



Classic Rail and Connected Cities:

Capturing the Benefits from Rail
System Development

April 2017



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Foreword by Sir Peter Hendy CBE

This is another excellent and thought provoking piece of work from the Independent Transport Commission (ITC).

Not many of us board a train for the joy of the experience travelling on it, except perhaps behind 'Flying Scotsman' or in the Scottish Highlands. Travel is a means to an end – wealth creation for most travellers, and the railway in creating connectivity creates economic growth, jobs and houses. Its pivotal role in our economy is measured in the last 20 years by a doubling of demand, with another doubling forecast in the next 25. And the industry has to be up for that challenge – as set out here, by embracing technology, the modern digital world that can transform track capacity with the Digital Railway, payment methods and information, and also by placemaking in and around its stations.

To do that it has to look outwards, and this report sets out how it should do that. It needs to be coherent within itself, as the industry spends a lot of effort making itself work through contracts and agreements and with Government, less in relating to the world outside it. It thus needs to relate to other stakeholders who have land ownership, funding, planning powers and responsibilities and even more importantly identify those who would benefit from railway enhancements to make sure they contribute as much as they can to schemes that create wealth, and growth for them. Network Rail's own devolution to Routes is part of our effort to relate far more closely to all our stakeholders at a local and regional level.

This report is very timely as we move towards railway control period 6, and the determination by Government and the Office of Rail and Road (ORR) of how much resource should be put into which schemes for railway enhancement from 2019 to 2024. It should encourage everyone concerned to look for the wider economic benefits of proposed schemes, and seek out funding contributions to them. I hope it will be widely read both inside and outside the railway industry, as it is crucial our railway carries on being successful in making our economy grow, creating jobs and building houses.

Sir Peter Hendy CBE
Chair, Network Rail
Patron, Independent Transport Commission



ITC Patron Sir Peter Hendy CBE



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Executive Summary

The Independent Transport Commission (ITC) as Britain's leading pan-transport and land use research charity has long had an interest in the relationship between transport infrastructure and our cities. Between 2013 and 2016 we undertook a major research project looking at the land use effects of High Speed Rail (HSR), using insights gathered from past experience of HSR investment in northwest Europe and applying this to Britain. This research work led to a series of reports launched by the then Secretary of State for Transport, The Rt Hon Sir Patrick McLoughlin MP. This report is the final output from this research work stream, and translates the lessons from the ITC's HSR work for the rest of the rail network, referred to as 'classic rail' in Britain.

In the ITC's HSR reports, five core principles were identified as essential for getting the UK's city regions ready for the arrival of new rail infrastructure. Following a workshop with rail industry experts, the ITC believes that these five principles are also highly applicable to infrastructure investment on Britain's classic rail network. To these we have added a sixth principle, which has been identified as of crucial importance. These principles are:

- 1 Rail planners need to be responsive to changing circumstances, in order that infrastructure will stand the test of time. The classic rail industry in Britain has successfully adapted its infrastructure over a period of more than 150 years to meet shifting travel demands and changing technology. This adaptability – the ability **to be responsive to change** – will continue to be important to the industry as we enter a new era of higher rail demand and reliance on information and communications technology.
- 2 Increasingly, rail authorities are finding it necessary to work more closely with local, regional and national governments, much more so than they have done historically. An approach that looks 'beyond the red line' of the infrastructure boundary and encourages regeneration in the wider area will ensure that stations and their surrounding areas act as a **catalyst for growth** for the wider city region.
- 3 ITC research has confirmed that good connectivity within the rail network and to other modes of transport is essential for capturing the widest possible benefits from rail infrastructure investment. We ought to encourage good links between HSR and classic rail networks, and for local transport connectivity to rail stations to be made a high priority. This will contribute to improved **accessibility** and passenger journey experience by creating swifter and smoother transport interchanges.
- 4 The rail industry and local authorities should increasingly see their stations as civic assets, turning them into **places of arrival and exchange**. The stations can become attractive gateways to our cities as well as worthwhile destinations in their own right. If used successfully, rail stations can also be utilised for generating ancillary income streams and to support wider social and economic regeneration objectives.
- 5 A range of benefits arise when transport infrastructure providers, operators



and local organisations **collaborate**. By engaging the local community and representatives in planning and development, this can both galvanise support for new schemes and also allow new infrastructure to be well integrated with the community it serves. If managed well, this collaborative approach results in much more captured value than when local stakeholders are alienated.

- 6 And finally, **rail planning processes need a stronger mechanism for delivery**. Given the longevity of rail infrastructure assets it is essential that decisions are taken with a multi-decadal lifespan and funding, and take into account national, regional and local planning strategies. Planning increasingly should not focus solely on infrastructure design, but should strengthen engagement of operators and communities at an early stage of planning to develop alternative scenarios and test proposals for use. There should be a stronger focus on future-proofing such as passive provision for later developments.

The ITC recommends that these principles are adapted and incorporated into rail infrastructure planning and delivery. We believe that by taking account of these principles it will be possible to capture more of the value added by rail infrastructure, and to ensure that the benefits of such spending on rail system development are shared more widely across localities and regions.

I. Overview and purpose of report

1.1

This report is an extension of the ITC's project exploring the spatial impacts of High Speed Rail (HSR). It specifically uses the learning that was articulated in our previous ITC reports *Ambitions and Opportunities: Understanding the Spatial Effects of High Speed Rail* (November 2014) and *High Speed Rail and Connected Cities: Accessible Places for Growing Economies* (May 2016). This 'daughter' report uses the key findings from that earlier work and considers whether the lessons we discovered are also relevant to the classic rail network.

Figure 1 - ITC report covers, *Ambitions and Opportunities* (2014) and *Connected Cities* (2016)



1.2

This report acknowledges that most of the British rail network is not 'high speed' as conventionally defined (services above 250 kph/155 mph). High Speed Rail (HSR) may be high profile but even when HS2 is completed and fully operational, more than 90% of rail journeys in Britain will continue to be made on the 'classic network' (conventional lines that have passenger services travelling at speeds under 250 kph/155 mph).

1.3

Exploring the wider application of the ITC findings for the classic rail network offers us an opportunity to obtain the maximum value from the research we have already conducted. This also aligns with the guidance and research priorities from our corporate supporters, many of whom have business activities within the classic rail network.

**1.4**

This report was developed through an ITC workshop, held in October 2016, at which many of our supporters were represented. The event explored the relevance of the themes from our *Connected Cities* report and its applicability for building new infrastructure on the classic rail network. Each of the principles identified in our *Connected Cities* report as essential for ensuring that the spatial benefits of HS2 would be captured were explored in relation to the classic network.

1.5

We have considered whether the principles we identified are relevant to the development of the classic network. We have also considered whether there are any further examples we can draw on to illustrate principles that could be applied to either classic or high speed rail developments.

2. The 'Connected Cities' principles

'High Speed' and 'classic' rail: what do we mean?

High Speed Rail (HSR) = rail infrastructure that supports rail passenger services travelling at speeds of over 250 kph/155 mph. In Britain the only line capable of doing this is High Speed 1 (London and Kent to the Channel Tunnel); the projected High Speed 2 (HS2) line will permit train services above 300kph/180mph

'Classic' Rail = conventional heavy rail infrastructure supporting rail passenger and freight services travelling at speeds under 250kph/155mph. In Britain this includes all rail infrastructure with the exception of those mentioned above.

2.1 In *High Speed Rail and Connected Cities: Accessible Places for Growing Economies*, the ITC formulated a number of principles in order to review the current proposals for the HS2 stations and associated local planning initiatives in order to capture the strengths of each place. The principles below were identified in *Connected Cities* as essential for getting the UK's city regions ready for the arrival of new rail infrastructure, in ways that could best capture the added value that such investment can bring.

- 1 **Be responsive to change** – over time, infrastructure needs to adapt to changing lifestyles, expectations and modes of operation.
- 2 **Make the place a catalyst for growth** – the full benefits of major infrastructure investment will only be realised by each place if it serves as a place of vitality, where people want to come and stay.
- 3 **Be connected and accessible** – strong interconnectivity between high speed and classic rail networks will allow for long-term operational flexibility and the ease of interchange for passengers.
- 4 **Make stations as places of arrival and exchange** – the station should be a place of interchange, exchange and transition that has the potential to generate income and contribute to non-operational functions such as retail and public services.
- 5 **Collaborate to succeed** – city regions gain distinct advantages when they have internally shared economic interests and values; this is often enhanced by working together through a combined transport authority.

2.2 The above five principles are pulled from the ITC's previous report *High Speed Rail and Connected Cities: Accessible Places for Growing Economies*, and we are adding a sixth principle in this report to address the planning and delivery processes.

- 6 **Rail planning and delivery processes need a stronger mechanism** – this ensures that the lifetime of an asset and its adaptability are properly considered. The returns from thinking ahead and 'future proofing' our rail network at an early stage (when costs and disruption will be much lower) are significant.

2.3 We will now explore the applicability of each of these principles to the classic rail network in turn.



3. Transferring the lessons to classic rail

3.1 Be responsive to change

Over time, infrastructure needs to adapt to changing lifestyles, expectations and modes of operation.

Summary

Classic rail in many ways has already adapted better to change than the canals over a period of more than 150 years. Infrastructure has been updated to reflect changing needs and developments in locomotive power.

Capacity – adapting new technology such as digital signalling can help to solve the capacity challenge on the network.

Passenger needs – these will shift and change regardless of whether infrastructure is classic or high speed rail. The industry needs to anticipate and be ready to adapt.

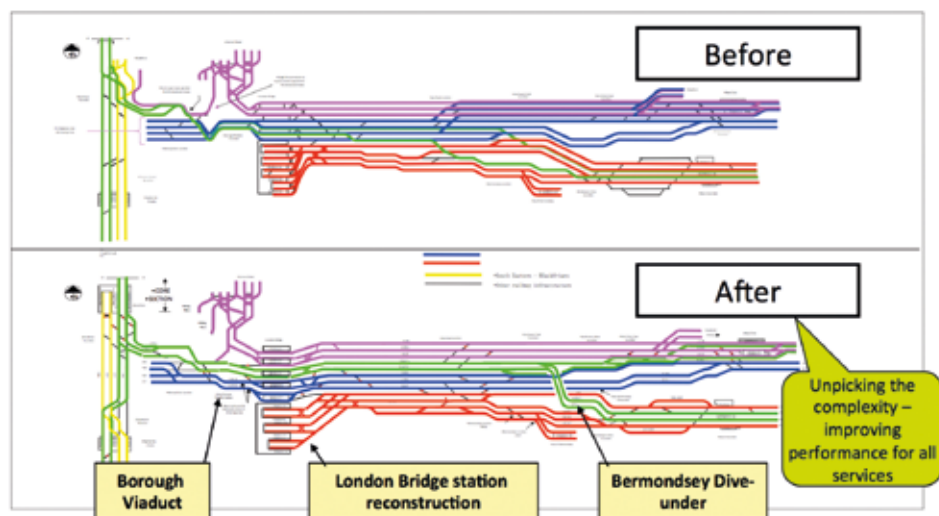
Adapting infrastructure and trains

- 3.1.1** Our classic rail network provides many examples where the infrastructure has adapted already to meet changing needs.
- 3.1.2** The rail infrastructure designed in the Victorian era has in many cases already adapted to change. For example, the network in the Cardiff valleys was originally built to take coal from the heads of the valleys to the Cardiff docks for domestic and export use. Over time the network has adapted to become used primarily for passenger services with only a very small amount of freight traffic remaining. From a potential low point in the early 2000s, the area has seen tremendous growth, with rail usage up 65% in Wales between 2000 and 2010, and a further 31% growth predicted by 2019.¹ The devolved Welsh Government is now seeking to further develop the infrastructure and services into more rapid and frequent metro services.
- 3.1.3** Other good examples of infrastructure development and adaptation include the London Fenchurch Street remodelling in the late 1980s which has provided much more efficient use of pathways than previously. The current [January 2015 to January 2018] Thameslink project at London Bridge will – when completed – provide a 35% increase in capacity (from 2010 baseline), with two-thirds more space for passengers and 12 extra trains per hour compared with the previous infrastructure, thereby delivering increased capacity through intensifying the use of the same spatial footprint (Figure 2).²

1 Mark Barry, *A Cardiff City Region Metro: transform, regenerate, connect*
<http://www.iwa.wales/click/wp-content/uploads/Metro-Consortium-WEB-REDUCED.pdf>

2 Thameslink Programme, London Bridge <http://www.thameslinkprogramme.co.uk/london-bridge>

Figure 2 - London Bridge station redevelopment before and after – better capacity and performance



3.1.4 The Evergreen project connecting Marylebone to Oxford is an example where a focus on future development was crucial in delivering a successful upgrade of the rail infrastructure, anticipating future connectivity and capacity needs. The project, including line doubling, signalling upgrades and extra platforms, provided an initial 50% increase in capacity, and the latest stage of the project has anticipated the need for better East-West links, restoring formerly demolished tracks between Bicester and Oxford (Figure 3). This re-opened for service in December 2016 linking Oxford to London Marylebone.

Figure 3 - Bicester remodeling in readiness for Chiltern's Evergreen 3 project



3.1.5 In some places such as Sheffield and Manchester, heavy rail services are being replaced by trams with capability to operate on both former rail lines as well as purpose built on-street infrastructure through city centres. This gives a further example of adaptability to meet changing needs, where a heavy rail solution is succeeded by a light rail solution.

3.1.6 In the classic rail world, we can also consider the adaptability of trains themselves and the changes that have taken place in motive power. Services were developed and operated for over 100 years with steam traction until they began to develop electric and diesel power in parallel. Electric trains were operating from the 1890s, and the Southern Railway third-rail electrified system was developed in the 1920s. From 1948, diesel-electric services were operating on British mainline routes, 20 years before the Government decided to phase out steam traction on mainline services in 1968. There are current developments with bi-mode trains able to operate at full speed on both electric and diesel traction in turn, depending on the infrastructure, such as the Intercity Express programme Class 800 trains being built for use on the Great Western mainline. International developments include next generation fuel such as battery power or hydrogen. In many cases the new 'power pack' can replace a more conventional power pack within the same locomotive or traction unit. This allows a train to be given a much longer life. The diesel 'InterCity 125' High Speed Train (HST) launched in 1976 continues in service with new traction motors and interiors (Figure 4).

Figure 4 - HST in Gloucester, 1987 (left); HSTs running along the sea wall at Dawlish (right)

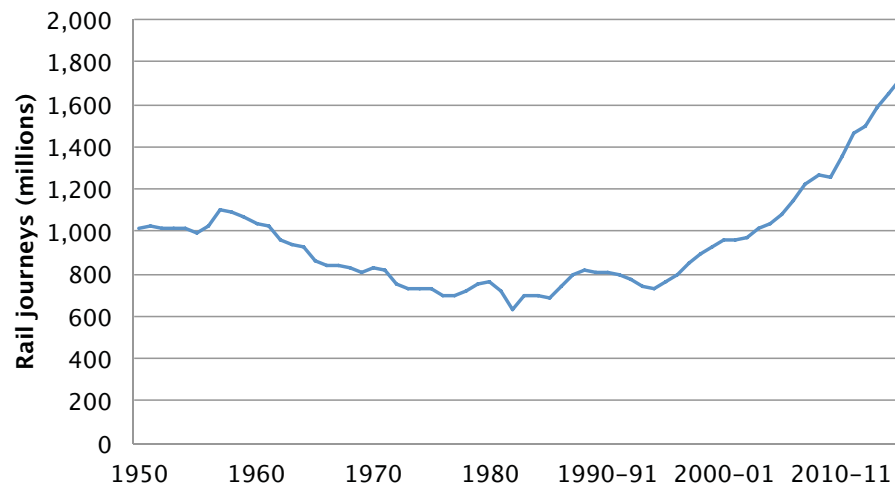


3.1.7 These changes have allowed the British network to respond to dramatic changes in passenger demand. Following a fall in passenger journeys by 40% between 1960 and the 1980s, the network has seen a paradigm shift in demand since 1995, with rail journeys more than doubling from 735 million in 1994/5 to 1.65 billion journeys during 2014/5.³ This has placed huge demands on a network that had been systematically cut back to reduce costs during the post-war era and has required adaptability and investment to provide the capacity to serve this rail renaissance.

3.1.8

The ITC recently published a detailed report, *Recent trends in road and rail travel: What do they tell us? On the Move 2 (1995-2014)*, which is part of our wider 'On the Move' research project exploring changing land-based travel trends in Britain. The findings are the results of exploring the latest National Travel Survey (NTS) data in order to see what has happened to the travel trends of individuals resident in England during and since the Great Recession of 2008-09. The key findings from the report are striking: It is clear that overall per capita land travel in terms of annual mileage has decreased significantly during and after the recession and is now 10% lower than in the mid-2000s. Interestingly, each English resident is making fewer trips overall in 2014 than in 1995, although these individual trips are longer in both time and distance. Individual car use measured by distance travelled has continued to fall during and since the recession, while individual rail has continued to grow (Figure 5) – although this appears to be driven by a greater proportion of the population using rail rather than existing travellers going further. Of particular interest is the way in which the historic correlations between income/cost and travel appear to be weakening, which suggests that other factors are increasingly driving travel behaviour. There was also a clear intergenerational divide in travel behaviour trends, with declining car travel particularly striking amongst younger people, and only partly offset by a rise in car travel by older women.

Figure 5 - Rail Passenger Journeys in Britain, 1950 to date



Application of technological developments for capacity and for passenger needs

3.1.9

There have also been many changes in classic rail control systems, although Britain has many areas that are still signalled with the same mechanical signalling technology that the lines were originally built with (Figure 6).

3.1.10

The next generation of digital signalling is in development, and is already in operation on four of the London Underground lines as well as in the central core of Thameslink, with further stages on the Network Rail network announced. This technology was initially introduced for high speed services and is now being introduced more widely on the classic network. The biggest benefit it brings is being able to significantly increase the capacity of the existing infrastructure since trains can be safely operated closer together. Such capacity increases will be critical to the success of our railways in the future – particularly in urban areas – if they are to have any chance of coping with increasing demand.

Figure 6 - GWR signal box and lower quadrant semaphores at Par, England in 2012



- 3.1.11** There are also changes in the passenger environment. Groups such as Transport Focus are clear that passengers expect the rail network to give them the same levels of comfort and connectivity as they can have at home or in the private car. The expectations of passengers on high speed or on classic rail are similarly high. Easily accessible and meaningful information is vital and open data is allowing a range of businesses outside of transport to develop apps to make public transport easier to use. For example, online journey planners allow greater clarity and flexibility in terms of information provision, such that it is no longer necessary to be able to decipher a complex rail timetable. Some apps available directly from rail companies offer door-to-door options for the journey planner. Such examples include Voyages-SNCF (France), Reisplanner (Netherlands), Rhônexpress (France), Junat (Finland), and TfL's Journey Planner here in the UK that depends on open data to improve the functionality. Independent app developers like City Mapper and Urban Map offer additional information and sometimes link to connecting modes of transport such as taxis, bicycles and walking routes.

3.1.12 Improvements in technology have also changed how we value the time we spend on the train. With the widespread availability of wifi, and the ability to access 3G mobile networks on the train (except in tunnels/rural areas), travellers can increasingly use their time on the train as part of the working day. The quality and capacity of wifi coverage will need to be greatly improved since poor wifi connectivity will become a major impediment to passengers by the end of this decade and could suppress rail passenger demand due to the inconvenience. At the same time, train companies are introducing new entertainment systems (e.g. the BEAM app on Virgin Trains), which provide an enhanced leisure experience. As a result, many passengers now value their time travelling more highly, and expect as standard access to communications systems for business, or to social media to connect digitally with people as well as entertainment systems for leisure. Smart Ticketing, which we will explore further in section 3.3, is another example of improvements in technology that will help to improve passenger flows and provide real-time passenger information. These functions have given rail travel an advantage in the early 21st century over car travel, where drivers must currently spend their time concentrating on the road.

3.1.13 Looking ahead, there will be a challenge in how far the infrastructure capacity can cope with increased demand. How far will it be able to keep adapting? The railways that were built in the 19th century thrived in the 20th century. Can they continue to do so in the 21st century? New developments such as autonomous vehicles may increase the relative attractiveness of the car and challenge rail's historic ability to keep adapting.

Conclusion

3.1.14 The principle of being 'responsive to change' is just as relevant to classic rail as it is to high speed rail. It is clear that opportunities exist for classic rail to transfer experience of adaptability to high speed and vice versa. This can help to capture added value more effectively and allow for future adaptation particularly on capacity. This continued adaptability will be just as important going forward if rail is to continue to thrive during the rest of this century.



3.2 Make the place a catalyst for growth

The full benefits of major infrastructure investment will only be realised by each place if it serves as a place of vitality where people want to come and stay.

Summary

The locations that rail infrastructure serves need to be attractive places to start with if they are to benefit fully from investment in rail system development.

Rail infrastructure on its own cannot make much of a difference.

Rail developers and land developers need to be better aligned in their planning, incentives and objectives.

- 3.2.1** In considering how rail infrastructure can be a catalyst for growth, there may need to be consideration of the places where rail system development can add most value. The transport needs of a place and the role (or otherwise) of rail in meeting those needs should be fully understood. HSR generally has the advantage of serving large, well-established population centres so it is adding to a place rather than the new infrastructure creating a place from scratch. Recognition of this principle has been seen with recent decisions on HS2 in order to bring its services into the centres of Leeds and Sheffield where the HSR connectivity will reinforce and supplement other initiatives for growth and development.
- 3.2.2** Generally, the large investments associated with HSR prompts reflection on the need for additional developments. From France, Lyon and Le Mans are cited as examples where the arrival of HSR services provided a catalyst for other investments and developments in land use and transport systems in order to give proper access to the city centre and better connectivity for end to end journeys.
- 3.2.3** Simply implanting a station in a location is rarely enough on its own to create an attractive place where none previously existed, whether on high speed or classic rail. There is a need to link transport and land use planning together, with those who develop railways and other transport infrastructure working much more closely with land developers. The approach being taken by Transport for London in relation to both Crossrail 1 and 2 has seen a much closer working relationship between these parties, with the aspiration of a partnership that will allow land development and transport development to be aligned. This is already being achieved, for example at Canary Wharf, where the developer paid for the station in order to increase job and housing density in the area. There are also funding targets in place with the intention that those in London who will profit from the development of the transport infrastructure should also contribute towards it.

3.2.4

This has rarely been seen previously in the development of classic heavy rail. In many instances land is developed first with residential housing or industrial use, only for this to be followed by a clamour for rail services to be provided rather than a holistic planning approach being taken. Digby and Sowton station near Exeter is an example where some development preceded the building of the station, and was funded jointly by Devon County Council and Tesco, opening in 1995. The area has a housing estate on a former hospital, a light industrial park and the Tesco retail store (Figure 7).

Figure 7 - Google Map aerial showing Digby and Sowton rail station in the centre of the image, the industrial area to the North and the new Tesco just south west of the station



3.2.5

The Docklands Light Railway (DLR) in London is a different example where the transport infrastructure preceded placemaking and the private development funding was conditional on the public infrastructure. This applies to the initial transport infrastructure build when the Canary Wharf area was not yet developed as well as some of the subsequent enhancements to the network. Although the DLR preceded significant demand, the London Docklands Development Corporation had been put in place with a clear remit for development, taking a broader view of growth and development of the area. On the classic rail network, the connectivity provided by 19th century rail lines running through small towns such as Didcot and Peterborough were later used in the 20th century to justify a vast expansion in residential development in the hope of capturing the benefit that rail infrastructure and services offer.



3.2.6 Milton Keynes is an example of where transport planning and land use planning worked together to create a new town with significant housing capacity and good access to facilities and work, both by car within the town, and via classic rail south to London or north to Birmingham. In this example there was also a development organisation, Milton Keynes Development Corporation (MKDC), which had all the planning control during its existence from 1967 to 1992. Although the town is considered to be a successful example of modern planning, residents acknowledge that it took 20 to 30 years for the town to properly function as an attractive place to live and work.

3.2.7 East Midlands Parkway is sometimes given as an example of where building station infrastructure alone is not enough. Growth remains behind predicted levels since it opened in 2009, with only 300,000 passengers using the station per annum in 2015 compared with the 743,000 predicted. Reasons given for this include location away from main centres of population, the inconvenient pattern of train services, the lack of electrification of the rail infrastructure or other investment that would have reduced journey times, and poor local transport connectivity. Additionally, Sinfen Central (Derby) is a sorry tale of how ignoring a range of planning factors meant that the station did not meet the demands of the place or the market. Poor public access to the station, irregular and infrequent services, and a misunderstanding of the rail market meant that the station was closed only 20 years after its opening in 1976.

Conclusion

3.2.8 The examples identified where a new rail station or service has successfully enabled the growth or renewal of a place are all ones where there was a formal body taking a development role. This could be a specific body set up for the purpose, or a local authority taking a broad view of its responsibilities to link different agencies together in order to coherently develop land and infrastructure.

3.2.9 This lesson appears to be valid for classic rail as much as for high speed, and may require the rail authorities to work in partnership with local, regional and national government much more than they have done historically. An approach that looks 'beyond the red line' of the railway boundary to the surrounding area may deliver significantly better overall results and value for money than a purely rail-centric view focused just on passenger numbers.

3.3 Be connected and accessible

Strong interconnectivity between high speed and classic rail networks will allow for long term operational flexibility and the ease of interchange for passengers.

Summary

Good connectivity between high speed and classic rail networks is important – this includes both stations and services.

Develop good connectivity between the rail station and other modes, including the car.

‘Soft’ operational issues such as consistent passenger information and multi-modal ticketing must be addressed as well as ‘hardware’ issues such as signposting and wayfinding.

Connectivity between high speed and classic rail

- 3.3.1** Good connectivity between high speed and classic rail is still being developed in Britain. The HS2 route between London and Birmingham is not currently expected to have any intermediate stations or other non-HSR services operating on it. The new HS2 station at Birmingham Curzon Street station is not currently planned to host classic rail services as well. However, the HS2 station at Crewe added later will give connections between classic and HSR networks. The nature of rail services and regulations on interoperability is such that classic services are likely to be capable of using HSR lines – subject to having the appropriate signalling installed onboard.
- 3.3.2** The Javelin rail services between St Pancras International and destinations in Kent on the High Speed 1 (HS1) line were not part of the original planning for the line. These fast services run at 140mph, lower than the 155mph threshold for HSR, but nonetheless are very rapid for a UK domestic service. They were added in 2009 and then used extensively in 2012 to provide additional connectivity for the Olympic and Paralympic Games⁴ and have proved successful in generating revenue for HS1 the infrastructure company as well as giving choice in journey times and associated fares for rail travellers from places such as Rochester and Margate in Kent. They are fast trains, but offer a domestic service on a line originally built exclusively for high speed services to and from Europe. Although HS1 was designed for high speed and long distance, the addition of HS1 domestic services have added significant capacity to the network. Indeed, the net value of these wider economic impacts from HS1 over a 60 year operating period is forecast to be a benefit of over £1.3bn PV (2010 prices), equating to between 23% and 25% of the value of transport user benefits.⁵

4 SRA, *Integrated Kent Franchise: Stakeholder Briefing Document (2005)*
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/4174/gratedkentfranchisestake3338.pdf

5 Atkins, *First Interim Evaluation of the Impacts of High Speed 1: Final Report, Volume 1, Main Report*
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/466084/first_interim_evaluation_hs1_main-report.pdf

3.3.3

St Pancras, although a terminal station for most operators, enjoys good connectivity with high speed services to Kent and Europe, the Javelin fast services, and classic rail services to the East Midlands and via Thameslink (for which it operates as a through station) to areas in Kent, Sussex, and Bedfordshire, serving destinations to the north and south of London as well as stations through the centre of the capital.

3.3.4

HSR services in Germany operate in part on new high speed infrastructure and in part on classic infrastructure. They are able to use classic rail lines as well because of signalling and train control system capability installed on the train, with different systems deployed for different route sections (Figure 8). This can allow High Speed Trains (HST's) to operate in advance of specific high speed infrastructure being constructed. For example, TGVs have operated between Paris and Bordeaux since 1990, many years in advance of the dedicated high speed infrastructure being completed with the Tours-Bordeaux section due to open in summer 2017. For the passengers using these services, connectivity into the wider rail network is important rather than simply the top speeds between main cities.

Figure 8 - Map of high-speed and intercity trains in Northern Germany



3.3.5

As HS2 develops, greater integration between the high speed and classic services can be expected. This could be Javelin-style, with other operators running regional rail services on the same infrastructure, or German-style with HST's venturing off the purpose built high speed infrastructure onto the classic rail network in order to boost connectivity beyond those limits.

Connectivity between classic rail and other modes

- 3.3.6** There are many examples on the classic rail network where the rail network is well integrated and connected with the surrounding cityscape and other transport modes.

Figure 9 - Grand Central station in Birmingham



- 3.3.7** The West Midlands benefits from examples of what is possible with the redeveloped Birmingham Grand Central station (Figure 9), where retail development has improved station facilities as well as its link into the cityscape. The station area is now seen as being a destination in its own right rather than an area used of necessity. There is good connectivity with other modes, more is being done as the tram network develops and there are improved links between the airport and the city. It was noted that in the past the City Council had opposed the redevelopment, but the current leadership role being played by Midlands Connect was considered important to deliver further improvements to connectivity and local transport integration.
- 3.3.8** Nottingham is a city where station refurbishment and redevelopment, in combination with a growing tram network has made connectivity into and across the city much easier. The tram operator also runs seven free park and ride facilities linked to the tram network. A workplace parking levy has deterred city centre parking has generated revenue for the city. The levy raised £9.3 million during 2015-16 (a figure that is expected to grow annually), providing much needed investment for public transport investment. Meanwhile, public transport use in the city has increased above 40% of all journeys.⁶ These different elements have combined to support redevelopment and regeneration. The station now lies at the heart of the city's tram network following the major expansion project to create two further lines which have more than doubled the size of the previous system. Paul Robinson, General Manager of Nottingham Trams Limited (the tram network's operating company) has told the ITC: "Previously the railway station was a terminus but now all tram routes from different parts of the city and the Greater Nottingham area pass through it creating a true, integrated transport solution. It is certainly one of our busiest stops." The station is now felt to be well connected, whereas it had previously been perceived as not in the main city centre.



- 3.3.9** Glasgow and Swansea are regarded as locations where connectivity between bus and rail is currently poor, with the bus station some distance from the railway station in each case. There may be future scope to improve connectivity if bus services are remapped to cross the city centre rather than run on radial routes to the central bus station and terminate. The separate organisations planning and developing bus and rail services appear to do so in relative isolation.
- 3.3.10** As well as infrastructure to improve connectivity, technology can also support connectivity on systems such as smarter ticketing and information. Technology developments help to support the introduction of 'soft' connectivity through multi-modal ticketing such as the recent launch of 'Swift' ticketing for buses and trains in the West Midlands. The Swift transport smart card links bus, train and tram travel across the region, and can store cash, season tickets and new types of travel products.⁷ For the operators, these systems have back office capability that can efficiently allocate revenue between operators in line with usage rather than more crudely on a sample basis. This can make it easier for both small and large operators to participate in integrated and multi-modal ticketing schemes.
- 3.3.11** In Manchester there is a bus alliance under which the operators are working with the city to have an integrated ticketing system. Rather than legislating, they are working collaboratively to get the different interest groups to work together.
- 3.3.12** The classic rail network sees a number of different and competing train operators but industry regulation requires operators to sell each other's tickets at a standard price to the customer. It remains to be seen how ticketing will develop in the future, as developments like barcode and mobile ticketing have tended to be operator specific with dedicated tickets only in order to boost that operator's revenue and potential market share.
- 3.3.13** According to a recent report released by the Rail Delivery Group, the use of electronic ticketing could reduce gate queues and bottlenecks in ticket halls through the smart management of passenger flows. A physical ticket is not needed to board a train, with mobile ticketing or contactless cards already in place on many parts of the network. Back office data systems can be used to understand passenger trips and anticipate passenger needs in areas such as providing real time guidance for passengers in the event of disruption with information or potentially re-booked onward services. Ultimately, this "will greatly improve the flexibility of ticketing and provide a richer picture of travel patterns and demands" for the rail industry.⁸

7 West Midlands Swift Card <https://www.myswiftcard.com/swift-card.aspx>. The ITC will also be exploring the possibilities for customized mobility pricing through our 'Technology and Travel' work scheme.

8 Rail Delivery Group, *Rail Technical Strategy Capability Delivery Plan (2017)* <https://www.rdsb.co.uk/rts/Documents/2017-01-27-rail-technical-strategy-capability-delivery-plan-brochure.pdf>

Figure 10 - Posters from the Rail Delivery Group Campaign "Britain Runs on Rail"



Conclusion

3.3.14 Connectivity between the high speed and classic rail networks still needs further development. There are lessons from both classic rail and other public transport modes that can support the improvement of HSR connectivity. From HS1 and its subsequent adaptation, we have London St Pancras as an example in Britain of good high speed, long distance and regional classic rail connectivity working through the same station. London St Pancras and Nottingham demonstrate the benefits of a station that operates as a through-station and not merely a terminus. With HS2 now being developed and constructed, the challenge of connectivity will need to be addressed for other cities and their city-region hinterland.



3.4 Make stations places of arrival and exchange

The station should be a place of interchange, exchange and transition that has the potential to generate income and contribute to non-operational functions such as retail and public services.

Summary

Different stations have different purposes – we need to understand what the purpose of each is and tailor the design accordingly.

Small and low-cost interventions may be enough to improve station function, particularly if these generate links to the community and social enterprises.

Fresh station designs should be considered, including developing a blueprint for new Parkway stations.

3.4.1 In considering stations and how well they serve their users and communities, it may be helpful to consider what the purpose of a station is. On the classic network there are 2,557 mainline stations, including 14 new stations developed in 2015/16.⁹ Some are rural halts serving less than one passenger per day (such as Sugar Loaf on the Heart of Wales line), whereas London Waterloo serves 100 million passengers a year. These stations obviously have very different capabilities to generate retail income or to provide wider public services.

3.4.2 Many stations on the classic network reflect their heritage, and often include attractive Victorian buildings that may also be costly to maintain and difficult to adapt to modern usage without significant investment. It is notable that under the DfT Access for All programme, launched in 2006, £35 million funding per year (until 2015) is being spent for provision of an obstacle free, accessible route to and between platforms at priority stations. In 2014, the Government announced a further £160 million to extend the programme to 2019 and have worked with the rail industry and local authorities to select a further 68 stations for the extended programme.¹⁰ Passengers and other users often expect stations to be heritage on the outside and technologically sound on the inside. Some larger stations such as London King's Cross or Manchester Piccadilly meet this aspiration and can be seen as successful places of arrival and exchange. However, most of the classic network has stations that are nowhere near meeting this aspiration. This is a challenge that is just as important for the passengers and communities served by the classic rail network as it is for HSR.

9 ORR, *Estimates of Station Usage 2015-16* <http://orr.gov.uk/statistics/published-stats/station-usage-estimates>

10 Access for All Programme <https://www.gov.uk/government/collections/access-for-all-programme>

Small interventions

3.4.3 Small and simple interventions can make a major difference for classic rail, as well as for HSR. For example, the new station entrance (now the main station entrance since opening in April 2013) on the northwest corner of Birmingham New Street has opened up the station and provides direct links to the city's central business district alongside providing better access through the station and across the city. Changes at Leeds station developed by Network Rail and opened in early 2016 to create a south side access at a cost of £20 million are also having a similar effect and offer improved links to the new developments to the south of Leeds which is being developed alongside the arrival of the HS2 line (Figure 11). This new entrance will benefit up to 20% of passengers to Leeds rail station.¹¹

Figure 11 - Envisioning the Leeds South Bank station area



3.4.4 In Manchester, Transport for Greater Manchester (TfGM) is developing proposals to take direct control of stations from Network Rail and the various train operators. The TfGM vision for stations includes extending community uses and looking at situating public services such as family centres, doctors surgeries and public libraries into buildings on or next to the station site. There are also some rural stations such as Llandoverly on the Heart of Wales line where community enterprise is already evident in much of the station area, including cafés, clubs, gardens and meeting rooms operated for community and social benefit rather than to generate retail income. Developing stations through such links to local communities can bring wider benefits to station operators and the community if undertaken properly. This model is generally applied where there is no significant commercial opportunity. Future station developments should find a way of valuing community engagement and include this as part of a mixed-use station rather than the social enterprises only being considered as a last resort. Indeed, the UK has a long-standing policy of encouraging community involvement in local lines through Community Rail Partnerships¹² supported by ACoRP (the Association of Community Rail Partnerships), to put the community back into stations and station buildings.

11 Leeds Rail Station - new southern entrance (LSSE) <http://www.wymetro.com/lse/>
 12 Association of Community Rail Partnerships <http://acorp.uk.com>

A vision and a blueprint for a new Parkway station?

3.4.5 HSR may lead to the development of new Parkway stations, particularly if situated outside the centre of cities and towns. There has been a mixed experience of these on the classic rail network. The term 'Parkway' is generally applied when a station is not near any housing, retail or industrial development and its facilities are often minimal apart from a large car parking area. Bristol Parkway was the first of these stations in Britain, opening in 1972. It has grown to be the third busiest station in the South West (after Bristol Temple Meads and Bath Spa) yet lacks a sense of place, has limited facilities, and limited attraction for rail passengers let alone other people. Housing has been developed to surround the station area, which also has good connectivity to the M4 and M5, but public transport access to the wider region is often poor, with infrequent bus services, for instance, to major residential areas without rail stations such as Thornbury and Mangotsfield.

Figure 12 - Bristol Parkway station



3.4.6 Applying the lessons from HSR, there may be scope to redefine and redesign a Parkway station for the 21st century so that it has a wider function than 'just a train service'. In the Netherlands on a branch line from Amsterdam to Den Helder Naval Base, Dutch Railways is slowly developing the station into both large and small workhubs/service points that allow people to work locally and only go to Amsterdam when necessary. There may be scope to replicate this model of using the station buildings to provide office hubs, libraries, meeting areas, community meeting rooms and other facilities, thereby becoming a successful place of arrival and social exchange. This design could apply not only to any new Parkway stations, but also to the redevelopment of existing stations. Changes in society, lifestyle and technology could allow new Parkway stations to respond to their modal interchange opportunities. As part of a daily or regular routine, uses such as childcare, early years education, medical and health services, vehicle maintenance or hire, click and collect or logistics points might be explored.

3.4.7

Another successful example of redefining the use of a station is Amsterdam Schiphol, which has moved from offering predominantly airside retail and services for transferring passengers into a fully fledged Airport City development, including commercial activities at air- and land-side as well as outside the airport boundaries. As discussed in *Ambitions and Opportunities*, “they offer a variety of commercial programmes and activities, and established businesses have taken advantage of the great connectivity such places offer by plane, car and public transport.”¹³ Therefore, aside from being a major international airport interchange, Amsterdam’s Schiphol Airport is also functioning as a regional shopping centre as well as an international business and conference centre with offices, hotels and light industrial units.

Conclusion

3.4.8

Regional authorities such as Midlands Connect, Transport for Greater Manchester and Transport for Wales are increasingly seeing their stations as much more than a source of ancillary income. They are looking for their stations to support much wider social and economic renewal objectives. They are looking for much greater integration of transport modes with connections within and between different modes. The involvement of non-transport activity for social or economic reasons is a recent development. The lessons that the ITC identified from Europe in *Ambitions and Opportunities* may provide a blueprint for what is possible to support the development of stations on the classic rail network as successful places of arrival and exchange. The focus on exchange rather than simply arrival may support developments such as a new vision and blueprint for the Parkway stations of the future, as well as for city stations.

3.5 Collaborate to succeed

City regions gain distinct advantages when they have internally shared economic interests and values; this is often enhanced by working together through a combined transport authority.

Summary

It may be necessary to 'force' collaboration and set a framework for action.

Collaboration should serve the interests of the passenger and future passengers with a forward vision.

Regional Passenger Transport Executives (PTEs) and HS2 have successfully prompted regional cooperation in the past, others may learn from this experience.

3.5.1 When discussing collaboration in the ITC's *Connected Cities* research, it was apparent that HS2 and some other major infrastructure projects such as the King's Cross redevelopment have been a catalyst for collaboration that might not have otherwise taken place. It was clear that to facilitate this collaboration there often needs to be an imperative, such as a funding deadline or a shared objective, such as the Olympics or combatting falling passenger numbers.

3.5.2 Nottingham was given as an example where the city experienced a great deal of competition between modes and the introduction of the new tram scheme (Figure 13) was seen initially as a threat to other forms of public transport. Over time, there has been a realisation that public transport operators can collaborate in mutually beneficial ways on issues such as ticketing and information provision.

Figure 13 - Nottingham Trams, 2004



- 3.5.3** It may be necessary to have a framework that forces collaboration, and the Passenger Transport Executives (PTEs) of the past as well as the newly devolved authorities such as Transport for the North (TfN) have an important role in ensuring that different parties work together to benefit travellers and funders. These groups have typically spanned rail, bus and tram/metro operators and focused on issues such as integrated ticketing and information that would otherwise be mode-specific. In the case of TfN, the organisation is in the process of producing a multi-modal strategic transport plan, ensuring that investment focuses on integrated transport solutions that enhance regional connectivity. Without an overarching body instances of cross-modal cooperation are rare.
- 3.5.4** On the classic rail network the collaboration between train operators has generally not been strong, although groups like the Association of Train Operating Companies (ATOC) and the Railway Delivery Group (RDG) have ensured that there is sharing of good practice and in some cases a common response to industry challenges such as new technology or funding constraints. These are due to the regulation of common safety and operational standards on the network, but on a wide range of issues since privatisation Train Operating Companies (TOCs) have developed and introduced their own solutions independently. Examples of such industry fragmentation include staff terms and conditions, driver recruitment and training, websites, reservation systems, on board and on station wifi systems, rolling stock and other major procurement. Examples of voluntary collaboration between TOCs have generally been limited to response to a specific short-term problem, such as adverse weather, or constrained train pathing capacity.
- 3.5.5** In considering the development of transport networks and their infrastructure, it becomes apparent that collaboration within the public transport sphere alone is not enough. The ITC's work on HSR identified the need to also work closely with regional and local governments, business, educational institutions and the third (charitable and voluntary) sector. The national UK Government has rarely intervened but there is scope for regionally based initiatives to prompt a more collaborative approach.
- 3.5.6** There is a particular collaborative challenge in relation to stations and placemaking, as well as the development of land around stations. Rail bodies, such as the TOCs and Network Rail, have very narrowly defined objectives and often neither have the specific funding nor the governance arrangements that would allow them to engage more widely in development and land use issues. A regional body, such as TfGM may need to intervene to ensure that the full range of organisations do collaborate. This might be done by identifying and agreeing common objectives or highlighting where there is funding available that supports collaboration – such as the City Deal and Growth Deal funding which a number of city-regions have secured including city focused areas like Cardiff but also some more diffuse areas such as the Black Country.

Figure 14 - Screenshots from the National Rail Enquiries Twitter feed



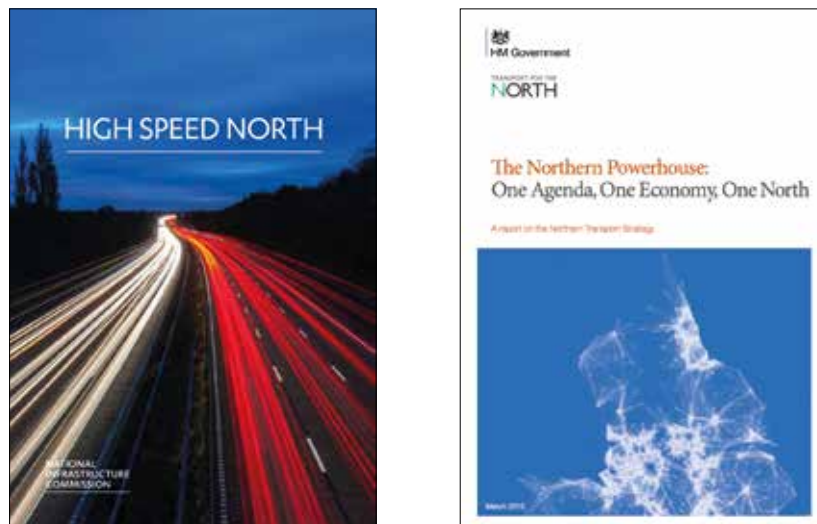
3.5.7 Passenger and stakeholder engagement, at least at a simple level, is easier through low-cost digital applications such as Facebook and Twitter (Figure 14) that can provide instant feedback. However, the value of this method tends to be very short term, for example providing an immediate response to incidents of disruption. Real and long-term collaboration typically involves face-to-face meetings and richer two-way engagement in order to develop a proper understanding of objectives. Complex issues such as the development of timetables can require a longer term and staged involvement, with substantial lead times before any change actually takes place. It may also be necessary to work with parties outside the rail sector to explain some of the rail industry constraints and complexities – such as the 2-3 year timetable planning process, or the impact that introducing a new station (and stopping point) will have on overall journey times for a larger number of travellers.

3.5.8 A rail or station development scheme may be a catalyst for better community and stakeholder engagement. It can be difficult for external parties to engage with the UK rail industry due to its inherent complexity. For instance, although a TOC often manages the station, the station property is owned by Network Rail. The size and complexity of Network Rail can also present challenges: a major station development may be led by Network Rail's property team but questions about the re-timing of train services may be developed by the central train planning team, with detailed infrastructure changes developed by the infrastructure projects team and contact with local stakeholders handled by the Network Rail route organisation.

3.5.9 The development of the HS2 proposals has provided a welcome catalyst to pull the rail industry together. For example in Leeds, the HSR and current rail station are almost touching, so HS2 Ltd is having to work closely with Network Rail and the train operators. Cities themselves are becoming more involved with the areas surrounding the station and integrating the stations with the local area and local transport networks, and train operators are thinking beyond their station and considering the surrounding area and the wider transport network. This pushes the rail industry to engage more with developers and the local authorities. Indeed, Network Rail has a specific remit from Government to promote regeneration and housing as well as realising cash asset sales alongside looking after the rail passenger. The most important thing is that discussion of rail issues is no longer left to the rail industry but is being brought into the overall planning of cities – transportation planning is overlapping with spatial and urban planning.

3.5.10 There is a case for stronger passenger involvement in forward rail planning and developments. Regional bodies such as Rail North, TfGM, and Midlands Connect and groups like Transport Focus can help ensure that there is a more passenger-facing emphasis. They may also, through relationships with the devolved government bodies, be able to support wider issues relating to land use and development beyond the station area. For example, recent years have seen many out-of-town residential developments approved, which are then difficult to connect with the national rail network, unless the transport infrastructure and services such as buses are also adapted to fit the development.

Figure 15 - Report covers, High Speed North (NIC, 2016) and The Northern Powerhouse (Transport for the North, 2015)



3.5.11 Historically, places with PTEs (such as West Yorkshire and Merseyside) have been successful in developing the rail network and working collaboratively. The Northern Hub was originally a rail scheme to manage complex developments and increasing demand and the need to improve transport links. This scheme brought together a broad range of stakeholders and contributed to the wider development of the Northern Powerhouse (Figure 15) since it was recognised that rail developments around south Manchester would have an impact much further afield in Leeds and Liverpool, way beyond the immediate area. This collaboration developed significantly in advance of the proposals for HS2. It emphasises the need to create a space for dialogue and build understanding in advance of taking decisions.

3.5.12 London is an excellent example of the joined up planning approach which has led to the creation of the London Plan and the Mayor's Transport Strategy, resulting in a well-integrated planning and infrastructure system. Others are now following in London's footsteps. The strong leadership by the council and transport authority in Manchester is seen as a vital factor in the city-region taking a more holistic approach to infrastructure building, and it has encouraged separate boroughs to collaborate and work together for a better overall result. Looking specifically at the 2014 *Growth and Reform Plan* by Greater Manchester, it is clear that collaboration has played a critical role in the overall success of the region – there is even an entire section in the report dedicated to collaboration with other Local Enterprise Partnership (LEP) areas. One of the key tenets of effective leadership and delivery in Greater Manchester has centred around a long history of collaboration whereby “policy making in Greater Manchester is underpinned by a common commitment to all its communities”¹⁴. The city-region also retains ownership over its own airport, with the ten borough councils together being majority owners of holding company Manchester Airports Group, so that the profits it generates are shared locally. As was clear in the ITC's HSR study, a certain maturity is needed to encourage separate organisations to recognise that they need to work together, rather than competing against each other.

Figure 16 - The trainshed of Brunel's original Bristol Temple Meads station (left); Bristol Temple Meads, current day (right)



3.5.13 There are examples of where city and regional planners have gone beyond their own boundaries. Bristol City Council has been working with Bath and North East Somerset, North Somerset and South Gloucestershire Councils on their Joint Local Transport Plans under the West of England Partnership from 2004 onwards. The subsequent West of England LEP, a voluntary grouping, has published a *Joint Transport Study: Transport Vision Summary Document* in November 2016.¹⁵ It proposes a £7.5 billion spend on transport over the next twenty years with £1 billion on rail and £2.5 billion of this on light rapid transit. It remains to be seen what and how this gets delivered within the newly created West of England Combined Authority. This recent administrative development is in contrast to countries like France and the Netherlands that have long-standing strong regional governments operating in some cases for centuries and with extensive funding and planning powers.

3.5.14 In France there has been success when the rail infrastructure builder, local planners, developers, architects and business people sit around the table to plan. Through dialogue they understand their different interests and also find common ground. There are many examples of successful collaboration between SNCF (France's national rail company) and local bodies that have resulted in the creation of better places: examples include Lyon, Lille, Strasbourg, and a number of Parisian commuter suburbs. This collaboration is supported by strong French regional government and leadership, which benefits from wider fundraising powers than in the UK. In his seminal book co-authored with Nicholas Falk entitled *Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism*, Professor Sir Peter Hall states that "the French concept of urbanisme (as opposed to planification) is essentially about creating liveable places. And their success is testified by the fact that rich and successful Frenchmen and Frenchwomen crowd into their cities".¹⁶

Conclusion

3.5.15 The benefits that arise from collaboration between rail transport and infrastructure providers and local organisations are evident in the case of classic rail as much as with HSR development. This strong collaboration, and the greater mutual understanding it brings can help ensure widespread local support for the development, and in the longer term allow the new transport infrastructure to be fully integrated with the community it serves. On occasions, this collaboration needs to be nudged through formal bodies to ensure it happens effectively rather than being left to chance.

15 West of England, *Joint Transport Study: Transport Vision Summary Document* (2016) https://www.jointplanningwofe.org.uk/gf2.ti/-/757442/23234053.1/PDF/-/Joint_Transport_Study_Transport_Vision.pdf

16 Professor Sir Peter Hall and Nicholas Falk, *Good Cities, Better Lives: How Europe Discovered the Lost Art of Urbanism* (2014), page 212



3.6 Rail planning processes

We need a stronger mechanism to ensure that the lifetime of an asset and its adaptability are properly considered.

Summary

Rail infrastructure planning requires a longer-term perspective than provided by electoral cycles or 5-year control periods.

Rail infrastructure needs to be able to adapt to changing needs over many decades and even centuries.

Infrastructure funding should be supported by finding ways of obtaining contributions from those who will benefit over the lifespan of the asset.

Appraisal models are not perfect but they should take into account the wider social, economic and land use benefits from investment as well as the multi-decade lifespan of infrastructure. They should include the capability for passive provision for future developments and adaptability rather than just focusing on the immediate challenge.

3.6.1 Rail infrastructure can have a life of 30 to over 150 years. This can apply to signalling systems, track layout and alignments, as well as civil engineering structures such as tunnels and viaducts. It can be difficult to adapt infrastructure to changes in adjacent land use, technology or demand changes. The rail industry's own Long Term Planning process, led by Network Rail, seeks to look ahead by 30 years. However, the 30-year horizon is well in excess of the maximum 7 to 15 year horizon for a train operating company, and can mean that an incumbent train operator may not be focusing on long term rail service development issues beyond their immediate contractual commitments.

3.6.2 In the ITC's *Connected Cities*, work we identified that the long-term goal of transport infrastructure is to improve accessibility to places where people wish to live and thrive. There are important returns not always taken into account when appraising schemes, from thinking ahead to future proofing our rail network at an early stage when costs and disruption will be much lower. This requires sufficient flexibility of design to respond to future needs.

- 3.6.3** Rail infrastructure that does not have adaptability and some passive provision built in can be very expensive to retrofit. Major schemes could design in some capability for future capacity enhancements, even if the exact requirements are not fully developed. This could be changes such as allowing for electrical immunisation in signalling schemes to prevent rework if electrification comes to an area, or within a current scheme preparing in advance for longer passenger and freight train operations rather than waiting for actual demand to present itself and then requiring subsequent station platform or freight loop extensions.
- 3.6.4** HS2 has had its own specific planning processes and primary legislation to follow and received its final Royal Assent after being cleared through Parliament in February 2017. The level of national and regional interest and debate has been intense. Stakeholder engagement has been a major focus for the team, but this has often been focused on the construction route neighbours rather than on the potential passengers. The engagement in the cities that will have new HS2 stations has been largely led by the cities themselves rather than the rail project. If you consider the case of Sheffield, for example, through local efforts from business leaders and the Council, there was effective lobbying of the UK Government to relocate the HS2 station from Meadowhall (a Parkway station) to a city centre location thereby creating additional future jobs and saving the Government money.
- 3.6.5** Funding and appraisal rules set the scope for rail projects. In the British rail industry there is currently very little private funding of infrastructure schemes. In December 2016 the Hansford Review¹⁷ was set up by Network Rail to explore barriers to innovation and project delivery that prevent or discourage third parties from investing in, and delivering, rail infrastructure projects with a report due in late Spring 2017.
- 3.6.6** However, some opportunities do exist for investment from private companies. For example, the upgraded London-Bicester-Oxford link opened in October 2015 following a unique £320 million investment which involved contributions both from the franchise operator (£130 million from Chiltern Railways) and Network Rail (£190 million). As Global Rail News reported, “the Evergreen 3 project is unusual since it is an infrastructure improvement, but with financing coming from Chiltern Railways. They are the Sponsor, Client and Agent. Network Rail has been a co-sponsor but also has the role of mortgagor and approver.”¹⁸ The infrastructure has resulted in a range of improvements to the network, including a new parkway station in north Oxford, an alternative route into London from Oxford and improved services to London from Bicester, High Wycombe and Princes Risborough.

17 Network Rail, *Hansford Review: An independent review of contestability in the rail market (2017)*
<https://www.networkrail.co.uk/industry-commercial-partners/hansford-review/>

18 RailNews (2011)
<https://www.globalrailnews.com/2011/10/26/chiltern-renaissance-the-evergreen success/>

3.6.7 Public funding requires that Treasury guidelines are followed, and this could limit what can be delivered. Rail schemes that bring wider community and economic benefits will need this to be recognised at the appraisal stage. The current process for rail infrastructure investment has limited private involvement, and unfortunately limited requirements for future proofing.

3.6.8 The construction of the first stages of Crossrail (now known as the Elizabeth line), is prompting massive developments in some areas, but many beneficiaries are unlikely to have contributed. However, Crossrail 2 (Figure 17) is being developed with financial support from potential private sector beneficiaries, such as developers, whose developments will increase in value as a result of the increased accessibility and connectivity that Crossrail 2 will bring. This is done through the [London] Mayoral Community Infrastructure Levy that these developers will be asked to contribute to. Businesses that will benefit from both an increased labour market and increased visitor activity as a result of Crossrail 2 will also be asked to contribute via a business rate supplement. Transport for London is additionally looking for ways to maximise over-site development within the current footprint to contribute to the scheme. They are also exploring indirect ways in which to capture value such as through incremental increases in stamp duty on nearby residential properties.

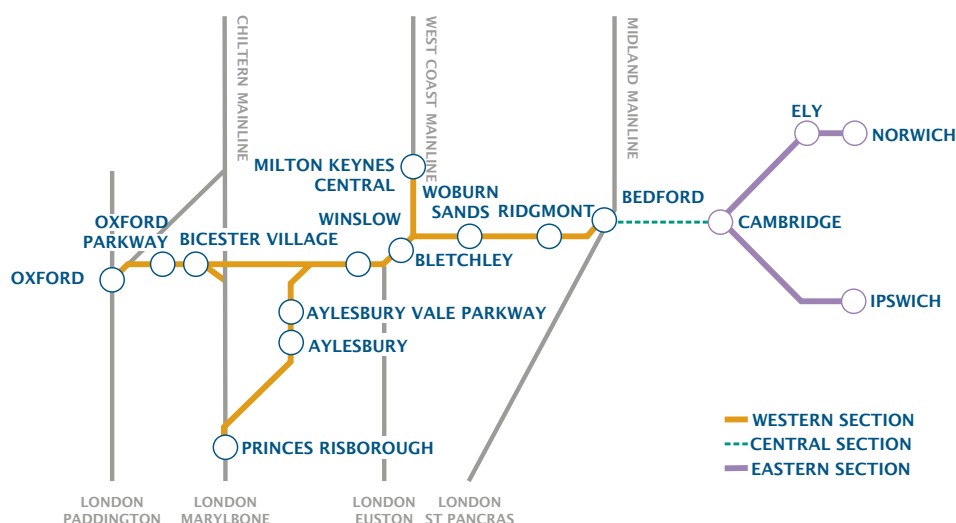
Figure 17 - New Bond Street Crossrail station entrance on Davies Street with public realm improvements



3.6.9

Local authorities in Great Britain have limited fundraising powers for transport infrastructure schemes. Where they have tried innovative funding mechanisms such as the workplace parking levy – used in Nottingham to contribute towards the funding of the Nottingham tram network – these have not been on the scale necessary to fund expensive rail investment. The devolved administrations in Scotland and Wales are looking to develop their fundraising capabilities in order to better reflect their requirements, and in part as a reaction to the levels of publicly funded infrastructure investment that has been seen in London and South East England.

Figure 18 - How the East West Rail project will make travel across Britain easier



3.6.10

In a speech at the Policy Exchange in December 2016¹⁹, the Secretary of State for Transport stated that the Government is committed to establishing East West Rail, which will become a new and separate organisation to Network Rail. East West Rail (Figure 18) is a major project to establish a strategic railway connecting East Anglia with Central, Southern and Western England. East West Rail will upgrade existing rail routes between Oxford and Bedford and on the section between Bedford and Cambridge building a new railway where old lines have been previously closed and fully removed, with land sold on and built over. East West Rail is required to secure private sector involvement to design, build and operate the Oxford to Cambridge route as an integrated organisation. Additionally, they will explore innovative funding methods not previously used, such as recapturing the land value increase created by investment in infrastructure and through building stations into community assets that deliver benefits to both passengers and taxpayers.

3.6.11

It is possible there might be a role for the National Infrastructure Commission (NIC) in supporting this process. The NIC has the scope to review and adapt the existing appraisal rules to take into account the longer-term benefits from classic rail infrastructure. This should reflect the longevity of transport infrastructure, the difficulty in building this, and the difficulty in later adapting to changing needs. Recently, there have been suggestions that infrastructure appraisal rules should be treated simply as a guide, and cost-benefit analysis is better suited to choosing between different design options (or otherwise) rather than justifying the economic need or otherwise for a scheme.



3.6.12 Rail funding in Great Britain currently revolves around 5-year control periods. While this is significantly better than taking decisions over even shorter periods where the risk of political interference is high, it still has some drawbacks. There is a challenge with maintaining consistency of planning at the start and end of each control period. Major infrastructure developments will span more than one control period. The supply market for infrastructure projects and trains can experience peaks and troughs that relate to infrastructure funding cycles and rail franchise renewal dates. Market capability, and the skilled workforce needed, can be built or lost over these 5 to 10 year cycles. More work is required to reform the planning process in order to smooth the flow of infrastructure construction and enhancement and avoid spikes in demand for equipment and materials as well as the people to deliver the improvements.

3.6.13 To improve coordination at a regional level there is now a joint Western Route Supervisory Board to drive improvements in the rail services and network, comprised of the managing directors of Network Rail Western Route, Great Western Railway (GWR) and Heathrow Express, a representative from Transport Focus and an independent but rail experienced chair. It should help ensure that infrastructure planning and the delivery of projects is better aligned with stakeholder needs. However, this is a very new development in February 2017 as part of Network Rail's devolution agenda. Transport Secretary, The Rt Hon Chris Grayling, said: "Delivering major improvements on our busy network is a tough task. Whether it's planning essential repairs, improving services, or dealing quickly with problems, it's much better when it's done by one, joined up team of people. Our railways are crucial to our economic future. While the solutions may differ in their models for each area, the outcome will be the same – a railway that is predominantly run by an integrated local team of people with a commitment to the smooth operation of their routes."²⁰

Conclusion

3.6.14 Current rail industry infrastructure planning processes follow Network Rail's 5-year funding cycle of control periods. They can often interface quite clumsily with national, regional and local planning processes as well as timescales and rail franchise re-letting timescales. This is of particular concern given the longevity of rail infrastructure assets. It is essential that decisions that are taken for a 30 or 50-year life allow adequately for future proofing. And it is essential that there is proper early engagement of the multiple stakeholders, not just on design issues, but through build and onto delivery, as well as continuously managing and maintaining the assets after completion.

3.6.15 For classic rail to really capitalise on the lessons from HS2, there needs to be better engagement between the rail sector and the communities it connects. This is currently a diverse picture with train operators sometimes being different to station operators, or Network Rail functioning as a station owner but often an absentee landlord except at major stations. Emerging proposals such as Route Supervisory Boards being developed as part of the greater devolution of Network Rail may give a mechanism to ensure that these community voices are heard.

4. Conclusion

4.1

Rail infrastructure investment can bring wider added benefits to cities and communities regardless of whether this is serving a classic or a high speed line. This report has demonstrated that the principles identified in the ITC's HSR and Cities research for capturing the maximum value from infrastructure investment are as relevant to the classic rail network as they are to the new and developing high speed network. Those seeking to maximise the economic and wider benefits of rail investment would do well to take these into account.

4.2

This report also highlights the long term effects of major infrastructure development – both positive and negative – since the decisions taken today will continue to resonate in 30 or 50 years time. The classic rail infrastructure and rail services can and will continue to adapt. However, the men and women who take decisions about the local and national stewardship of that infrastructure and the rail services that use it must reflect on the opportunities for future development beyond their immediate project or control period accountabilities. Rail has an important role within our national infrastructure and its relationship to the communities it serves is more important than the train services alone.

4.3

We have identified a number of principles that should be taken into account. These include:

- **Rail being responsive to change.** Classic rail has a long experience of adaptability and this will be just as important going forward if rail is to continue to thrive during the rest of this century.
- **Make the place a catalyst for growth.** A new rail station or service can successfully enable the growth or renewal of a place but this requires an approach that considers the wider area that the rail station or service will serve.
- **Be connected and accessible.** Good connectivity both with the existing rail service and with other forms of transport is essential for capturing the full value from rail infrastructure investment.
- **Make stations places of arrival and exchange.** Stations are more than a source of income; they act as gateways and meeting places for a city and its hinterland. Authorities should look and plan for their stations to support much wider social and economic renewal objectives.
- **Collaborate to succeed.** The benefits that arise from collaboration between transport providers and local organisations are evident in the case of classic rail as much as with high speed rail development. On occasions, this collaboration needs to be aided through bodies that can set this process in action.
- **Improve rail planning processes.** It is essential that decisions that are taken for a 30 or 50-year life in order to allow adequately for future proofing, not just focused on the 5-year control periods. Bringing in a wide range of stakeholders can help ensure such long term planning.

**4.4**

For classic rail to really capitalise on the lessons above, there needs to be better engagement between the rail sector and the communities it connects. This is currently challenging with an array of different organisations, including train operators who may be different to the station operator, and Network Rail as a station leaseholder but often without a presence at any but the most major stations. Emerging proposals such as regional Route Supervisory Boards may give a mechanism to ensure that community voices are heard.

4.5

The ITC recommends that the above principles are taken forward when planning new or upgraded infrastructure in the rail sector, and commends them to government and the industry. The ITC further recommends that regional and local authorities actively engage with Network Rail, with train operators and other rail industry bodies to shape and develop the investment schemes that the industry proposes. Rail infrastructure planning and the development of rail services are too important to be just left to the rail industry alone.

Appendices

ITC Reports relevant to this research

Recent trends in road and rail travel: What do they tell us?

On the Move 2 (1995-2014): Overview and policy analysis (December 2016)

High Speed Rail and Connected Cities: Accessible Places for Growing Economies
(May 2016)

On the Move: Exploring attitudes to road and rail travel in Britain (July 2015)

Ambitions and Opportunities: Understanding the Spatial Effects of High Speed Rail
(November 2014)

Capturing the Value of High Speed Rail – Learning from Europe: The Lille Symposium (March 2014)

The Spatial Effects of High Speed Rail: Capturing the Opportunity
(October 2013)

On the Move: Making sense of Car and Rail travel trends in Britain
(December 2012)

Workshop Participants

The ITC would like to thank the below participants for their contribution to the Rail Workshop, hosted in October 2016: their insights informed this report.

Hosts		
Sarah Kendall	Commissioner	ITC
Dr Matthew Niblett	Director	ITC
Bright Pryde-Saha	Projects Coordinator	ITC
John Worthington MBE	Commissioner	ITC

Delegate List		
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Chris Brooks	Bid Director	Arriva
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Mark Durham	Operations Director Nottingham Tram	Alstom
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Dick Keegan	Director	The Rail Estate Consultancy Ltd
Roger Madelin CBE	Head of Canada Water Development	British Land
Alan McMillan	Principal Transport Planner, HS2 Sponsor Team	Transport for London
Martin Revill	Associate Director	JMP Consultants
Paul Rowen	Board Member	Transport Focus
Mike Smith	Customer Experience, Accessing the Network and Secondary Revenues	Abellio

Figure 19 - Delegates at the Rail Workshop in October 2016 listening to Commissioner Sarah Kendall speak about the applicability of the ITC's HSR research to the classic rail experience





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