The spatial effects of High Speed Rail

'Capturing the Opportunity'

Study Paper
October 2013

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This report was authored by a team led by John Worthington, Bright Pryde, and Matthew Niblett in consultation with the ITC Steering Group, membership of which included Alan Baxter CBE, Mary Bonar, Elizabeth Gilliard, Sarah Kendall and Simon Linnett.

October 2013

Foreword from the ITC Chairman

The proposals for High Speed 2 represent perhaps the biggest single planned piece of integrated infrastructure development in Britain in a century. The project was born from a strong conviction that its construction will transform the nation's connectivity and, therefore, its fortunes, particularly outside London and the South which since 1998 have seen the creation of ten private sector jobs for every one in the North and Midlands.[1] High Speed Rail (HSR) could therefore play a crucial role in rebalancing the British economy and reducing the widening North-South economic divide.

The ITC identified a year ago that there were inconsistencies in the national debate about the effects of HSR on our cities and regions, and we were also concerned that the potential for HSR to be a catalyst for regional redevelopment would be lost. As a result, we have dedicated one of our major research work streams to examining these effects.

This study paper owes a great debt to the work of the study team led by Professor John Worthington. Through a nationwide Call for Evidence in Autumn 2012 and a series of workshops in the Spring and Summer of 2013 the team has initiated a debate which, this summer, saw fruition in the creation of Lord Deighton's eminent Growth Task Force.

What you will read demonstrates the distance that needs to be travelled to establish a common national understanding and purpose for a project which must be regarded as a fundamental cornerstone of an integrated infrastructure network. It needs to be linked not just to the Victorian railway that is our backbone but also to the international links provided by our airports and the roads that may feed it. The capacity and connectivity impacts of HSR could be profound, but only if due attention is given to investment in local transport, regeneration, skills and redevelopment. The national and the local should not be seen in opposition, and we call on national and local leaders to work together to use the opportunities provided by HSR to help regenerate our cities and regions.

To date we have concentrated on promoting a debate within these shores. The next phase of work will look at what lessons we can learn from the experience of the spatial effects of HSR in Europe, and how we can apply these to our own HSR plans.

I commend the key messages in this paper to regional as well as national policy makers and hope that they will take account of these as they prepare this nation for a new High Speed Rail network.

Simon Linnett
Chairman
Independent Transport Commission

1 Chris Webber and Paul Swinney, *Private Sector Cities: A new geography of opportunity*, (Centre for Cities, 2010)

The spatial effects of High Speed Rail:
Capturing the Opportunity – Study Paper

Table of Contents

Executive Summary

Background

1. The Independent Transport Commission (ITC) has dedicated one of its major research streams to investigating the spatial effects of High Speed Rail (HSR). This stemmed from concerns over how the public and media debate over High Speed Rail in Britain has been conducted in the context of the High Speed 2 (HS2) project, and the way in which that debate has hitherto neglected many of the wider potential impacts of a new network. The ITC is keen to clarify the geographical and spatial effects of HSR in the UK and to provide guidance on how such a network can provide maximum benefit for our cities and regions. The main focus is on reviewing the wider implications of HSR in order to provide the context for advising on the planning of the proposed HS2 project in the UK.

2. This study paper provides an overview of the activities conducted so far on the project, including a Scoping Paper, a Call for Evidence, a series of workshops in a variety of city-regions in order to explore local and regional issues, and a concluding Symposium in London. It reviews these activities and outlines the messages emerging from them for policy-makers and the Government.

Review of the Evidence

3. As a starting point for the study, the ITC launched in Autumn 2012 a nationwide Call for Evidence that was distributed to more than 200 leading organisations and thinkers. The Call solicited feedback on how HSR might impact the cities and regions it serves and bypasses, and also whether the development of a HSR network in the UK would change the economic geography of the nation. The Call for Evidence document used five guiding questions; respondents were also invited to comment on any related issues they thought important. Almost forty responses were received, reflecting the research and experience of UK planners, engineers, economists, academics, the rail industry, local government and civic groups.

4. The evidence received included a range of positions on the spatial effects of HSR. A number of studies showed that there were limited but positive effects on those cities and regional economies served by HSR, but also that these effects were strongly boosted by complementary investment in local connectivity and regeneration. The spatial effects of HSR appear to diminish the further a settlement is located from the stations.

5. Many responses suggested that High Speed Rail could provide important opportunities for local and regional development, agreeing that regional cities should welcome these opportunities despite fears of becoming subservient to London. A number of responses noted that developing or strengthening intra-city connections between the UK's northern cities could help ensure that benefits are spread among all localities on the proposed HSR network as opposed to solely increasing capacity

to and from London. Given the ability of HSR to reduce overcrowding through capacity release on the national rail network, other studies indicated that integration with existing networks by tying smaller towns together can complement new HSR networks and also minimise the risk of smaller towns or cities losing out to newly connected regional hubs.

6. Improved connectivity as a result of HSR and associated initiatives was a common theme raised in the evidence. High Speed Rail has the capacity to not only connect major cities to each other, but also regional cities and smaller towns by seamlessly linking to local transport networks and urban cores. However, improved physical connections are not a panacea, and while they will have benefits, many responses suggested they must also be accompanied by policy initiatives and strategic economic development in order to socially and economically benefit cities and regions.

The ITC Workshop series

7. To explore these local and regional impacts more widely, the ITC followed its Call for Evidence with a series of workshops in key city-regions during Spring and Summer 2013. These workshops were held in Birmingham (18 April), Leeds (7 May), Manchester (23 May) and London (25 June). Each workshop involved presentations from key stakeholders and discussion with an audience of 25 experts from the locality including transport specialists, academics, business leaders and civil servants. A concluding Symposium was then held in London on 23 July to which all workshop participants were invited to review the emerging messages.

8. Many workshop participants argued that the key benefits that could arise from HSR were the release of additional rail capacity for regional passenger and freight services rather than journey time savings. The agglomeration effects and economic stimulus from additional investment were thought to have the potential to create jobs and economic regeneration. There were some calls for the DfT's appraisal systems to reflect better these aspects and also for the HS2 funding plan to include complementary rail and local public transport investments in order to spread the connectivity gains more widely.

9. Many delegates argued that if HSR is going to benefit our city-regions this will arise through additional investments in connectivity and place making. Cities and regions can and should co-operate across the public, private and voluntary sectors in order to create their local visions and start associated connectivity projects now. In this way, the thinking about HS2 can be a catalyst for change regardless of when the project is completed.

10. At the concluding symposium it was noted that HS2 proposals were happening in a vacuum of regional planning, in contrast to France, for example, which has the advantage of a strong public planning system. There were some requests for completion of the national networks policy statements as part of a national spatial strategy, alongside pleas for greater autonomy and control for cities and regions over development. The national and the local should not be seen in opposition: a national context and local delivery plan seemed to many participants the best route

to securing the local community regeneration dynamic that the ITC programme has shown to be valuable for city growth. There were also calls to rethink transport appraisal methods in Britain, which appeared to some to be wedded to an economistic approach that ignored those spatial impacts that were unquantifiable. In France a much wider concept of the impacts from HSR are used, including issues relating to local regeneration and mobility between different modes of transport.

Key Messages for Policy Makers

From the work conducted so far, the ITC would like to highlight the following themes and messages for policy-makers.

11. First, **the problems that HSR is intended solve need to be clearly highlighted, especially the need to rebalance the UK economy**. In the context of HS2 the potential of the project to rebalance the economy has two dimensions: i) at a national level, reducing the deepening North-South economic divide in the UK, and ii) at a local and regional level, reducing poor connectivity and high unemployment in our industrial conurbations in the Midlands and North. At the national level, the divide has adverse effects for both the South as well as the North, all of which are damaging the UK economy. In the South, these problems include the housing crisis and pressures on infrastructure, while in the North deprivation and lack of private sector investment damages employment. If HSR is to address these issues and be an engine for growth, the spatial problems it is supposed to address need to be defined. This needs to take place at both a national and a local level. City-regions need to make a clear case for HSR based on each region's agreed aspirations and the local benefits they think it will bring.

12. **Capacity and Connectivity are the crucial impacts**. Some of the greatest potential benefits of the HSR project lie in the release of additional rail capacity on our national rail network, reducing overcrowding and improving national connectivity, both for passenger as well as freight traffic. The economic and spatial benefits of this capacity release are likely to have a greater positive benefit than time-savings from faster trains. We particularly note the Government's claims that a new High Speed Rail line would cost only about 10% more than a conventional rail line, while bringing added benefits due to the greater capacity release it offers when compared to a standard line with mixed (passenger and freight) operations. However to release maximum capacity HS2 must be fully integrated with the national rail network.

13. **Additional investment in local connectivity, regeneration and skills will be necessary**. A new HSR line on its own is not enough: investment in local connectivity, skills and urban renewal will be essential if the potential benefits of HSR are to be captured and delivered to a much wider region. HSR should therefore be used as the catalyst for a wider programme of investment. This does not just apply to northern cities but also to London and the South East. The latter region could gain significantly from HSR connectivity but more research is needed with international comparisons to assess the scale of this.

14. **Political collaboration and commitment are required to generate spatial benefits from HSR**. We believe that HSR in the UK must have a governance and

delivery structure capable of getting the scheme built and capturing its positive impacts. This structure should extend well beyond transport to include land use and planning, and will require cross-party collaboration and a national spatial strategy into which HSR can be slotted. We suggest that a holistic approach to the HSR planning process is adopted, in order that cities and city-regions can plan their own stations and local connecting infrastructure. City-regions need to identify their strengths and work on promoting these, such as Manchester for higher education, Sheffield and Derby for advanced engineering, and the digital economy clusters in the major cities. An effective delivery mechanism for HSR will also be essential: one that can provide the confidence necessary for private-sector investors to risk their capital, and which is responsive to the needs of city-regions.

15. **HSR should be seen as a catalyst for regional development and connectivity planning must start now**. Good connectivity to HSR is essential if its full range of benefits are to be captured: city-regions need to start planning now how they can best connect local and regional services to HSR stations. This will ensure that the benefits of the rail service extend to a much wider region. Undertaking a large project such as HS2 is a leap of faith, spread over 30-50 years. The core infrastructure, particularly the route, must be planned ahead and cannot be delivered incrementally. However, HS2 can also be a catalyst for smaller and shorter-term projects that can have more immediate impacts on public perceptions, be delivered incrementally, and in some cases started immediately.

16. **This paper therefore urges the Government to reframe its presentation of High Speed 2 towards the potential of the line to bring better convenience, capacity, employment and connectivity to the public that it will serve**. The paper also encourages the UK's city-regions to present a clear and coherent vision of how they will harness the opportunities that HSR will bring, and recommends that the Government should provide seed funding for such initiatives.

Next Steps

17. The ITC welcomes the creation of the HS2 Growth Task Force chaired by Lord Deighton and encourages it to address and seek further evidence on the issues raised in this study paper. The ITC is submitting this paper to that Task Force and will now be preparing for the next phase of our project, 'Learning from Europe', which will look at lessons for the UK from the implementation of HSR in western Europe. This phase will include an international symposium in Lille for delegates to learn from the spatial effects of High Speed Rail in France and the Netherlands. A final report will be released before Easter 2014 and will deliver the conclusions from this phase of the project.

18. In the meantime the ITC would like to encourage policymakers to take the above issues into account when preparing their case for High Speed Rail investment for the public.

1. Review of the Evidence

1.1 Background

In 2012 the ITC decided to dedicate one of its major research streams to investigating the Spatial Effects of High Speed Rail. The purpose was to clarify the economic and social effects of High Speed Rail in the UK and provide guidance for how further investment can maximise benefit for the areas it will serve. As a starting point for research, the ITC launched a nationwide call for evidence that was distributed to more than 200 leading thinkers and organisations. The Call solicited feedback on how High Speed Rail impacts the cities and regions it serves (and bypasses) and whether the creation of an extended network in the UK would increase London's economic dominance. The Call for Evidence document used five guiding questions; respondents were also invited to comment on any related issues they thought important.

1. Will the cities served by HSR become subservient centres to London or be enriched in their own right?
2. How will HSR impact on the economic and social life of the cities it serves?
3. What will be the impact of HSR on those cities/regions it will not directly serve?
4. What should be the top priorities for investment in HSR in order to ensure it improves your locality/city/region?
5. What additional public/private investment should be considered by these cities and their wider region to capture the maximum value?

Almost forty responses were received, reflecting the wide research and experience of UK planners, engineers, economists, academics, the rail industry, local government and civic groups (See Appendix 1). These responses can be viewed on the ITC's webpage at **http://www.theitc.org.uk/dyn.php?page=60**. Following the Call for Evidence, key decision makers, stakeholders and those who submitted evidence were invited to participate in a series of national workshops.

1.2 Overview

Most respondents considered that High Speed 2 proposals would be an important opportunity for local and regional development, agreeing that regional cities should welcome these opportunities despite fears of becoming subservient to London. Although there was disagreement on precisely how regional cities will be impacted, most felt that the UK's regions should focus on identifying how best to create jobs and boost economic activity based on the reduced journey times and improved connectivity HSR provides. Doing so will rely not just on new HSR development, but also on fostering policy innovation and political leadership in order that HSR can be connected to local transport infrastructure and regeneration initiatives. The themes within the submissions relate primarily to how regional cities can benefit from High Speed Rail and how investment should be prioritized in order to maximise value.

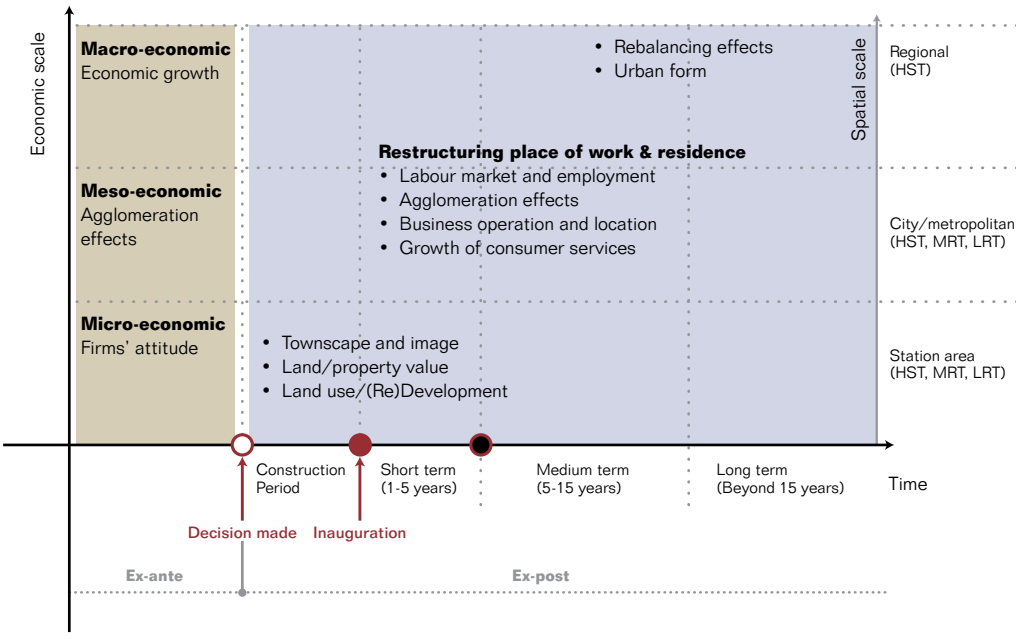
1.3 The effects of HSR on cities and regions

Economic and geographic changes

Several of the responses to the ITC Call for Evidence proposed that economic benefits would arise from the construction of HSR and also, once a line was constructed, wider economic benefits would correlate with local connectivity. [2] Furthermore, some studies noted that HSR has the potential not only to change the economy but also the geography of the area it serves by expanding the reach and influence of city-regions. [3]

In an important submission by Sir Peter Hall and Chia-Lin Chen they identified a range of spatial effects of HSR that would change over the whole life of the development process. At the start these will stem from local land use and land value changes; once the line is working agglomeration and labour market effects are evident; these later then lead to regional economic changes. [4] The findings are summarised in Figure 1 below.

Figure 1: The spatial Impacts of HSR investment over the development process



© Chia-Lin Chen, The Spatial-Economic impact of High Speed Trains (2013)

2 Graham, D. J.; Brage-Ardao, R. and Melo, P. C. 'Quantifying the Economic Development Impacts of Major Transport 1 Infrastructure Projects: a Case Study of High-Speed Rail in Spain. Submitted for presentation at the Transportation Research Board 93rd Annual Meeting', response to the ITC Call for Evidence, 2012. All submissions can be viewed at http://www.theitc.org.uk/dyn.php?page=60 .

3 See Northamptonshire County Council response to the ITC Call for Evidence, 2012

4 Peter Hall and Chia-Lin Chen, Submission to the ITC Call for Evidence, 2012

These spatial impacts of HSR were also noted by Sasaki et al. (1997) [5] in their findings that HSR does help regions expand economically, although they also have noted that effect becomes smaller over the longer term. The findings that HSR has the potential to boost regional economies as a result of its spatial impacts has been confirmed in a recent study by KPMG. This has demonstrated that the spatial effects of HSR include the ability of businesses to serve markets further afield, an ability to more easily connect with current suppliers, and the prospect of improving the labour pool by increasing the effective size of the market and allowing skills to be better matched to employment opportunities'. [6]

Impacts on city identity

In the context of HS2, Network Rail suggested that the UK's northern cities (including those in Scotland and other regions off the network) would be enriched by the proposed "Y" network with branches to Manchester and Leeds. However, they also noted that:

> *'the effects of HSR, in this respect, depend largely on whether cities have sufficient "distinctiveness" to survive and thrive in their own right, despite having close (or closer) economic links to London. A city's "distinctiveness" in this sense is a combination of many things, for example: economic advantages such as a skilled workforce; a sense of its own history and identity; its attractiveness as a place for people to live, for example due to its cultural activities or natural setting; and an external identity that is recognised nationally and internationally. If a city were to lack such "distinctiveness", then it is possible that improved connections to London might encourage a relationship that would be economically functional but not particularly "enriching". But the cities to be served by HSR have more than enough distinctiveness for the relationship with London to be one of mutual benefit.'* [7]

The UK's major cities have a long history and strong identity, and this sense of mutual benefits arising from HSR was also noted in various submissions of evidence from UK cities. Birmingham City Council, for instance noted that *'High Speed Rail will provide much needed improvements to connectivity, capacity and efficiency of the local, national and international transport networks which promote economic growth and regeneration'*. [8]

Hall and Chen agree that HSR does not necessarily result in the dominance of a mega-city capital at the expense of other cities. From their studies of national and international examples they noted that the differential effects of HSR can be classified under three zones of influence. The first group of cities, within 1 hour of a national mega-city capital, see economic strength grow in knowledge-intensive activities and also a rise in household incomes as jobs become interdependent with the capital. The second group of cities within 2 hours of the mega-city capital, normally show substantial and demonstrable effects in aiding their transformation towards a knowledge economy, thus helping to generate renewed economic growth.

5 Sasaki, K.; Ohashi, T. and Ando, A. (1997) High-speed rail transit impact on regional systems: does the Shinkhansen contribute to dispersion? *Annals of Regional Science* 31: 77-98

6 KPMG, HS2: *The Regional Economic Impact* (2013), p.11. See http://www.kpmg.com/uk/en/issuesandinsights/articlespublications/pages/hs2-regional-economic-impact.aspx

7 Network Rail response to the ITC Call for Evidence, 2012

8 Birmingham City Council response to the ITC Call for Evidence (2012)

For cities more than 2 hours from the mega-city capital, the wider impact of HSR appears to weaken, but in all cases they note that transport is a necessary but not sufficient condition for economic growth. Consequently *'the wider impact of HSR on cities and regions needs strategic interventions both at the national and the local level in parallel to transport measures'*. [9]

Regeneration effects

The ability of HSR to stimulate the regeneration of cities and regions was noted in a number of submissions to the ITC Call for Evidence. In their response, Greengauge21 emphasised that one of the chief benefits of HS2 will be the capacity release it offers for the national rail network, leading to massively improved inter-connectivity between cities. At the same time, the fact that HSR connectivity provides linkages between existing urban areas provides opportunities for new and sustainable redevelopment programmes, especially around HSR stations, where land values will be expected to rise. As a result, the authors note that a national HSR network *'creates the opportunity to break away from permitting development to take place on the urban periphery where its environmental, social and long run costs are high, and instead puts a focus on urban centres (and the transport networks that help them function)'*.

The role that HSR can play in regenerating regions is also seen as particularly important in the British context, where there is an urgent need to rebalance the economy and reduce the North-South economic divide. By creating better connectivity for the Midlands and North, these regions become more attractive places of location for businesses and people, and the locational disadvantages of being on the periphery of Europe are reduced. This is vital since the demographic pressures on London and the South East are currently severe, resulting in high housing and accommodation costs, and severe pressure on infrastructure such as the water supply, which struggles to cope with drought. Quoting the economist Paul Omerod the report notes that:

> *Britain's regions... need more trade, and this means better links and more connections with London and the South East. Modern network theory has been used to provide exciting new perspectives on the structure and patterns of world trade. The same principles apply within a country. More infrastructure connections would give the regions a chance to transform themselves. They could become prosperous areas again, as they were in the nineteenth century.*

The same study emphasised the need for complementary investment measures to achieve this regeneration. Such measures should include investment in education and skills, as well as policy measures such as a national spatial strategy to ensure that HSR networks can fully support regional redevelopment. [10]

9 Hall and Chen, Submission to ITC Call for Evidence (2012)

10 Greengauge21 Submission to the ITC Call for Evidence, 2012. See also Greengauge 21 (2006) High Speed Trains and the development and regenerations of cities. http://issuu.com/greengauge21/docs/hsr-regneration-of-cities

1.4 Recommendations for capturing the spatial impacts of HSR

The evidence submitted raised a number of themes with positive ideas for action to capture the potential added value resulting from HSR

- **Invest in local and regional public transport and rail networks – thereby complementing HS2 with existing infrastructure support**. At the same time as HS2 is developed, investment should be directed towards facilitating seamless connections to city centres or other modes of transport, whether an onward regional rail journey or a walk to the city centre. Local public transport networks appear to be essential in helping regional economies benefit from HS2 since they can conveniently and reliably invite rail passengers towards urban cores and smaller regional towns. While a reduced journey time is a key benefit of High Speed Rail, a number of studies cited the fact that rail passengers measure overall door-to-door journey time in their decision making, not just the time spent on the High Speed train. As a result, rail stations that link to local transport networks and seamlessly offer multi-modal transfers are ideal. Developing or strengthening intra-city connections between the UK's northern cities can help ensure that benefits are spread among all localities on the proposed HSR network as opposed to solely increasing capacity to and from London. Given HSR's ability to reduce crowding, integration with existing networks that tie smaller towns together can compliment the new system and also minimise the risk of smaller towns or cities becoming secondary to newly connected regional hubs.
- **Integrate High Speed Rail with local land use and regeneration strategy**. Although HSR has the potential to be a catalyst for economic development, an enhanced train service alone will not do this. A number of the submissions noted that co-ordinated strategic planning which integrates new development with existing initiatives is the best way to extract the most economic benefit from a major project such as HS2. The use of masterplans and the engagement of diverse stakeholders can be used to identify real estate development opportunities and ensure that HS2 will foster investment and support for housing needs or employment centres.
- **Design stations as places**. Many responses noted that High Speed Rail has the potential to increase the number of residents, commuters, and visitors in a city, and that the rail station serves as a gateway. Stations require vibrant public realms that not only lead people into the urban core, but also inspire investors to imagine the potential for new development, such as has occurred at Kings Cross in London (pictured overleaf). Cities with stations on the periphery more often become subservient to mega-regions, in part due to the lack of connections to local and regional public transport networks and onward rail journeys.

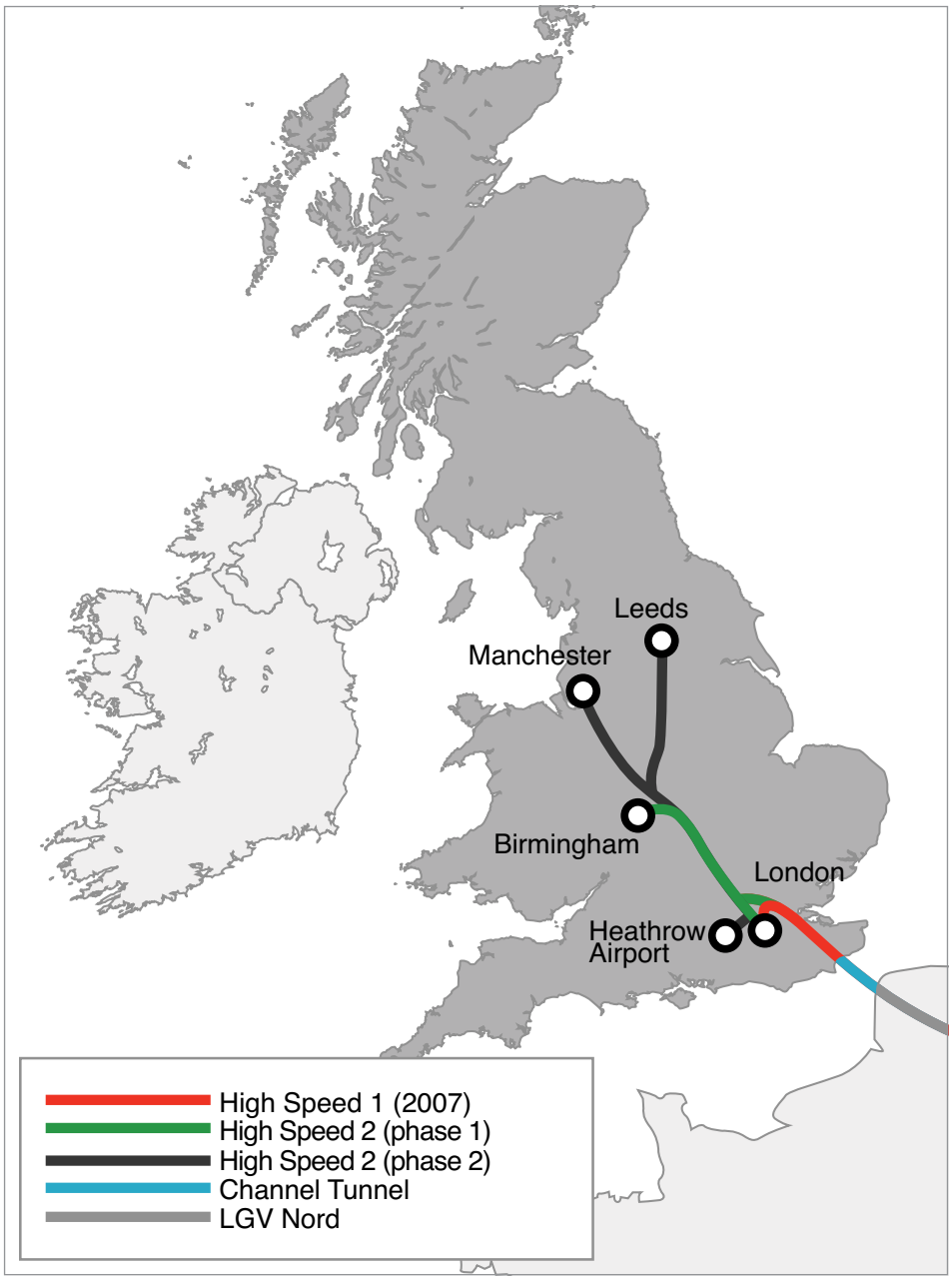
Kings Cross Station concourse provides a new identity to the area

Source: Never House

- **Foster innovative governance**. Much of the evidence pointed towards the need for national, regional and local political leadership to identify complementary investment and development opportunities as the key to the success of HSR investment. The need for a national HS2 strategy and long-term vision was identified, as well as the importance of devolving power to local governments that can determine appropriate planning methods for their regions to capitalise on HS2. Since transport provision is not an automatic condition for growth, local leaders have a vital role to play in developing auxiliary policies that will complement the new infrastructure. National policy makers can provide a strategic framework and context for local decision-making and can also deliver leadership by connecting other transport and infrastructure plans together, such as linking rail and aviation policy.
- **Link HSR with wider public policy**. Transport does not exist in a vacuum and for cities to benefit fully from High Speed Rail the entire locality or region needs to prioritise investment around sustainable urban growth, whether through new Transit Oriented Development (TOD) or connections to existing networks and urban centres. Essential to ensuring the success of High Speed Rail is policy that supports sustainable, multi-modal transport management and strategic land use planning. For example, studies show that HS2 can have a positive effect on reducing carbon emissions, but only when public policy provides guidance on sustainable land use and traffic management (taking public transport to the HSR stations rather than driving).
- **Focus on local strengths and specialise economically**. Most respondents agreed that London is both a mega-city-region and a world-class city and that it stands to benefit from HS2 as it has from HS1. Submissions from regional northern cities, however, expressed fear that HS2 will increase direct competition with London, leading the capital to further dominate the national economy, while

making regional cities subservient. At the same time a number of submissions also emphasised that poorly connected cities do not have a way to leverage their distinctiveness or compete nationally for investment, and therefore struggle economically. Some of the evidence pointed towards the way that balanced investment and strategic planning, along with the building of new HSR lines, can help regional cities develop their specialisations. Coordination rather than competition should be the aim, especially if regional cities frame their specialties

Figure 2: Map of UK High Speed Rail connections



Source: Department for Transport

as an opportunity to compete later. For example, cities such as Manchester can build on national initiatives to support UK manufacturing, thereby complementing the robust service sector in London. Submissions from the West Midlands area (Centro/Birmingham Airport) argued that linking millions of people and jobs together in the region would lead to great economic and social benefits by bringing together different economic sectors. This in turn, they suggested, should help to rebalance the UK economy.

Figure 3: Map of UK High Speed Rail connections and existing direct-line services

Source: Architects Journal

1.5 Conclusion: Seamlessly connect – spatially, economically, and politically.

Connectivity was a common thread among the themes raised by respondents to the ITC Call for Evidence. Many suggested that High Speed Rail has the capacity to connect not only major cities to each other, but also regional cities and smaller towns by seamlessly linking the HSR line to local transport networks and urban cores. Improved physical connections are not a panacea though, and while they will have benefits, the must be accompanied by imaginative policy and strategic economic development in order to socially and economically benefit a city.

It is clear from the evidence reviewed that local investment and integrated policy making can complement spatial connections and create job growth. HSR has the potential to boost significantly local economic activity, but only if the above indicators are accounted for and existing transport and employment development opportunities are integrated into HSR development. In the longer-term, the success of cities depends on how investment is connected to the wider context of planning, economic and housing growth.

2. The ITC Regional Workshop Series

2.1 Background

Following the Call for Evidence it was clear that we needed to understand better the perspectives of the regions affected by HS2 proposals. The ITC therefore ran during 2013 a major work stream investigating the spatial effects of HS2 and the opportunities that an extended network might bring to the UK's cities and regions. Public and media perceptions of the potential of High Speed Rail have been strongly focused on the speed of the journey, rather than on the benefits it could generate in terms of improved connectivity, increased capacity across the system, convenience, and economic synergies. Following a Call for Evidence in late 2012, which drew a strong response and raised wide-ranging connectivity and impact issues, the next stage of the project involved fostering the exploration of these issues and improving collaboration at the city-region level through a series of workshops in key regions during the Spring and Summer of 2013.

The workshops all involved a number of leading stakeholders, including representatives from the combined authority and local government, academics, business leaders, transport specialists, and experts who responded to the ITC's Call for Evidence. The format of the evening workshops comprised short presentations on submissions to the Call for Evidence, followed by a structured discussion of the likely spatial effects of HSR chaired by ITC Commissioner John Worthington. Appendix 2 at at the end of this paper provides a full list of participants in the regional workshops, concluding symposium and specialist seminars.

Participants at the ITC Birmingham workshop

The first of the workshops took place in **Birmingham** on 18 April, hosted by Glenn Howells Architects in their splendid meeting room with views over the city and the site of the proposed new HSR station. Representatives from Network Rail, the Department for Transport (DfT) and Birmingham City Council were in attendance alongside more regionally focused organisations such as local architectural practices, Birmingham airport authority, community interests and surrounding municipality local authorities.

The second of these workshops was held on the evening of 7 May for the **Leeds and Yorkshire** region, hosted by Carlsberg UK at Tetley House with excellent views across Leeds South bank redevelopment area and the site of the city's proposed new HSR station. Attendees included representatives from HS2, Leeds and Sheffield local councils from the City Region as well as local groups such as Leeds Sustainable Development Group, SusTrans and Yorkshire for HS3.

The third workshop in the series was held on the 23 May in **Manchester** for the **North-West** region, kindly hosted by Bruntwood in City Tower with superb views across the region and again with great views of the site of the proposed HSR city centre station. Attendees included representatives from AECOM, Network Rail and Transport for Greater Manchester, alongside local authorities, academics, property developers and image consultants.

The fourth and final workshop in the series on the 25 June was held in London for the **Greater London and South East** region, kindly hosted by Grosvenor in their auditorium in Mayfair. Attendees included representatives from transport providers such as Transport for London, Network Rail and Siemens, alongside property developers, engineering firms, academic institutions, and independent consultants.

2.2 Common Themes

Throughout the workshop series exploring the spatial impacts of HSR in the UK, a number of common themes emerged in the regional discussions, despite the varying opportunities and challenges of each distinct region.

- **The importance of regional cooperation and good governance**. This is seen as essential if the spatial benefits of HSR are to be fully captured. In Birmingham, there were local concerns that the Black Country might become excluded from the benefits HSR can bring to the region and a number of participants argued for stronger regional leadership and greater clarity about the purpose and identity of the wider city-region. It was recognized that there is a need to speed up innovative thinking and bypass entrenched viewpoints by stimulating local cooperation and developing a regional vision for the places HSR will serve. Such networks and political/social engagement will be vital if city-regions such as Birmingham can capture the spatial benefits of HSR.
- **Create a positive, collaborative and pro-active approach**. Many of the workshops discussed the importance of bringing together the public, business and civic communities to collaborate across the regions in order to establish a vision for each city's own future. The evidence presented by the Leeds Sustainable Development group (LSDG) highlights the role of civic society and the catalytic role HSR could have in bringing together the public, as well as business and civic sectors around a common aim of improving livelihoods and making better places. Additionally, messages have to be made relevant to the experiences of ordinary citizens. Current initiatives by local transport user groups to map and make more legible the connectivity between various modes of transport should be supported.
- **Reform the planning system**. To capture the spatial benefits of HSR additional investment is required in local small-scale connections, which are often vital. This should be seen in the context of reforming our planning systems, perhaps giving greater autonomy to city regions in decision-making so that we counteract the deep-seated attachment to centralised control of such decisions, and take into account local aspirations. In addition, better communication is necessary so that the local business community understand the spatial benefits that such infrastructure could bring. In order to capture the benefits of HSR a grand plan is

needed for integrating it into the nation's infrastructure. Some suggested that a special delivery vehicle such as a National Networks Policy Statement might also be necessary to provide confidence for private sector businesses and developers.

- **The need to address the sustainability impacts of HSR**. A number of participants argue that developments around HSR nodes should be designed so that they create compact, liveable and higher density sustainable mixed residential and working communities. Others warn that in car-friendly cities, such as Leeds, without reappraising the paradigm of urban living, HSR could result in additional car travel and congestion as users drive to the station.
- **Cities and regions must develop a strong case for rail investment based on their own economic needs and strengths**. For example, Tees Valley's strengths are in petrochemical industries and its ports: as a result additional freight capacity is a key need. The resulting narrative for HSR must be clear about the economic advantages of the project in terms of jobs and business investment. In Birmingham and Manchester, airports are an important aspect of capturing the spatial effects of HSR. In Birmingham there is an excellent opportunity to create a travel hub at Birmingham Airport and make better use of its spare capacity. Business leaders in the North West highlight the benefits of HSR for local enterprise and employment. These benefits included a greater catchment area for employment, the ability to attract a wider pool of talented people, and the improved links that HSR would provide to mainland Europe. A participant from the creative sector at the Manchester workshop stresses the potential impact HSR could have on Manchester's identity as a leading European centre of creativity and innovation.

South Eastern High Speed 'Javelin' trains

Source: Joel Down

- **Enhanced investment in local and national transport would be critical**. The 'Northern Hub' rail upgrade and associated schemes were deemed a prerequisite for making the most of the benefits of HSR. Others argue that the prospect of HSR should be used as a catalyst to stimulate this transport investment, much of which should take place regardless of the HS2 scheme. Awareness of the way HSR would change the geography of the North would also be important, recognising the combined strength of the Manchester, Leeds and Sheffield city-regions.

- **There are major economic benefits arising from major transport infrastructure projects, and HSR plans should be used to capture this opportunity**. In London specifically, good examples exist of the potential of major transport projects to unlock local growth, and lessons can be learned from experiences with Crossrail and the Jubilee Line Extension. The transport capacity benefits for the London region arising from HSR and Crossrail could be significant, and have the potential to boost economic and population growth. The capacity argument for HS2 in general was raised in most of the regional discussions, but a counter-argument in London is that there are other means of increasing capacity, from advanced signalling to simple timetable changes – the capacity on the WCML is absorbed by the high frequency of express train services, which is a choice, not a given.
- **Transitional projects can be set in motion even where certainty does not exist about the final timescale and shape of the HSR network**. Establishing a UK High Speed Rail network is a generational project with many associated projects required to maximise its value. The commitment to HSR could stimulate such projects to happen. Crossrail at St. Giles Circus was an example of a catalyst to bring the different planning authorities together and stimulate fresh solutions to movement and land use. [11]

2.3 Location-specific Themes

Although many themes that emerged in the discussions at the regional workshops had similar threads, there were specific issues that were pertinent to particular cities and their surrounding regions.

Birmingham

- The need to identify small projects that can begin soon in order to improve the chances of success once HSR is built. For example, Birmingham could improve connections under the current raised rail line so that the proposed station does not become a barrier. In addition, Network Rail replaces half its infrastructure every 20 years – by the time HSR is built there is a great opportunity to ensure that the local rail network is well positioned to capture the connectivity advantages of the High Speed line.
- The local business and professional community has initiated Birmingham movement 2030 to think ahead to future demands and opportunities, and inform the formal visioning process.

Leeds and Yorkshire

- We should consider carefully the impact of HSR on second-tier, peripheral towns in the wider regions. Places such as Hull and Middlesbrough could see dis-benefits as investment shifted towards first-tier cities with HSR connections. Other experts disagree, and point to benefits that HSR could generate for such towns, including more frequent standard rail services as a result of released capacity, and the economic advantages of being plugged into a more successful

11 For more information on the Crossrail development at St Giles Circus, please see: http://www.crossrail.co.uk/news/articles/crossrail-submits-development-plans-to-transform-tottenham-court-road-west-end

regional hub city. Doncaster in particular, with its focus on manufacturing and logistics, is exploring the additional capacity that could be available for freight.

- Many participants note that it would take 20 years for HSR to begin serving Leeds, and the region should respond appropriately to this long wait. Some express concern that areas such as Leeds South Bank would be blighted for decades as developers waited for HSR to arrive before investing. As a result, it was even more important in the meantime to identify actions and investment in the region that would strengthen connectivity and enhance the quality of place.
- The development of local and national networks will be important for preparing the ground for HSR so that it fully benefits the North of England and could contribute to the rebalancing of the UK economy in favour of the North. Local groups should ensure they submit high quality submissions to forthcoming consultations, including the Phase 2 HSR consultation, and the Network Rail market studies (which are currently open for consultation). Local/regional interest groups should also start preparing their case for rail investment and understand any current or potential capacity constraints ahead of the next Rail High Level Output Statement (HLOS) that is due to be completed in 2017.

Manchester and North West

- Important benefits to the North West region could arise from improved rail capacity for both freight and passenger services on the national network, better local and international connectivity, additional inward investment as a result of that connectivity, and the catalytic effects of HSR on local and regional regeneration.

The proposed Manchester Piccadilly HSR terminal: this design aims to integrate the station complex into the surrounding city structure

Source: Bennetts Associates Architects

- High Speed Rail stations have the potential to become gateways into the region, both nationally and internationally (when connected to airports). This makes it particularly important that HSR stations are well designed and well connected to local transport services. Several delegates noted that it would be critical to provide good connections to second-tier towns such as Oldham and Bolton if they also were to benefit from the HSR hubs at Manchester airport and Manchester city. The Northern Hub is a pathway for this, putting in place the local connectivity in advance of HSR. Others point out that station design would be important at a local level in order that the stations could encourage regeneration and do not become a barrier to pedestrians. At Manchester Airport delegates warned that the station should not 'sit in a field' but be plugged into local redevelopment.
- The special governance structure in Greater Manchester, whereby the city, surrounding districts, and transport executive work together as the Greater Manchester Combined Authority (GMCA) is thought to be an advantage in terms of preparing for the opportunities that HSR would bring. The Authority and the LEP also shared the same boundaries and this is expected to help in the formation of a common agenda to prepare for HSR.
- A regional partnership should be developed in order to promote a connected and positive vision of the benefits of HSR for the region. It was agreed that Manchester and the North West had a strong brand, which had international appeal. The mood of the workshop was of a city region confident and optimistic about its aspirations and expectations for the future. The Government and HS2 Ltd were encouraged to invest in such a partnership in order to bolster regional support for the project.

London and South East

- HSR must be part of an integrated transport system, including road transport, the national rail network and airports. In the London region this will require careful thought, especially around the proposed interchange stations and the link with High Speed 1. Old Oak Common could become a transport super-hub if properly connected with Heathrow, and the site is more accessible than Euston within the Greater London area. Crossrail 2 will, nonetheless, be an essential step towards improving Euston's accessibility. The legacy of poor station access can be extremely costly so a strong vision for urban and transport integration at each site will be critical.

Vision for Old Oak Common

Source: Farrell's

- HSR has the potential to spread the wealth of London and the South East to the regions. Plans for HSR must build in good connectivity if the project is to rebalance the UK economy. A major challenge will be how our cities can act collaboratively in order to realize gains. London would also benefit, but the multiplicity of investment projects in the shorter term in London means that London's attention is not on HSR: HSR is not 'the only game in town'.
- When planning HSR we should learn from the experience of High Speed 1 in building a broad base of support. Delegates heard examples of how communities in Kent had been won over by the convenience of HSR services to and from Europe and London (and their increased property prices!). Careful thought should be devoted to engaging those who are negative or unwilling to participate in the project, and inter-regional HSR stations similar to Ashford should be reconsidered.
- At King's Cross/St. Pancras during the twenty years of negotiation, interim uses of the site and in the surrounding areas established a vibrancy and changed perceptions of the area. We were reminded by the developer that development is unpredictable: 'you need to believe and act, with the ability to adapt to changing circumstances'.

2.4 The London Symposium, 23 July

To conclude the series, and review the findings, a **Symposium** was held at the Alan Baxter Gallery near Farringdon Station in central London, designed to bring together all the invitees and participants in the series so far, and tease out conclusions from the workshop series. The Symposium opened with a number of short presentations from leading experts on HSR, including David Prout of DfT, Sir Peter Hall of UCL, and Dominique Laousse of SNCF. This was followed by a structured discussion in small groups about the key issues arising from the workshop series, and ended with feedback and conclusions. Unlike our regional workshops, the Symposium was a larger event and national in focus, affording the opportunity for all to participate in the discussion.

Participants at London Symposium, 23 July 2013

Sir Peter Hall

Prof Sir Peter Hall of University College London (UCL) drew on the French example of HSR. He stressed that HS2 must be combined with regional regeneration and that it has the danger of failing to connect with regional networks if not done correctly – it is critical to integrate the regions. Citing two French examples (Lille and Montpellier), Hall praised the French model for HSR and noted that the key to their success has been through creating good public transport feeder links to integrate all the networks. Hall emphasised that France exhibited a more interventionist methodology to their transport policy.

David Prout

David Prout, Director General of HS2 for the Department for Transport, explained the difference between the two phases of HS2: that phase one to Birmingham is about capacity, and that phase two (the Northern extensions) is concerned with greater connectivity and linking up with the other parts of the country. He argued that new construction via HS2 is the only feasible option to release capacity for more long-distance passenger services on the West Coast Main Line. He suggested HS2 will greatly improve links to Manchester, Leeds and beyond.

Dominique Laousse

Dominique Laousse, Head of Foresight and Innovation at SNCF, France's leading rail provider, took a more technical approach to HSR, suggesting that we need to shift from the traditional 'productivist' transport economic model of limiting design principles to a new 'collective progress' mobility economics model that incorporates new design logic and allows transport to act as an incubation platform.

Focused Discussion Groups

Group Discussion Session, London Symposium

During the second half of the evening, the delegates were broken into seven themed discussion groups that covered varying perspectives: place shapers, transit providers and operators, places of connection, policymakers, spatial overview, economic success, and learning from experience. Each group was asked to discuss a series of questions surrounding governance, connectivity, and other issues in relation to HSR and HS2 in Britain. Each group was asked to come up with headline points that emerged from their discussion and feed them back into the plenary session. The key issues that emerged from the group discussions are:

- It was suggested that the DfT's criteria for funding are an obstacle to the successful development of HS2. Their criteria are highly focused on speed but a slower interchange may be the better option than HSR. The other criteria that DfT outline are not tangible enough and the question on how to evaluate them still stands. The place-shapers in particular were concerned that there is more value in human interaction around stations than in the speed of the rail, and the DfT criteria do not address this.
- The place-shapers thought that HS2 is happening in a vacuum of regional planning, which is very much in contrast to France, for example, which had the advantage of a strong public planning system. It was thought the LEPs could play a role in the development of HS2, but they have no funding available. Although Manchester has a strong city/region-wide leadership and capacity that has built up over time, Birmingham and Leeds are behind. Indeed, a strong national leadership is required for the successful development of HS2, combined with significant local input. However, the example of Christchurch in New Zealand demonstrates that too much local action can be disruptive to strategic development, and that continuation of a team is important for the successful development of any major project.
- The main question that arose was: is transport the answer to connectivity? The train is the means to the end. It's more than just a train. In order to assess properly the connectivity benefits, we need to consider the way our lifestyles and travel patterns are changing. Will we use the train less for commuting in the future, and see it more as a place to work? We need to recognise that travel time is the least important benefit of HSR, whereas jobs and increased productivity are key outcomes.

- We need to rethink the way we do transport appraisal in Britain. We are wedded to an economistic approach, but not all benefits are quantifiable. In France a much wider concept of the benefits from HSR are used, including issues relating to quality of life and integrated transport. To improve the UK approach will require knowledge and ideas from other sectors.
- Look at the big picture so the public understands the benefits. It is clear we can't solve everyone's problems, but if you think of them as part of the wider picture it may contribute to a better understanding. Public confidence is essential to get HSR built.
- There is a need for integration of systems in the regions with connections between city centres. This requires long-term planning specific to each city yet also requires cities to work together. There is a need to challenge how we operate and think as a country. Additionally, there is a need to connect HS2 with the wider rail system including HS1. Overall, we need better coordination between various forms of transport development (ie. Crossrail, aviation, HS2) to make the system more resilient for the future.

2.5 Conclusions

The main themes from the 2013 series of workshops and the symposium at the Gallery in Farringdon were:

- The key benefits of HS2 will not be primarily journey time-savings, but releasing rail capacity for local and freight services and generating jobs, economy and quality of life improvements. The DfT's measurement systems need to reflect this and the HS2 funding plan needs to incorporate the complementary rail and local public transport investments that will provide connectivity.
- Regional and city benefits will arise through connectivity and place-making. Cities and regions can and should cooperate across public, private and voluntary sectors to put the vision in place and start the connectivity projects now. In this way, thinking about HS2 will be a catalyst for change even if HS2 is never built.
- Whilst the overall mood of the meetings was that HS2 will help create one 'national city-region' and boost the economy, the evidence base is rather limited on the economic, social and spatial outcomes. A national planning framework and national transport strategy were called for in most meetings, alongside calls for city and regional autonomy and control over development. The two are not seen as contrary: a national context and local delivery seemed to many participants the best route to securing the local place-making dynamic that these HS2 debates have shown to be valuable to city growth.

3. Learning from Experiences in the UK and Europe

3.1 Background

The ITC's regional workshops have been successful in drawing together the leading stakeholders that will be affected by and involved with the delivery of HS2 in the UK. This process has been beneficial in creating a dialogue across boundaries, disciplines, and between the public, private, civic and academic sectors. However, there have been numerous suggestions that in order to understand the likely spatial effects of HSR we need to learn from experience, particularly from the wealth of examples that currently exist in Europe. There appears to be only limited awareness and understanding of these experiences in the UK at present.

To remedy this the ITC will be moving in its next phase of work to explore the lessons to be learned from the spatial effects of HSR in both Europe and the UK. This phase will involve theoretical aspects, by examining existing evidence on this subject, but will also have a practical dimension, through a symposium in Lille that will allow participants, through field excursions, to experience the effects of HSR on localities and regions in France and the Netherlands.

The history of high speed travel in Europe makes a clear distinction between High Speed Rail (HSR), the provision of new track that allows for the highest speeds between two destinations, and High Speed Trains (HST) that may go on a combination of new and existing tracks, thereby providing a reduced journey time and a higher quality of comfort and convenience. In Europe, the combination of new track and classic rail has often been applied to provide the most appropriate solutions. [12]

3.2 Assessing the opportunities through learning from others

Changing perceptions of spatial relationships

The experience of High Speed Rail in Europe appears to be that it improves the connectivity and convenience of travel and changes the relationship of space, distance and time.

In Scandinavia, the Oresund region, triggered by the road and rail bridge connecting Copenhagen and Malmö, has created a city region of 3.5 million that crosses national boundaries and repositions both Denmark and Southern Sweden as a major European force.

In France, the construction of LGV Nord in 1993 has had a profound effect on the identity, economic fortunes and confidence of Lille, through its positioning as a hub for connections to London, Brussels (Northern Europe) and Paris, as well as links to Southern Europe.

12 DEGW, The Impact of High Speed Trains on Urban centres, (Report for VROM, The Hague, May 1998)

In the Netherlands, the creation of Amsterdam Schiphol airport as a multi-modal transport hub has helped to improve the international connectivity of the nation and reinforce its place as an important European destination for business.

Amsterdam Schiphol: seamless connectivity in action

Source: Honore van Rijswijk

Future resilience: adding to the rail-stock of a nation

HS2 is a long-term project, which should be assessed for its resilience. Critical to its success will be its ability to adapt to changing needs and relationships both during construction and in use.

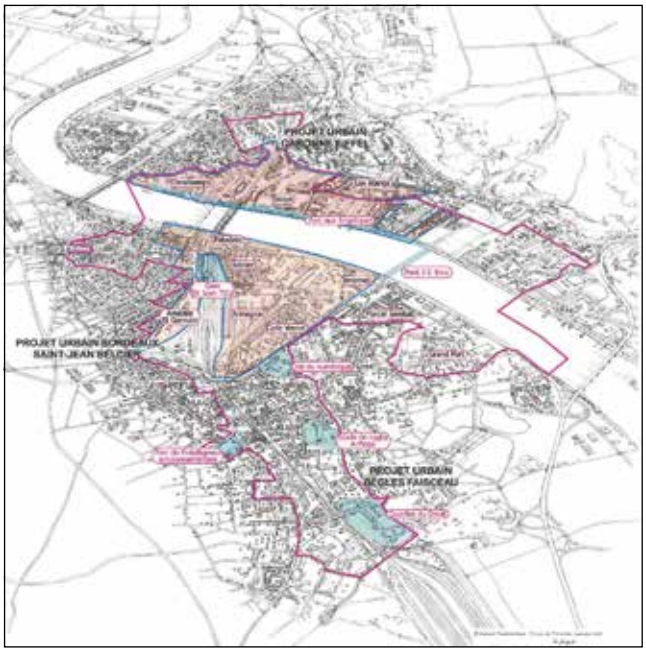
Valuable lessons might be learnt from HS1, with the rethinking of the final alignment into London at a late stage in the design process, and the subsequent timetabling of the Javelin services to Medway and the Kentish coast.

Revitalising conurbations

A major infrastructure project such as HS2 can become a catalyst for revitalisation both at the planning and construction phase as well as after completion. Three examples are instructive for understanding how these opportunities for regenerating conurbations can be captured.

For cities on the periphery of the nation, the case of Bordeaux, which awaits TGV connectivity in 2017, is instructive. The confidence gained from this potential new HSR connection has stimulated local economic activity and transport initiatives. The second phase of the Bordeaux regeneration strategy – the Euratlantique project – aims through phase 2 of the tram scheme and an ambitious new housing programme, to attract and redistribute the added economic value throughout the wider metropolitan region.

Bordeaux Euratlantique Regeneration Plan



The case of Lyon, widely considered to be the 2nd city in France, has useful lessons for Birmingham, given a similar time/distance relationship with its mega-city capital, as well as its peripheral airport. When the HSR station opened in Lyon in 1982 it allowed the Part-Dieu neighbourhood to become the new commercial centre of the city.

The Randstad conurbation in the Netherlands is a third useful comparator for the UK, with its similar high-density landscape to that of the English Midlands and Industrial North. By integrating the conurbation into a unified and well-connected metropolitan region, HSR connectivity has been recognised as a stimulant for local development and economic growth. In this context Sprint City (**http://www.deltametropool.nl/nl/sprintcity_english**) – a research programme being undertaken by Delta Metropolis Association, the Provinces of North and South Holland and TU Delft – is analysing the opportunities for transit-orientated development (TOD) and its economic impact. However, it is premature to draw conclusions about the impact of the new HSR link between Schiphol and the Dutch border. In parallel with the HSR construction programme a programme of local connectivity initiatives has been implemented and the provinces are exploring ways of capitalizing on emerging development opportunities.

Stations as places of connection

The Station can become an icon, and catalyst for regeneration. Both Rotterdam and Utrecht have used improved linkages across the railway lines to link neighbourhoods either side of the station and stimulate new development. [13]

13 See the Learning Cities Platform www.learningCitiesPlatform.eu report on Places of Connection (Utrecht 2012)

Rotterdam Centraal Station: this multimodal hub HSR station will be a welcoming gateway for visitors to Rotterdam and the Netherlands

Experience from existing centres shows that HSR can enhance and stimulate an already successful area, but it cannot alone be relied upon to regenerate cities. Ashford, Ebbsfleet and some of the French TGV peripheral stations such as Massey and Aix, have not been as successful as hoped in stimulating regeneration. Capturing the additional value of HSR linkages depends on the availability of land for development and potential market demand, as well as confidence from private sector developers that the necessary conditions for investment exist.

The most successful HSR stations depend on the location having the following characteristics:

- A Hub: this is an interchange for different modes and levels of transport, with a sufficient intensity of passenger flows to create a vibrant place. Good examples are Stratford, London Bridge and Schiphol;
- A Node: where a mix of functions and overlapping activities happen over at least a 16 hour period each day;
- A Distinctive Place: providing a memorable gateway to the city, as well as a diverse range of functions and a distinctive character such that it becomes a recognisable and cherished place within the wider city-region.

A stimulus for rebalancing the economy

France in the last 50 years has distributed resources and power from Paris to the regions, with the TGV programme as a key component of that agenda. With vision and commitment HS2 could become a symbol for the modernisation of the UK's infrastructure and the rebalancing of the economy.

A catalyst for New Economic activities

Major infrastructure projects such as HS2 have the ability not just to change spatial perceptions but also to recognise and capture emerging trends in how we work and the way business and manufacturing is structured. In the UK, which is principally a 'knowledge economy' the additional connectivity provided by HS2 could provide a stimulus by bringing a wider range of people into the same orbit.

Britain's digital economy now accounts for 11% of employment (National Institute of Economic and Social research). These figures recognise that digital knowledge workers are embedded in a wider range of sectors resulting in the potential for "innovation, entrepreneurship and growth" to be spread throughout the UK. The need for better national connectivity will be important for these sectors. At the same time these sectors are pioneering new ways of working in a more flexible way and changing the nature of commuting. To reflect this HS2 should have broadband provision for journeys, and apps to ease customer route planning and navigation.

With the increased pressure on younger workers in London and the South East as a result of high housing costs and poor availability of accommodation, HS2 has the opportunity to provide more attractive lifestyle alternatives by allowing relocation to the Midlands and North. The added connectivity provided by HS2 coupled with the growing acceptance of remote working should mean that workers can access an attractive choice of life styles at more affordable prices.

A catalyst for local action

Major infrastructure projects usually have a long planning and design period, which can result in uncertainty and a blight effect on those areas affected by construction. The redevelopment of London' Kings Cross Central saw 20 years of active planning discussion before planning permission was granted. During that period, however, actions were taken to prevent blight. Transitional uses were established for vacant sites and buildings, while the surrounding areas have undergone an organic process of incremental change, resulting in a transformation of the neighbourhood.

Kings Cross Regeneration Zone

Another example is central Antwerp where the upgrading of the rail lines to accommodate High Speed Rail created a new city park, which has integrated separated neighbourhoods of the city and become a flagship project in the revitalization of Antwerp thereby contributing to its economic success.

A stimulus for collaboration

Delivering successful infrastructure projects requires a long-term perspective across many disciplines and interests. To capture the full potential of the investment requires an awareness of the potential opportunities outside the immediate project boundaries. We are seeing the fruits of this approach in Bordeaux, where the Bordeaux Metropolitan Authority (www.cub.fr) was specifically created to attract and redistribute the added economic value gained from HSR with Euratlantique as the focal integrating project.

3.3 Further Research

These examples from the experience of HSR in the UK and Europe need to be much more thoroughly understood and explained. To help achieve this the ITC is planning as the next phase of the project to undertake research into the experience of the spatial effects of HSR in Europe.

As part of this phase we will be running a symposium in Lille entitled "Learning from Europe: Capturing the value of Major Investment". This will bring together about 30 key representatives from HSR providers, cities, developers and policy makers, to explore and witness the lessons to be learnt from over twenty years of European experience of the impact of HSR in practice on localities and regions.

The symposium aims to create a network of expertise, a shared understanding between stakeholders and links with European counterparts. A report from the event will be published in Spring 2014. The report will be for wide circulation and provide insights and guidance on how cities and regions can capture best value from the opportunities that HSR might bring.

4. Key themes and recommendations

In conclusion, we would like to raise the following themes, messages and recommendations for policy-makers to consider.

4.1 Themes

HSR has the potential to change the geography of the UK

We believe that HSR has the potential to change the geography of the UK by creating a new mega-city region, bringing the Midlands and Manchester/Yorkshire into the orbit of London. Paradoxically the London city-region stands to benefit from High Speed Rail, as it did from HS1, and yet that we have seen that region display less enthusiasm for HSR proposals than the Midlands and North.

HSR provides a great opportunity to rebalance the UK economy

In the context of HS2 the potential of the project to rebalance the economy has two dimensions: i) at a national level, reducing the deepening North-South economic divide in the UK, and ii) at a local and regional level, reducing poor connectivity and high unemployment in our industrial conurbations in the Midlands and North. At the national level, the divide has adverse effects for both the South as well as the North, all of which are damaging the UK economy. In the South, these problems include the housing crisis and pressures on infrastructure, while in the North deprivation and lack of private sector investment damages employment.

If HSR is to address these issues and be an engine for growth, the spatial problems it is supposed to address need to be defined. This needs to take place at both a national and a local level. City-regions need to make a clear case for HSR based on each region's agreed aspirations and the local benefits they think it will bring.

Capacity release and improved connectivity are the crucial spatial impacts of HSR

Some of the greatest potential benefits of the HSR project lie in the release of additional rail capacity on our national rail network, reducing overcrowding and improving national connectivity, both for passenger as well as freight traffic. The economic and spatial benefits of this capacity release are likely to have a greater positive benefit than time-savings from faster trains.

We particularly note the Government's claim that a new High Speed Rail line would cost only about 10% more than a conventional rail line, while bringing added benefits due to the greater capacity release it offers when compared to a standard line with mixed (passenger and freight) operations.[14] To maximise capacity release HSR lines must be fully integrated with the national rail network.

14 The Rt Hon Patrick McLoughlin MP, Speech to the ICE, 11 September 2013, http://www.channel5.com/shows/5-news/features-archived/transport-secretary-ditching-hs2-would-only-save-10

4.2 Recommendations

Additional investment in local connectivity, regeneration and skills will be necessary

A new HSR line on its own is not enough: investment in local connectivity, skills and urban renewal will be essential if the potential benefits of HSR are to be captured and delivered to a much wider region. HSR should therefore be used as the catalyst for a wider programme of investment. This doesn't just apply to northern cities but also London and the South East. The latter region could gain significantly from HSR connectivity but more research is needed with international comparisons to assess the scale of this.

Political collaboration and commitment are required to generate spatial benefits from HSR

We believe that HSR in the UK must have a governance and delivery structure capable of getting the scheme built and capturing its positive impacts. This structure should extend well beyond transport to include land use and planning, and will require cross-party collaboration and a national spatial strategy into which HSR can be slotted.

We suggest that a holistic approach to the HSR planning process is adopted, in order that cities can plan their own stations and local connecting infrastructure. City-regions need to identify their strengths and work on promoting these, such as Manchester for higher education, Sheffield and Derby for advanced engineering, and the digital economy clusters in the major cities. An effective delivery mechanism for HSR will also be essential: one that can provide the confidence necessary for private-sector investors to risk their capital, and which is responsive to the needs of city-regions.

HSR should be seen as a catalyst for regional development and connectivity planning must start now

Good connectivity to HSR is essential if its full range of benefits are to be captured: city-regions need to start planning now how they can best connect local and regional services to HSR stations. This will ensure that the benefits of the rail service extend to a much wider region. Undertaking a large project such as HS2 is a leap of faith, spread over 30-50 years. The core infrastructure, particularly the route, must be planned ahead and cannot be delivered incrementally. However, HS2 can also be a catalyst for smaller and shorter-term projects, which can have more immediate impact on public perceptions and be delivered incrementally.

This paper therefore urges the Government to reframe its presentation of High Speed 2 towards the potential of the line to bring better convenience, capacity, employment and connectivity to the public that it will serve. The paper also encourages the UK's city-regions to present a clear and coherent vision of how they will harness the opportunities that HSR will bring, and recommends that the Government should provide seed funding for such initiatives.

4.3 The Way Forward

The ITC's Call for Evidence and Workshop series have identified the need for more evidence on the questions posed. This study paper has attempted to identify the issues and opportunities that will arise when restructuring the UK's transport infrastructure with High Speed Rail as its backbone. High Speed 2, as a clearly definable project, can act as the catalyst for establishing the infrastructure to meet the UK's needs for the 21st Century and beyond. It is, however, a generational project with a longer time span than elected terms of government.

The way forward, we suggest, should be through addressing the following questions, which have repeatedly arisen during the review and are deserving of further attention:

- ### Seeing the bigger picture to capture the additional value

  If HS2 is to support the expected wider economic and social benefits it must be considered as more than just an engineering project. However, to deliver the specific rail project on time and to budget requires a single-minded focus on construction and delivery.

  Through the workshops and expert groups issues of governance, collaborative working and the need for strategic planning have been raised, which suggest the following questions for further study:

  - What best practice either in the UK or abroad could be used as an exemplar of ensuring that wider short and long term gains are captured from major infrastructure construction projects?
  - How can a continuous process of public engagement be channelled to become positive and pro-active through a process of co-creation and co-production?

- ### Understanding capacity and extracting the opportunities

  From discussions it is clear that capacity is not well defined, nor communicated to a wider audience. A 100 per cent utilization is perceived by many as the capacity of the system, without taking into account the spare capacity required for future adaptability, safe and effective running of services and changing methods of operating. Capacity is discussed in relation to the railway, but is also a critical criterion in assessing station locations, in their ability to allow for future development.

  - What procedural and behavioural changes might be required to communicate better the opportunities for increasing capacity through shared use, changing travel behaviour, and over the long term using the system more effectively?
  - How should the choice of peripheral or central station locations be assessed to take into account capacity for future development?
  - What role can stations play in stimulating area regeneration?
  - How can the station become a destination for meeting and connection, rather than a disruption to the established scale and continuity of the city?

- ## Communication and engaging a wider audience

Change is easier to accommodate if those who are impacted by these impacts feel they are involved with the process. The example of the uncertainty and alienation felt by those close to the HS1 construction process and their appreciation now of the opportunities opened up by Javelin, highlights the benefits of active engagement and communication.

- How can the agreement of local aspirations and expectations be used as a means for bringing the public, private and civil sectors to collaborate across boundaries and champion pride in each region?
- How can the advantages that stem from cities and regions collaborating be stimulated?

The ITC welcomes the creation of the HS2 Growth Task Force chaired by Lord Deighton and encourages it to address and seek further evidence on the issues raised in this study paper. The ITC is submitting this paper to that Task Force and will now be preparing for the next phase of our project, 'Learning from Europe', which will look at lessons for the UK from the implementation of HSR in western Europe. A final report will be released in the first half of 2014.

In the meantime the ITC would like to encourage policy-makers to take the above issues into account when preparing their case for High Speed Rail investment for the public.

Appendix 1

List of ITC Call for Evidence responses

Name	Organisation
Chris Choa	AECOM
Michelle Thurgood	Birmingham Airport
Richard Leonard	Birmingham City Council
Rosie Brake	Buckinghamshire CC
Stephen Joseph OBE	Campaign for Better Transport
Neil Ross	Centro
Gerald Kells	CPRE
Lawrence Revill	David Lock Associates
Dr John Disney	Nottingham Business School
Dr Daniel Graham	Imperial College, London
Jim Steer	Greengauge21
Sir Peter Hall/Chia-Lin Chen	UCL
Jim Brewin	Hitachi Europe
Joe Holyoak	(Individual)
Richard Threlfall	KPMG
Mike Piet	Leeds Sustainable Development Group
David Joy	London & Continental Railways
James Nutter	METRO (Leeds)
Professor David Metz	UCL
George Muir	ATOC (former chair)
James Angus	Network Rail
Chris Wragg	Northamptonshire CC
Professor Henry Overman/ Max Nathan	LSE
Helen Bowkett	Peter Brett Associates
Robert Ravelli	(Individual)
Kerri Farnsworth	Royal Institute of British Architects (RIBA)
Richard Blythe	Royal Town Planning Institute (RTPI)
Karen Ramsay	Sheffield City Council
Marcus King	SYPTE
Dr Michele Dix	Transport for London
Professor David Banister	Transport Studies Unit, Oxford University
Camilla Ween	Goldstein Ween Architects
Geoff Woodling	Business Futures Network

Appendix 2

Participants in the ITC workshop series

Name	Organisation
James Angus	Network Rail
Emma Antrobus	Manchester Chamber of Commerce
David Arthur	AECOM
Tim Ashton	Lancashire County Council
Dav Bansal	Glenn Howells Architects
Richard Barkham	Grosvenor
Lydia Barnstable	Wolverhampton City Council
Alan Baxter CBE	ITC
Neil Bennett	Farrell's
Kris Beuret OBE	ITC
Richard Bickers	Arup
Peter Bishop	Independent Consultant
Mary Bonar	ITC
Mark Bostock	Bostock Consultancy Ltd
Richard Buckley	Department for Transport
Ana Chan	Network Rail
Paul Chapman	HS2 Ltd
Dr Chia-Lin Chen	Bartlett School of Planning, UCL
Christopher Choa	AECOM
Graeme Clarke	Siemens
Michael Colella	Transport for London
Steve Connor	Creative Concern
Michael Coombs	Alan Baxter & Associates
Prof Rachel Cooper	Lancaster University
Phil Crabtree	Leeds City Council
Chris Dale	Travelwatch NW
Stephen Dance	Infrastructure UK
Richard Davies	ATOC
Dr John Disney	Nottingham Business School

Name	Organisation
Dr Michéle Dix	Transport for London
Jolyon Drury	CILT
Claire Durkin	URS
Clive Dutton OBE	
Kerri Farnsworth	Alexandra Palace and Park Trust
Cllr Andrew Fender	Manchester City Council
Nicholas Finney OBE	ITC
Samuel Fisher	Yorkshire for HS3
Alan Fleet	Alan Baxter & Associates
Nigel Foster	Fore Consulting
Jim Fox	IBI Taylor Young
André Gibbs	Argent (Kings Cross) Group PLC
Elizabeth Gilliard	ITC
Prof Stephen Glaister CBE	RAC Foundation
Stephen Gleave	IBI Taylor Young
Vincent Goodstadt	University of Manchester
Dr Kevin Grady	Leeds Civic Trust
Sir Peter Hall	The Bartlett, UCL
Andrew Hall	Leeds City Council
David Hall	SusTrans
David Harding	Network Rail
Pat Hayes	London Borough of Ealing
Peter Headicar	Oxford Brookes University
Richard Hebditch	Campaign for Better Transport
John Helm	New Transit
Dr Stephen Hickey	ITC
Terry Hill CBE	Arup
David Hoggarth	Metro
Andy Holding	Birmingham International Airport
Joe Holyoak	Joe Holyoak Architects
Chris Howe	HS2 NW
Glenn Howells	Glenn Howells Architects
Nigel Hugill	Urban & Civic
John Jarvis	Leeds City Region
Ruth Jeffs	Peter Brett Associates

Name	Organisation
Jeremy Johnson	Doncaster City Council
Prof Peter Jones	ITC
Nicola Kane	Peter Brett Associates
Sarah Kendall	ITC
Darren Kirkman	Transport for Greater Manchester
Prof Richard Knowles	Salford University
Dr Jon Lamonte	Transport for Greater Manchester
Charles Landry	Comedia
Dominique Laousse	SNCF
David Leam	London First
Doug Lee	Birmingham City Council
Simon Linnett	ITC
David Lumb	Leeds Sustainable Development Group
Prof Peter Mackie	ITS, University of Leeds
Prof Greg Marsden	ITC
Manjari McCauley	Network Rail
John McNulty	LCR
Prof David Metz	Centre for Transport Studies, UCL
Keith Mitchell	Peter Brett Associates
Shane Mitchell	CISCO Systems
Neil Moore	Bradford Metropolitan District Council
Suzanne Moroney	Greater London Authority
Alison Munro	HS2 Ltd
Cllr Nigel Murphy	Manchester City Council
Dr Matthew Niblett	ITC
Michael Oglesby CBE	Bruntwood
Ann Osola	Birmingham City Council
David Partridge	Argent
Adrian Penfold	British Land
Carl Pheasey	British Airways
John Pounder	SKM
Miles Price	British Land
David Prout	Department for Transport
Bright Pryde	ITC
Toby Rackliff	Centro

Name	Organisation
Robert Ravelli	Contemporary Solutions
Prof Joe Ravetz	University of Manchester
Lawrence Revill	David Lock Associates
Martin Revill	JMP Consultants / LSDG
Simon Reynish	CILT North West
Jennifer Rickard	Sheffield City Council
Biljana Savic	The Prince's Regeneration Trust
Rupert Seebohm	Department for Transport
Prof Roderick Smith	Imperial College / Department for Transport
Les Sparks OBE	West Midlands Committee
Jim Steer	Greengauge21
Gordon Stokes	Transport Studies Unit, University of Oxford
Tim Stonor	Space Syntax
John Swanson	Steer Davies Gleave
Sandy Taylor	Birmingham City Council
David Thrower	
Tony Travers	LSE London
John Twigg	Manchester Airport Group
Mike Waters	Coventry and Warwickshire LEP
Paul Watson	Paul Watson: Strategic Advice
Laura Webster	HS2 Ltd
Camilla Ween	Goldstein Ween Architects
Alan Wenban-Smith	Birmingham City University
Susan Williams	North West Rail
Marcus Wilshere	IBI Taylor Young
Colin Wilson	IBI Taylor Young
Geoff Woodling	Business Futures Network
John Worthington	ITC
Chris Wragg	Northamptonshire County Council

Appendix 3

ITC Scoping Paper – supplementary material

The ITC commissioned author and urban expert Charles Landry to develop a scoping report to help frame and launch the main research study. This is a summary of his paper. It considers how Britain can capture maximum value from its investment in high speed rail, and argues that a successful strategy will need to be holistic and incorporate the most significant economic, spatial, social and cultural issues.

Capturing the value of major rail investment: The example of HS2

The balance of probabilities is that the London global region will benefit disproportionately from any major investment in high-speed rail, unless there is a bigger vision and investment for optimising the benefit of HS2 for other UK cities.

The London maelstrom effect is dramatic. The London global region is a major attractor for skills, expertise and talent at every level from Britain, Europe and the world. Its dense globally connected knowledge infrastructures are extremely difficult to replicate in British regions. It is a global brain hub drawing in, and connecting within its orbit, Oxford and Cambridge and even increasingly Bristol. Over time, as connection times decrease, Birmingham is likely to be drawn into the London region's functional zone.

London's global region is one of around 40 global mega regions in the world which, with only 1% of the world population, are responsible for 66% of economic activity and 85% of technological and scientific innovation. Major city region corridors are being planned over the world and especially in the US and Asia. In this context too much thinking about Britain's cities is not at the right scale.

Any coherent movement and mobility plan for Britain as a whole needs to connect investment in high speed rail with integrated regional connectivity programmes especially around four city regions: Birmingham, Manchester, Leeds and Sheffield. These programmes must combine a linked economic, spatial, cultural and social perspective. Rail cannot be looked at in isolation. In Europe there have been successes and failures in High Speed Rail schemes – particularly in relation to the benefit experienced by regional cities. The central lesson of High Speed Rail is that it does not produce development by itself. It can act as a catalyst. Development will not happen in a vacuum without complementary investments and inspired leadership.

In this context the balancing Britain agenda is vital – the power of London needs to be balanced by other distinctive city-regions, which drive their own destiny within a global economy. While hub cities, like Manchester or Birmingham, will tend to define regional identity, smaller cities and towns need to be able to balance their interests as part of a city region and move beyond unproductive intraregional competition.

How urban dynamics plays itself out is not linear. Within the London super region there are pockets of poverty amidst overall wealth and equally within the relatively poorer regions there are swathes of economic vibrancy. Improved connectivity within London is important for these

areas. Improving regional connectivity helps poor places like Burnley or Sandwell benefit from the relative vitality of a Manchester or Birmingham.

This is why the UK needs a nation-wide vision for connectivity which is far more sophisticated in relation to the potential value for towns, cities and regions and how their destinies can be shaped in an ever increasing global network. The wider potential of HS2 or of connectivity for Britain needs a champion.

Some catchwords help focus any vision: integrated thinking, seamless connectivity, a city region perspective, capturing greatest value from transport investment, generating enriched experiences and linking transport issues to larger national agendas like health or sustainability. To maximize potential, as evidence from Lyon and Bordeaux shows, cities on the route need to act now with the kind of ambition for economic growth, connectivity and cross-boundary working as if the HS2 were already there. Cities not directly on the route have to plan and act with the kind of ambition as if they were connected. The mantra here is 'you have to create your own potential'. Our cities need the 'organisational capacity' to collaborate at the wider city region level, to create their vision and be able to influence their destiny.

For long term and potentially transformative projects like HS2, it is important not to start with suboptimal solutions. Despite the long timescale for the HS2 project decisions about station location and configuration might be taken at an early stage and we must avoid creating problems which future generations will be obliged to solve. It may be that we are limiting our expectations of what a station can do – or trying to reduce marginal costs – when investment in the points of connectivity should be focused in a deliberate and multi-layered way. The risk will be that HS2 instead quarantines prime locations from development, such as at Old Oak Common, or arguments will be made that HS2 investment in itself is enough to catalyse transformation. Experience in Britain demonstrates that once a project has funding the dynamics of project delivery mean the aim is always to avoid obstacles and simplify delivery. Consequently, complex issues might appear which will appear too difficult to resolve. Then a less than optimal solution will be adopted.

The location, design and context of the station is very important if the city is to benefit. Other cities have demonstrated that the value of investment is increased if stations are located in the centre, benefit from high quality architecture, increase multimodal connectivity, are surrounded by a mix of other uses, and station area improvements build up the quality of the broader public realm. The station can play a significant cultural role, beyond retail. It makes sense to leverage this investment for the benefit of the city.

In addition, other economic factors are important, such as complementary public investment and an active real estate market. The aim should be to catalyse local vitality prior to high speed rail being delivered. The aim should also be to capture greater value from, say the uplift in land value, for public investment – with investment or development models that allow for this.

Old Oak Common, the NEC station (Solihull) and the workings of HS2 as it enters Birmingham as well as the links between HS1 and HS2 as they enter London will either demonstrate or symbolise the potential realised within a country confident of its future, or by contrast the compromises made in a country which lacks ambition.

The time is right to think about cities and city regions. At last there is a minster for cities in Greg Clark appointed in July 2011 and various programmes such as City Deals and TIF have been put in place. In addition the role of organizations like Core Cities is seen more positively at

the national level. A climate and understanding is emerging that cities need to work with each other and with the private sector to take advantage of the emerging landscape. One conclusion most urban observers agree on is that cities need more encouragement and authority to control their own destiny and to be inspired by their own capacity for visioning. This ITC study will provide an opportunity for the cities and stakeholders to work together in order to provide successful solutions.

Charles Landry with Margie Caust, 2012

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