a major FTSE-100 stock, Network Rail should seek to replicate National Grid - a company now worth over £40 billion - within the UK electricity sector. Both companies need to deliver a formidable capital expenditure programme - and are required to operate within price caps laid down by their respective regulators. In National Grid's case, it owns virtually all the electricity transmission assets in England and Wales and operates many of those in Scotland. It is now a major electricity player in North America and its market value has soared in recent years. In time, a similar scenario is very possible with Network Rail, which should harbour similar overseas expansionist aspirations as National Grid, although not necessarily in North America.

Comment: These various proposed reforms – financial and otherwise - to Network Rail should provide a firm basis for its role as a major infrastructure company as it seeks to deliver its very challenging investment programme.

Selling a 49.9% stake should prove popular and would crystallise some of the considerable value within the company, even if a very substantial debt write-off is needed.

RAIL FRANCHISES

As part of the privatisation policy, a rail franchise system was established whereby private sector companies would bid to run a franchise, agreeing either to pay annual premia or to receive annual subsidies on less economic lines. South West Trains, owned by Stagecoach, won the first such franchise in 1995. In the intervening years, many of the franchise areas have been re-drawn; some have actually been enlarged. Undoubtedly, it took some years for the rail franchise system to settle down; but serious problems, not least the infamous WCML bidding fiasco in 2012, remain.

Nonetheless, the payment of premia and the receipt of subsidies for rail franchises have recently achieved a slightly positive annual balance for the Government. This switch is partly attributable to fare-box income, which has risen sharply. In 2000/01, fare-box income, pre-subsidy, was £4.32 billion. By 2011/12, this figure had reached £6.78 billion; it is now estimated to exceed £7.5 billion and accounts for almost 90% pre subsidy franchise revenue.

Table 2 shows the current rail franchise holders, as selected by the DfT, along with the relevant dates for their franchises. Exceptionally, the Merseyrail franchise is allocated by the local Passenger Transport Executive (PTE).

TABLE 2: KEY RAIL FRANCHISE DATA

FRANCHISE	FRANCHISEE	OWNERS	START DATE	END DATE
Chiltern	Arriva UK Trains	Deutsche Bahn	3/2002	12/2021
Cross Country	Arriva UK Trains	Deutsche Bahn	11/2007	10/2016
East Anglia	Abellio	NedRailways	2/2012	10/2016
East Coast	Inter City Railways	Virgin (51%), Stagecoach (49%)	3/2015	3/2023
East Midlands	Stagecoach	Stagecoach	10/2015	3/2018
Essex Thameside	NXET Trains (C2C)	National Express	9/2014	11/2029
Great Western	FirstGroup	FirstGroup	9/2015	3/2019
Merseyrail	Serco-Abellio	Serco (50%), NedRailways (50%)	2003	2028
Northern	Arriva UK Trains	Deutsche Bahn	4/2016	3/2025
ScotRail	Abellio	NedRailways	4/2015	4/2025
South Eastern	London South Eastern Railway	Go Ahead (65%), Keolis^ (35%)	10/2014	6/2018
South Western	Stagecoach	Stagecoach	2/2007	6/2017
TSGN	Govia	Go Ahead (65%), Keolis^ (35%)	9/2014	9/2021

TransPennine Express	FirstGroup	First Group	4/2016	3/2023
Wales & Borders	Arriva UK Trains	Deutsche Bahn	12/2003	10/2018
West Coast	West Coast Trains	Virgin (51%), Stagecoach (49%)	11/2014	9/2017
West Midlands	Govia	Go Ahead (65%), Keolis^ (35%)	11/2007	10/2017

^ Keolis is majority-owned by SNCF, the French-based railway organisation. A management franchise is in operation, with ticket revenues being passed to the DfT.
Source: Nigel Hawkins Associates

Of the railway franchises quoted above, the largest – in terms of passenger numbers – is the new and controversial Thameslink, Southern and Great Northern (TSGN) franchise; its revenues are £1.3 billion per year. Other large revenue providers are West Coast, South Eastern and South Western. Northern, too, reports high total revenues but these are distorted by heavy subsidy payments. The smallest franchises are Chiltern, Essex Thameside and Merseyrail.

Recently, the Northern franchise has been transferred to Arriva Rail North, -now the subject of a CMA enquiry- whilst the TransPennine Express franchise is now run by First. Despite considerable controversy, the railway franchise system has generally been able to deliver significant improvements in rolling stock; on some lines, it was long overdue. But the franchise system undoubtedly has certain inherent failings. The award of short-term franchises inevitably deters investment whilst the award of very long-term franchises can produce stagnation and poor service levels. Consequently, franchise lengths vary considerably.

The monumental shambles over the award of the WCML franchise in 2012 undoubtedly focussed minds, so that now far more financial analysis and scrutiny is undertaken in the award process. Increasingly, comparative competition analysis should indicate which franchise holders are performing well and which ones are not. Of course, the franchise regions vary considerably but there is enough data now for ORR to crack down on the poorly performing franchise holders by levying substantial fines, by demanding senior management changes or by imposing the ultimate sanction of franchise removal. The dreadful operation of the TSGN franchise is an obvious example.

Comment: Despite its failings, the railway franchise system seems set to survive – and should do so. However, more rigorous financial modelling is called for – post the WCML shambles – and more pressure and incentives should be applied to existing franchise holders.

Furthermore, within future franchise contracts, greater allowance should be made to accommodate open access initiatives, especially on the longer inter-city routes.

OPEN ACCESS

In privatising the railways sector, the Government was determined to create increased competition through granting open access agreements. However, for

obvious logistical reasons, competition on many tracks is severely limited by the inability of trains to pass one another with any regularity. Significantly, just 0.75% of total passenger train miles in 2014 were accounted for by open access operators; this very low percentage must surely rise.

The Competition and Markets Authority (CMA) is currently reviewing certain aspects of the railways sector, including the case for more open access. The CMA has been assessing the funding mechanism for loss-making services. As other sectors have found, notably telecoms (with BT's Openreach business), the water sector (through inset appointments), and the Royal Mail (via access agreements), it is very difficult to design a fair and durable regime that promotes competition.

In principle, ORR supports open access agreements and, indeed, is required by legislation to do so. More specifically, it considers that long-distance inter-city routes offer the best prospects for developing open access. Since 1993, ORR has reviewed over 25 applications, the majority of which it has approved; in the latter case, several add-ons distort the figures. Currently, three open access applications on the ECML are under review. The leading applicant for open access concessions is Alliance Routes, which is owned by Arriva. Its subsidiary, GNWR, is a sister company of Grand Central, which operates open access services from London to Bradford and Sunderland via the ECML.

Importantly, as ORR has pointed out, open access agreements are based on analysing marginal – not average – costs; the latter are already partly accounted for within existing track access charges. Such a scenario no doubt partly explains why Grand Central can offer prices on the London-York line that are often almost half of those on the London-Manchester line where Virgin has a monopoly.

In assessing open access applications, ORR is now using a new gravity model which seeks to calculate how much of the projected service revenue is genuinely new and how much is simply abstraction revenue from the existing monopoly franchisee. The threshold has been set at 30%, so that new revenue of at least that figure needs to be generated as a percentage of abstracted revenue. In the case of the approved London to Blackpool WCML open access agreement, the expected annual abstraction revenue was calculated at £22 million. The ORR judged that, in this case, the 30% Not Primarily Abstractive (NPA) threshold was met. However, there is a case both to lower the 30% NPA threshold, so as to encourage more open access applications, and to reverse the onus of proof away from the applicant. In its 235 page March 2016 report, the CMA concluded that significantly greater rail competition would only emerge following the award of the next ECML franchise in 2023, although some track access changes are due to come into effect in 2019 - this may help to stimulate competition.

There have been some proposals to use a 'slots' system – as used at Heathrow Airport - to allocate scarce train paths, especially those on the ECML and WCML. However, in effect, the winning franchise bidder is already paying for these slots via the accepted bid; clearly, without the train paths, delivering the required service provision would be impossible.

Furthermore, open access issues are featured in the Final Shaw Report. However, given the detailed contractual agreements covering each existing franchise, it will be legally very difficult to bring about a step-change in open access agreements.

Comment: As in other sectors, access issues to a privatised monopoly network are very complex. Nevertheless, open access on the railways should be promoted, albeit in the acceptance that the process will necessarily be evolutionary rather than revolutionary.

Open access agreements are particularly suitable for improving transport links to cities and towns at the periphery of Network's Rail's six-route English matrix. Other population centres should be entitled to receive better services through open access, in addition to those, such as Sunderland, York and Hull, where open access is already bringing undoubted benefits to passengers.

HIGH-SPEED 2

The controversial HS2 project lies at the heart of the Government's railways policy. Phase 1 of HS2, due to be completed in 2026, plans to provide a new high-speed line between London Euston and Birmingham Curzon Street. Phase 2 of the project seeks to extend the new line from Birmingham Curzon Street to Manchester Piccadilly and, on a separate Y-shaped line, to Leeds.

The overall cost of HS2, based on 2011 prices, is currently projected at c£50 billion: the equivalent figure, calculated from 2015 prices, is c£55 billion. Both figures include the necessary rolling stock as well as over £16 billion of contingency funding – an assumption that seeks to de-risk HS2. Nonetheless, a credible case could be made for an eventual out-turn cost of close to £80 billion, once a swathe of adjustments are made to the project, which would probably mean a sharp increase in expensive tunnelling requirements, notwithstanding the impact of construction cost inflation. The planned work around Euston station will also be very technically challenging.

In recent years, considerable publicity has been given to the relatively few minutes that will be saved in travelling between Birmingham and London and *vice versa*; a benefit that goes nowhere near to justifying such a huge cost. In reality, profound concerns about inadequate capacity on the southern part of the WCML, notably from the 2020s onwards, have been the key driver for the HS2 project. Whilst there are various figures relating to future capacity levels, it is Network Rail's firm view that, from the mid-2020s onwards, the WCML pathways will be full. Significantly, the issue was addressed when the former Secretary of State for the DfT, Sir Patrick McLoughlin, replied to various enquiries about the capacity issue.

As Tables 3 and 4 (overleaf) indicate, the occupancy ratios still remain relatively low – and certainly compared with 90% occupancy figures reported recently by leading short-haul airlines, such as EasyJet and Ryanair. Only during the 8am to 8.59am peak slot to Euston is the 60% figure breached.

TABLE 3: LOAD/CAPACITY - LONG-DISTANCE TRAINS TO EUSTON (2013)

	CAPACITY	CRITICAL LOAD	% RATIO
3 Hour Peak – 7.00 to 9.59	15,224	8,667	57
1 Hour Peak – 8.00 to 8.59	5,244	3,199	61
Off-Peak Arrivals	58,846	23,420	40
All Day Arrivals	74,070	32,067	43

Source: Letter from the former Secretary of State for DfT

TABLE 4: LOAD/CAPACITY - LONG-DISTANCE TRAINS FROM EUSTON (2013)

	CAPACITY	CRITICAL LOAD	% RATIO
3 Hour Peak – 16.00 to 18.59	16,508	8,256	50
1 Hour Peak – 17.00 to 17.59	5,886	2,920	51
Off-Peak Departures	58,712	24,431	42
All Day Departures	75,220	32,687	43

Source: Letter from the former Secretary of State for DfT

Outside commuting hours, the occupancy ratios, both into and out of Euston, are well below 50%. As such, there still remains considerable scope for more flexible pricing so that a higher percentage of passengers have a strong financial incentive to travel during off-peak periods. Hence, a more aggressive ticketing policy, which more accurately reflects demand, is necessary. In short, whilst WCML passenger numbers will no doubt rise markedly in future years, they present a far from compelling case for HS2 on capacity grounds.

Interestingly, the House of Lords Report, the Economics of High-Speed 2, noted that ‘...over-crowding is much more of a problem on commuter services into London, rather than on long-distance services on the WCML’. (p55). Crucially, the same Report also concluded that ‘the Government has not presented a convincing case that there is a long-term over-crowding problem’. (p54)

In terms of the formidable cost of HS2, the projected Phase 1 element – based on 2011 prices – is £21.4 billion, prior to any rolling stock allowance. Within this figure, a contingency of £5.8 billion has been set aside, equivalent to 27% of the total estimated cost. The Phase 2 cost projections, based on 2011 prices, include an even larger contingency allowance. The estimated cost – due to the complexity and duration of the construction work - amounts to a base £12.5 billion, with a further £8.7 billion of contingency allowances.

Table 5 provides a break-down of the latest available costings, which - importantly - are all based on 2011 figures when the construction sector was in recession and prices were inevitably depressed. The projected costs for the new rolling stock are also specified.

TABLE 5: HS2 TOTAL ALLOCATED FUNDING (£ BILLION), BASED ON 2011 PRICES

	PHASE 1	PHASE 2	ROLLING STOCK	TOTAL
Target Cost	17.2	n/a	n/a	n/a
Estimated Cost	15.7	12.5	5.8	34.0
Contingency	5.8	8.7	1.7	16.2
Total	21.4	21.2	7.5	50.1

Source: Strategic Case HS2.

Concern about the overall cost of HS2 is highlighted by the massive discrepancy – even allowing for the UK’s built-up areas and the need for extensive and costly tunnelling - between the costs per km of high-speed track in France compared with the projected cost of HS2, pre any rolling-stock costs. Evidence was presented to the House of Lords, whose Report concluded that ‘the expected cost of construction per mile of HS2 is up to nine times higher than the cost of constructing high-speed lines in France.’ (p 19) Not surprisingly, further detailed cost studies were called for since a 9x cost factor gap – or even half that figure - is unacceptably high, even allowing for the specific construction challenges that HS2 faces.

Irrespective of the very high costs of HS2, the benefits that its construction would bring are decidedly thin. Clearly, passengers would benefit from service improvements and time savings, although the ability to use computer-based technology, such as iPads, on trains currently limits this benefit.

Since details of ticket costs are, not surprisingly, unavailable, it is not possible to assess, with any degree of certainty, the size of the likely fare-box return from HS2. As Table 6 illustrates, almost 90% of the benefits from Phase 1 of HS2 would be derived by fare-paying passengers. Only when Phase 2 is completed, would the so-called Wider Economic Impact (WEI) benefits be close to 20%. Furthermore, most of the transport-user benefits derive from the value placed on work and non-work travel time. These concepts have become seriously out-dated since the introduction of IT-related technology now enables considerable work to be undertaken by rail passengers whilst in transit.

TABLE 6: ESTIMATED BENEFITS FROM HS2

	PHASE 1		FULL NETWORK	
	VALUE (£BN)	%	VALUE (£BN)	%
Transport Users	24.6	87	59.9	84
WEIs	4.3	15	13.3	19
Others	0.4	1	0.8	1
Loss of Indirect Tax	-1.2	-4	-2.9	-4
Total	28.1	100	71.0	100

Source: Economic Case HS2

In comparing the economic attractiveness of public sector projects, the assessment of Benefit/Cost Ratios (BCRs) is widely undertaken, with both elements being discounted to present values.

For many road projects, a BCR of c5x is generally accepted as being a viable return. As Table 7 shows, the BCR on Phase 1 of HS2 is just 1.4x, although it does rise to 1.7x once the somewhat questionable WEIs are taken into account. Nonetheless, given the considerable risks, these ratios are unacceptably low to justify HS2 on economic grounds.

Whilst many of the claimed HS2 benefits are spurious, any substantial shortfall in revenues would reduce the projected BCRs: such a shortfall could be expected to push the BCR to nearer 1.0x. Back in the 1990s, grossly optimistic projections were presented by the then department for transport for Eurostar's future revenues - the eventual out-turn proved to be well short.

The WEI thesis has also been dented by the relative lack of economic recovery in North Kent, where IFSI has been in operation since 2009. Many Medway towns are still facing severe economic challenges.

The experiences of high speed rail elsewhere in the EU have hardly been reassuring. In recent years, Spain has invested heavily in such schemes.

A leading Spanish "think tank", FEDEA, has concluded that "more of the high speed lines should have been built and that none has a chance of being profitable over a 5 year lifespan". More specifically, FEDEA pointed out that the Tokyo-Osaka high speed line had 25x more passengers than the Madrid Seville high speed line; both are of a similar length.

Importantly too, in both its 2013 report and its 2016 update, the National Audit office has expressed many concerns about the HS2 project, both in terms of its costs and benefits as well as the many delays that have already taken place.

TABLE 7: BENEFIT/COST RATIOS

	PHASE 1	FULL NETWORK
BCR without WEIs	1.4x	1.8x
BCR with WEIs	1.7x	2.3x

Source: Economic Case HS2

Comment: On capacity grounds, the case for HS2 is far from compelling even after making allowance for a significant growth in passenger numbers; current off-peak occupancy levels on the WCML are well below 50%.

The financial case for HS2 is particularly unconvincing. For an outlay of c£50 billion, equivalent to c£55 billion at 2015 prices, the benefits are distinctly unpersuasive. Indeed, the overall BCR for Phase 1 is just 1.4x, pre WEIs. Moreover, the projected construction cost per mile is up to 9x that of the equivalent HS line in France.

In studying the geography of the UK railway network, it is readily apparent that north/south connections are markedly better than east/west connections – Brunel’s celebrated GWR line, connecting London with Bristol, being the most obvious exception. Topography is, of course, a key factor for this trend, with the Pennines in particular being a particularly challenging physical barrier. Both the previous Coalition Government and its Conservative successor have espoused the concept of the Northern Powerhouse around which the region’s main transport links should be built. There are, however, many competing rail schemes.

Nonetheless, it is apparent that the focus of the Northern Powerhouse should be on Manchester, which has been booming – at least comparatively – in recent years. The BBC’s media operations at Salford, notwithstanding the global profile of its two leading football clubs, have been key factors.

Manchester’s train links with Yorkshire’s leading city, Leeds, would undoubtedly benefit from major improvements: the cities are just 43 miles apart. Working outwards from the Manchester/Leeds hub, other cities are well-placed to benefit from much-enhanced rail links; they include Liverpool, Sheffield and Hull.

The current rail investment strategy pursued by Network Rail includes the following major schemes in the northern region:

- Ensuring that the new Northern and TransPennine Express franchisees – subsidiaries of Arriva and FirstGroup respectively - undertake major modernisation programmes, including the provision of more capacity, the introduction of additional services, the leasing of new rolling-stock and the refurbishment of many stations;
- Completing the various modernisation projects in the region, which should reduce travel times between Manchester and Leeds to below 50 minutes, as well as provide considerably more capacity;
- Supporting £2.7 billion of investment to introduce new trains on the north/south section of the ECML, thereby markedly modernising links from cities in Yorkshire, and points further north, to London.

Comment: An evolutionary – and logical - approach to modernising the rail network in the north of England is far preferable to the ultra-expensive HS2 option, which is aimed predominantly at well-to-do business travellers.

In modernising the rail network in the North, the focus should be on the Manchester area, where the bottlenecks – both on rail and road - are particularly acute. Improving rail links with Leeds should be a high priority, along with developing networks branching out from the Manchester hub.

In recent months, there has been widespread comment about constructing a HS3 railway as part of the Northern Powerhouse policy. In fact, this concept is very tentative. Currently, there is no defined route, although there have been outline proposals for an east-west line starting at Hull and terminating at Liverpool. The cities of Leeds, Manchester and Sheffield would all be on, or near, this route.

Furthermore, whilst there are several definitions of high-speed rail – they vary from country to country – there is little chance that a cross-region east/west HS3 will be built. The costs of doing so are likely to be prohibitive. More specifically, the presence of the Pennines means that there would be very heavy tunnelling costs which would make any such project horrendously expensive – and hardly competitive with an up-graded M62 motorway.

RAIL PRIVATISATION OVERSEAS

Unlike electricity privatisation, which was widely replicated overseas, railway privatisation in the EU has proven to be far less popular. Nonetheless, in Germany and Sweden in particular, the running of many rail services has been put out to tender: new EU legislation has been an important driver of this trend.

Particularly notable have been the performances of National Express and of Arriva. The publicly-quoted National Express has won various train operating franchises in North-Rhine Westphalia, whilst Arriva - founded in Sunderland in 1938 and once renowned for its Tom Cowie car business – was acquired by Deutsche Bahn for £1.6 billion in 2010. It is now responsible for running Deutsche Bahn's regional passenger train operations outside Germany; indeed, it currently runs three rail franchises in the UK.

Despite Brexit, increased franchising opportunities should be on offer as the railway industry is progressively liberalised within the EU, with far more countries adopting a rail franchise model. As such, the potential for UK train sector companies, such as Stagecoach, Virgin Trains, FirstGroup and Go-Ahead, as well as National Express, is very considerable.

Opportunities also abound for Network Rail, despite its formidable UK investment programme. In some markets, especially amongst Commonwealth members, UK railway expertise is still very highly regarded – an advantage that should be maximised. Network Rail has recently become involved in the California High-Speed train project, partly due to its participation in HS1. Network Rail is also active in such markets as Saudi Arabia and Australia *inter alia*.

Comment: During the heyday of Empire, the British railway industry enjoyed an enviable reputation throughout the world, especially for its technical skills. Subsequently, other rail organisations have come to the fore. Nonetheless, irrespective of Brexit, the liberalisation of the EU market offers real opportunities for UK rail companies, particularly in Germany. Network Rail, too, should increasingly look at opportunities overseas, with the Commonwealth nations being obvious targets.

CONCLUSION

In this Paper, several proposals have been put forward, which seek to improve the UK rail network – and to do so on a basis that is favourable to the tax-payer.

The key recommendations for action are to:

- Sell up to 49.9% of Network Rail, having substantially re-structured its balance sheet, and put it in a long-term position to emulate National Grid in the electricity sector;
- Promote vertical integration of some smaller Network Rail-owned lines as part of local transport integration policies;
- Require ORR to adopt a more pro-active policy to encourage open access applications;
- Crack down hard on seriously under-performing rail franchise holders and, if necessary, terminate their franchise award;
- Scrap the HS2 project on the basis of extreme cost and very poor value for money; in fact, comparatively few tax-payers would actually travel on HS2 if it were built;
- Deal with the capacity issue on WCML by introducing a range of supply and demand measures including a far more flexible ticketing policy;
- Continue to invest heavily in schemes to improve rail links in the north of England focussing on Manchester and working outwards.

If these seven priorities were adopted by the Government, the long-term future of the UK rail network would undoubtedly be strengthened and there would be considerably lower financial demands on the tax-payer.