Research on making the most of HS2 investments and connectivity in the EM Labour Market

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Introduction

HS2, the high speed rail link between the London, the Midlands and North of England should bring business growth and employment opportunities to the East Midlands. Local Economic Partnerships (LEPs) covering the geographies of Derbyshire, Nottinghamshire and Leicestershire are working together to maximise those opportunities for local communities. These LEPs (D2N2 and LLEP) commissioned EM Chambers of Commerce, EM Rail Forum and the University of Derby to support their work in formulating a skills and employment strategy, to get the most out of HS2.

This document is a summary of the first phase of the research and consultation phase. It is based on an extensive literature review, 12 focus groups and 30 interviews with key stakeholders.

Employment and skills effects from other high speed rail

High speed rail and its impact on employment, economic growth and skills has been investigated in many places. We examined English language literature that examined those impacts in Japan, France, US and the UK. Employment and skills effects are derived directly from economic activity associated with the investment such as construction, design, manufacture and operation of new transport infrastructure. Secondary effects are derived from the benefits accruing from enhanced connectivity. The theoretical assumption is that improved transport connectivity reduces costs of trade and interaction; increases efficiency, and brings new companies attracted by locational advantages with ensuing benefits for the sub-regional economy.

The message from the literature is that those benefits are felt most strongly by the urban hubs at either end of the line, and by industries that are already well established and connected to seize first-mover advantages. The literature also suggests that stations between the urban centres can and do benefit if the following criteria are in place:-

- Intra-regional connectivity – if public transport and road networks can bring people and goods to high speed rail stations then its reach is enhanced
- Growing economic infrastructure – growth can be accelerated but, by itself high speed rail will not turn around decline
- Active procurement strategies – that seek to capture local value through the supply chain
- Active labour market strategies – to ensure that the flow of skills into and through the workforce is ready to respond to and drive business growth.
- Effective use of strategic sites – to inject the wider local economy with strategic employers or centres of excellence such as with science parks.

The timescale over which high speed rail is delivered is significant. Capturing the benefit of the wider effects takes place over several years, if not decades. Stable policy and planning frameworks that encompass the wider geography are essential to

provide the basis for investment decisions. Equally, a long term view of the labour market is required. In the case of HS2 in the East Midlands, it will only be fully operational in 2033; when young people who are currently in primary school will be leaving statutory learning. Engaging young people with future developments in technology and their working lives is something that is critical to capturing the benefits of high speed rail.

Most research in this area focusses on the supply side, namely how to inspire, inform and encourage young people to either continue to study subjects necessary for engineering (such as maths and physics) or to decide to go along learning pathways that will lead to such jobs. 600 organisations are involved in enrichment and enhancement of the STEM curriculum – mostly aimed at 11–14 year olds but much less with primary school aged children. There is also some popular discussion about the nature of the cohort of young people born in the 1980s through to 2000s – referred to as 'millenials'. The extent to which widely asserted traits are indeed generational characteristics is contested but nevertheless, there are some differences between this cohort and their older colleagues in the workforce. This appears to relate to increased individualism, confidence and demands for work life balance and prioritisation of goals other than career building – perhaps requiring a more personalised and individual approach to inspiration and aspiration building.

The overarching lessons from the literature therefore relate to the need to actively plan and prepare to create economic benefits from HS2 that build on current strengths and on current key priority sectors – this cannot be left to happenstance. Secondly, to use the long term vision to engage with children and young people to help them shape their aspirations from an early age.

Forecast effects in the East Midlands from HS2

In the combined areas covered by the D2N2 and Leicester and Leicestershire LEPs there are around 3.2m people, approximately 5.8% of the population of England. Employment by occupational group differs from the national average in the two LEP areas in a number of ways. There are less Managers, Directors and Professionals (Occupational Groups 1-3) in both LEP areas than the national average, with Managers being particularly underrepresented in D2N2 and Professional occupations being more under-represented in Leicester and Leicestershire. In terms of sector, Manufacturing accounts for nearly 14% of employment in both LEP areas, against only 8% nationally.

The labour market is already operating imperfectly in some parts of the economy. In our area 10% of construction employers report skills gaps, the sector reports one of the lowest levels of staff training and skills shortage vacancies are the most significant in the construction sector. Similarly, the railway and rolling stock sector currently has significant problems in its workforce, associated with ageing, and current skills gaps, especially as associated with signal engineering, train control and communications.

Several forecasts of the effect on HS2 on jobs by sector and by region have been undertaken. Forecasting is widely understood to be difficult and even short-run projections are often inaccurate. This is particularly challenging because unforeseen events can have a major impact, and in the current circumstances, major uncertainties

about the UK's future trading relationships and patterns of wider change in the global economy only add to those difficulties.

UKCES have undertaken forecasting to the mid 2020s as have Experian and Cambridge Econometrics. The latter two have also made projections up to the 2037 and 2030 respectively for HS2 in the East Midlands. UKCES conclude that the combination of expansion and labour replacement will leave the EM region needing 1m new workers by 2024, compared with 2014 and much of this will require higher level qualifications for Professional, Managerial and Associate Professional occupations. In terms of sector there are differences between the projections but growth is anticipated for a basket of sectors including Residential Care and Social Work; Real Estate, Manufacture and repair, Air transport, media, arts, other professional services and computing and information services.

Further work on the specific effects of HS2 has been produced by the company and further analysed by KPMG against a range of four scenarios. These range from an HS2 effect in the combined East Midlands LEP areas of 33,000 jobs and £2.52bn between 2014 and 2042; to a 'maximising opportunities' HS2 effect of an additional 91,000 jobs and £5.4bn.

The more positive scenario assumes early engagement in the direct opportunities arising from HS2. To date a range of contracts have already been awarded for enabling, design and construction works, totalling more than £1,350m and a further nearly £9,000m worth of contracts are currently in procurement. The Phase 1 rolling stock contract (for a minimum of 54 trains) is currently in procurement (Expressions of Interest from potential suppliers are due in June 2017), with the contract planned for award in December 2019. Throughout the supply chain, HS2 Ltd has a commitment to procure contracts which increase Equality, Diversity and Inclusion and to deliver skills upgrading, principally through the employment of Apprenticeships in the supply chain (at least 2000 in the construction phase). Our primary research suggests that further work needs to capture early benefits from HS2.

Primary research findings

The findings presented here are derived from analysis of the focus groups, interviews and survey responses. These are not yet complete and consequently this section does not include specific response rates.

Awareness

Whilst there is a general level of awareness that HS2 is coming to the East Midlands the predominant response was that awareness was due to local planning issues rather than to organisational consideration of its impacts. There was reasonable awareness of the station at Toton and that journey times would be reduced although less awareness of the proposed facilities at Staveley and Chesterfield.

Generally there was awareness among some that there may be some economic opportunities arising from HS2 but not much evidence of widespread strategic thinking on this issue. A small number of respondents across the focus groups were already involved in some way in the procurement process, either in active projects in the supply chain to tier one suppliers or had been part of recently submitted proposals.

These respondents were all associated with different aspects of the construction sector and were unsurprisingly more attuned to the specific opportunities available to their organisations but, even then, this did not extend far beyond the requirements of these particular contracts. Even in sectors where there might be expected to be a higher degree of awareness (e.g. rail businesses) there was mixed awareness of the opportunities that might be available.

This is significant because of the contingent nature of the potential economic benefits for the EM region. If organisations in the public and private sectors are not sufficiently aware of the different elements of HS2 they are unlikely to be well placed to take action appropriate to taking advantage of these opportunities, making those economic benefits less likely to materialise.

Business Strategies for HS2

In terms of specific plans for HS2 the fractured nature of the 'business' structure in relation to both the skills system and employers (especially in construction and engineering) contributed to a sense of risk aversion regarding training to meet future skills needs. Smaller employers were averse to risking investment in apprenticeships for instance, in areas of potential new business development without surety about future demand to match this. But even large skills providers also exhibited risk aversion regarding developing new courses and course content without being assured that students undertaking those courses would find employment. Skills providers also commented that it is individual learners that drive demand for their courses and as such, awareness of future careers and skills needs has to be raised among learners as well as employers and skills providers. This fractured system clearly generates a barrier to both awareness and incentives to act on that awareness.

HS2 is however seen as an external factor that businesses and other stakeholders are aware of as part of a wider set of external drivers. In our survey for example around a quarter of organisations have seen board and senior management level discussion of HS2 opportunities but the majority of respondents had no specific plan in place.

Skills planning

In most discussions, skills shortages that are already being experienced were discussed. In the focus group discussions (and interview feedback from stakeholders working with business) this related to several nuanced dynamics. Some recruitment and retention difficulties related to sector/occupational wage rates and the perspective that some occupations were seen as comparatively unattractive because of the intersection of status, terms and conditions and pay. These mainly related to manual roles in construction and engineering. In other discussions problems with recruitment and retention related to niche or high skilled professional roles where skills needs may be in rapid flux because of technological or organisational dynamism. On this, there was some concern among employers about the capacity of skills provision system to keep up with the pace of change, but also the ability of employers themselves (especially SMEs) to identify, anticipate and communicate their changing skill requirements and to train their own workforces. A third element of skills shortage/recruitment/retention discussions related to Brexit and the potential for the loss of access to labour from the EU would have a serious and detrimental effect on the ability of some businesses to sustain their business activity.

Barriers
For many respondents HS2 was seen in context with several other factors and was not viewed as either imminent or important to them. a lack of information or a lack of clarity in information about what the employment and skills information related to HS2 direct, indirect and induced demand might be are also major barriers to engagement. Most businesses operate with relatively short time-horizons and where they are not likely to be involved in the construction phase, the impacts of HS2 are not likely to be relevant for some considerable time. Similarly, while it may be easier in some ways for public sector organisations, skills providers to anticipate their links to the HS2 employment and skills agenda, many of these organisations are facing more immediate changes in their regulatory and funding structures. Indeed, some organisations identified frequent changes in the skills system itself as a general business challenge to their organisation and some skills providers were concerned about the proliferation of regional strategies and plans and were keen to streamline these so that they could more easily engage and deliver regional agendas.

A very small number of respondents identified specific additional barriers to making the most out of HS2 opportunities. These focussed on the HS2 procurement process. In particular, they related to the placing of contracts with large contractors who are then expected to be responsible for maintaining a supply chain, including SMEs. This was identified as a barrier to smaller organisations – especially micro-businesses with less than ten people – accessing opportunities.

This finding very much tallied with the focus group responses where private sector representatives were very concerned about accessing the supply chain for new business. Specific concerns related not only to this procurement mechanism and the difficulty that gave SMEs in engaging with a prime supplier, but they also worried that this meant that they were unable to access information about how to engage, what the specific requirements might be (in this case of tier one providers) and therefore in being included in proposals. Smaller businesses worried not only that they did not have adequate networks with these larger firms but also that there was no mechanism for larger organisations to be held to account for actually placing the work with their proposed supply chain if they won the contract. They therefore feared that the work that they might put – and in some cases had put – into developing innovative proposals for packages of work within tier one suppliers' broader proposals might be used as 'bid candy' with no real intention of ever fulfilling such orders.

Some more informed respondents suggested that a major barrier to jobs growth in the EM region in the design and construction phase is the plan to utilise workers and skills developed on Cross Rail and which might 'move up the line' with HS2 through Phases 1 and 2. There were therefore concerns that unless EM sub-contractors got involved in the first stages of construction, there would be little jobs growth in the EM.

Key Recommendations
The research and consultation processes have begun to generate a series of actions that relate to the themes of:

- Aspiring young people
- Building FE capability
- Harnessing the power of our universities

- Support for individuals and
- Ensuring our businesses are ready

These will be presented to the Board for consultation and review on 30th May, 2017.

2 Introduction

This report presents research commissioned by the HS2 Strategic Board for the East Midlands, through Nottinghamshire County Council. The research was undertaken between February and May 2017 by a team comprised of four researchers from the University of Derby, EM Rail Forum and EM Chambers of Commerce. The research is based on a review of relevant grey and academic literature (presented in Sections 3 to 5.6) and new data collection through a survey, focus groups and interviews undertaken in the East Midlands (see Section 6).

The research data presented in this report underpins the development of a draft *HS2 Skills and Employment Strategic Framework: Fast Track to Inclusive Growth for the East Midlands.* The report should therefore be read alongside that document.

3 Evidence and Literature Search Strategy

For evidence on official projections of growth, employment and skills generated by HS2 the research relied on a series of studies undertaken in the planning process for HS2, notably by HS2 and KPMG (HS2 Ltd, 2013a, 2013b), as well as work on the employment effects of HS2 by Albion economics (Eyles, 2013) and the impact of HS2 in the East Midlands region by ekosgen (ekosgen, 2016b). Skills and employment forecasts for the region outside of HS2 investment were drawn from different sources, including the UK Commission for Employment and Skills and data analysis by Experian and Cambridge Economics for Nottinghamshire County Council.

In addition to these largely 'grey literature' sources, a series of distinct literature searches were performed using the University of Derby's academic database subscriptions, as summarised in **Error! Reference source not found.** in relation to the determinants of HS2 employment growth. The first search based on the term 'HS2' returned 292 papers. These were then screened for actual relevance to High Speed Rail (HSR) based on their title and abstracts. This reduced this list to 53 papers. Those 53 papers were then reviewed to assess them as research and relevance to the project. Many were no longer current or focussed on topics outside of the relevance of the project, particularly in relation to legal issues and protest. They were coded as below according to their primary subject matter:

- Policy process – 6 papers
- Legal issues/process – 7 papers
- Debate about HS2 – 6 papers
- Events in the HS2 planning process – 12 papers
- Environmental issues – 3 papers
- Route announcements – 5 papers
- Economic development issues – 11 papers
- Learning processes – 1 paper
- Speed – 1 paper
- Technical design issues – 1 paper

They were also coded as either 'news' or 'research', since several tradepress style journals had been erroneously included (inc. *Planning*) in the original 'Peer Reviewed' search. 24 papers were coded as research. As a result of this process, 12 papers were selected for general relevance to the topic and because they appeared to contain research or data, rather than reportage of events, announcements and so on.

A second search based on 'High Speed Rail' and 'UK'. This search produced 127 papers which were again screened in the same way as previously for actual relevance to High Speed Rail in the UK. This produced a long-list of 20 papers. These were all research, rather than news and were subject coded, as follows:

- Public perceptions - 1
- Technical - 1
- Procurement - 1
- Economic Development - 6
- International comparison - 8

- Environment - 1
- Impact on trade/ other transport – 2

From these, 18 papers were selected for full review. After full reading of these 30 papers, the following were 'deselected' based on the relevance of their full contents to maximising employment and growth from HSR investments (Bolden & Harman, 2013; Dimitriou, Ward, & Wright, 2013; Dobruszkes, Dehon, & Givoni, 2014; Fulcher, 2013; Liang, Tan, Whiteing, Nash, & Johnson, 2016; Minn, 2013; Smith & Zhou, 2014; Yang, Ong, & Chin, 2014). In the discussion that follows, evidence is drawn from those papers selected and references found through following up citations in those references.

Figure 1: Literature search terms

Search term	Date range	Limiters	No of articles
"HS2"	2013-2017	- Peer reviewed papers	292 papers.
"High Speed Rail" and "UK"	2013-17	Peer Reviewed papers	127 papers.
Employment benefit+(construction or Olympics or rail)	2011+	Peer review +abstract	78
Career + (young people or youth) +(engineering or engineer)	2011+	Peer review + abstract	75
Career + (young people or youth) + STEM	2011+	Peer review + abstract	57

The determinants of employment and skills effects are related to urban geography (urban hubs capturing the strongest net benefits), industrial structure (the presence of organisations supplying necessary goods and services for HS2), and the cost-benefits associated with enhanced connectivity along the line. The literature was then reviewed to explore learning derived from other high speed rail or major construction projects to ascertain how regions might plan for and capture benefits- either to maximise the advantages of their urban geographies or minimise externalities.

In relation to capturing the benefits of infrastructure investment in the region a further total of 78 peer reviewed or academic outputs were generated using a series of search terms as indicated in Figure 1. These were scanned for relevance which generated a refined list of 32 articles which were further categorised as

- Diversity impact (5)
- Economic impact (3)
- Economic theory (2)
- Evaluation theory (8)
- Labour market theory (2)
- Regional impact (12)

4 The D2N2, Leicester and Leicestershire Economy

4.1 Employment and Priority Sectors

In the combined areas covered by the D2N2 and Leicester and Leicestershire LEPs there are around 3.2m people, approximately 5.8% of the population of England. Economic activity is slightly lower among the population in D2N2 (77.7%) than in England (74.6%), but this is more pronounced in Leicester and Leicestershire (74.6%). Despite this, unemployment is also lower in both LEP (D2N2 4.4%, Leicester and Leicestershire 4.5%) areas than in England (5%). The main driver of lower levels of economic activity in Leicester and Leicestershire is the larger proportion of students in the area (32.7%) than in D2N2 (23.7%) or England (22.4%).

The proportion of households that are workless in D2N2 (18%) is higher than the national average (14.9%) but slightly lower in Leicester and Leicestershire (13.4%). Unemployment is broadly in line with the England average in D2N2 but slightly lower in Leicester and Leicestershire. There are a little over 23,000 people unemployed in the two LEP areas who will still be below 60 in 2033 and therefore could benefit from job growth in the period between now and then.

Employment by occupational group differs from the national average in the two LEP areas in a number of ways. There are less Managers, Directors and Professionals (Occupational Groups 1-3) in both LEP areas than the national average, with Managers being particularly underrepresented in D2N2 and Professional occupations being more under-represented in Leicester and Leicestershire. In terms of sector, Manufacturing accounts for nearly 14% of employment in both LEP areas, against only 8% nationally. Administrative and Support services are marginally stronger in D2N2 than the national average. On the other hand Professional, Scientific and Technical Services and Accommodation, and Food Service activities are under-represented in both LEP areas.

The existing strengths of the region in manufacturing and transport related manufacturing mean that there is strong potential for benefit from the HS2 stimulus. This is reinforced by the overlap between the priority sectors (see Table 1) for the two LEPs and the potential for HS2 to generate additional demand in sectors already selected as priorities for strategic investment.

Table 1: Priority/Growth Sectors in the two LEPs

D2N2	Skills Needs	Challenges	**Leicester and Leicestershire**	Skills Needs	Challenges
Construction	BIM; to Brick layers; carpenters; plumbers; joiners; quantity surveyors and project managers (D2N2 LEP, 2017a)	Ageing workforce; need to increase apprenticeship take-up; skills shortages.	**Sports and physical activity**	Roles such as: Sporting officials (paid and voluntary); Coaches, teachers, instructors and activity leaders (paid and voluntary); Operational help (volunteers). Specific sports such as motor-racing require skilled scientists; engineers and mathematicians. Skills such as: Sport specific technical skills; Communication; Management; Child protection. (Leicester and Leicestershire LEP, 2016).	Changing technology, products and markets; integration with other sectors such as tourism, hospitality, retail creative industries etc.
Transport Equipment Manufacturing			**Food and Drink Manufacturing**	50% of businesses in the sector report skills gaps; engineers; food scientists; replacement staff an issue (Leicester and Leicestershire LEP, 2015d).	Ageing and underqualified workforce.
Food and Drink Manufacturing			**Textiles Manufacturing**	43% of businesses in the sector report skills shortages. Language	Negative image of the sector; pay rates; competition;

				skills a key issue due to diversity of workforce (Leicester and Leicestershire LEP, 2015b).	
Transport and Logistics			**Logistics and Distribution**	N/a	
Low Carbon	(D2N2 LEP, 2017c)	Links between SMEs and skills providers; unspecified nature of skills needs.	**Tourism and Hospitality**	n/a	
Visitor Economy	chefs, customer service staff and hospitality management; leadership and management skills; social media and IT skills (D2N2 LEP, 2017d)	Diversity of sector; Recent employment contraction; recruitment and retention; sector image; low wages and seasonal work generate training disincentives.	**Creative Industries**	A quarter of businesses in the creative industries sector report the need to develop 'fused' skill sets of business and creativity, graduate retention also a problem and low skills base of population relative to sector needs (Leicester and Leicestershire LEP, 2015a).	Dominance of small businesses and independent contractors in the sector means can be a barrier to training etc. Some parts of the sector (e.g. IT) are male dominated and not very diverse in terms of ethnicity. Lack of diversity in workforce is a barrier to market size. Low levels of apprenticeship take-up.
Life Sciences	mathematical and ICT areas; knowledge of bioinformatics, statistics and data mining; health economics and outcomes (D2N2 LEP, 2017b, p. 2)	Diversity of sector; development of STEM from young age.	**Low Carbon**		Employers don't want to provide training and want employment ready recruits. Where they do train it tends to be related to new equipment and be provided by manufacturers/suppliers (Leicester and

					Leicestershire LEP, 2015e).
Creative and Digital Industries	Advanced digital skills and specialist skills; Skilled graduates	Diversity of the 'sector'; digital skills and pace of technological change; skills providers keeping up with technological change	**Professional and financial services**	High competition for staff means many business experiencing skills shortages, including in management/leadership. 60% of businesses in the sector report skills gaps. 25% say staff recruitment is a barrier to growth and 5% say staff retention is a barrier. Property and commercial lawyers and marketing are in particular demand (Leicester and Leicestershire LEP, 2015f).	Ageing workforce; Low recruitment during recession was creating a replacement challenge now due to retirement etc.
			Engineering and advanced manufacturing	Electrical and mechanical engineers needed (Leicester and Leicestershire LEP, 2015c).	Out of date equipment in skills providers; alignment of qualifications with employer needs; ageing workforce.

4.2 Current Skills Gaps

Like other parts of the country, employers in the EM region report skills gaps, difficulties recruiting and retaining staff. 16% of employers in the EM report that they have skills gaps in their workforce, 6% have skill shortage vacancies and 9% report retention difficulties (UK Commission for Employment and Skills, 2016a). As Table 1 shows, this is much higher in some of the priority/growth sectors identified by the LEPs. All sectors reported that they had skills gaps with access to and retention of skilled staff being regularly cited by employers as a barrier to growth.

In terms of the early phases of HS2 development, construction is one of the sectors with the smallest skills gaps currently. However, 10% of construction employers report skills gaps, the sector reports one of the lowest levels of staff training and skills shortage vacancies are the most significant in the construction sector. There is overlap here with occupational roles, with skills supply problems being particularly acute in skilled trades and machine operator roles, where changing demands related to technical requirements mean that employers face skills challenges (UK Commission for Employment and Skills, 2016a). Moreover, looking at forceasts of skills demand up until the middle of the next decade construction is projected to be one of the strongest growing sectors in terms of both jobs and impact on productivity (UK Commission for Employment and Skills, 2016b) and the fastest growing sector in terms of jobs in the East Midlands (UK Commission for Employment and Skills, 2016c, p. 89). More specifically, recent research suggests that the construction industry in D2N2 has particular skills needs in relation to Brick layers; carpenters; plumbers; joiners; quantity surveyors and project managers. Across the whole workforce, the emphasis placed on BIM is shaping skills needs into the future (D2N2 LEP, 2017a).

Similarly, the railway and rolling stock sector currently has significant problems in its workforce, associated with ageing, and current skills gaps, especially as associated with signal engineering, train control and communications (EM HS2 Strategic Board, 2016). The *Transport Infrastructure Skills Strategy* (DfT, 2016) estimates that increased demand from HS2 and other rail projects will generate significant growth and replacement recruitment of:

- 10,000 drivers;
- 8,200 traction and rolling stock engineers;
- 2,000 electrification and plant engineers;
- 5,000 signal and telecoms/train communication engineers;
- 19,500 track operatives; and
- 50,000 operations staff.

4.3 Change in Projected Skills and Employment Demand

Different projections (see Table 2 to Table 5) suggest different patterns of employment growth, though these tend to be based on historical data and in the main project forward previous patterns of growth, mainly based on population change and regional shares of UK economic activity. Forecasting is widely understood to be difficult and even short-run projections are often inaccurate. This is particularly challenging because unforeseen events can have a major impact, and in the current circumstances, major uncertainties about the UK's future trading relationships and patterns of wider change in the global economy only add to those difficulties.

General projected changes in employment growth from the UK Commission for Employment and Skills suggests that for the EM region Construction; Trade, accommodation and transport; Business and other services will all grow in terms of their share of employment, while Manufacturing; Primary industries and Utilities will all decline. In terms of occupational growth, managerial, professional and associate professional occupations, elementary and caring occupations will all grow at the expense of administrative, skilled trades and process and plant operatives. To some extent then, the pattern of employment change over the next few years will both follow patterns over the last decade and echo skills gaps in the current workforce, aside from construction. The combination of expansion and labour replacement will leave the EM region needing 1m new workers by 2024, compared with 2014 and much of this will require higher level qualifications for Professional, Managerial and Associate Professional occupations (UK Commission for Employment and Skills, 2016c).

Different projections provided by Experian over the same time horizon to the middle of the 2020s suggest that growth categories will be: Residential Care & Social Work; Real Estate; Air & Water Transport; Media Activities; Accommodation & Food Services; Health; Land Transport, Storage & Post; Professional Services; Computing & Information Services; Administrative & Supportive Services; Recreation; Specialised Construction Activities; Education; Finance; and Pharmaceuticals. This data suggests that the following categories will contract over that period: Insurance & Pensions; Food, Drink & Tobacco manufacture; Extraction & Mining; Public Administration & Defence; Agriculture, Forestry & Fishing; Computer & Electronic Products manufacture; Manufacture of Non-Metallic Products; Machinery & Equipment; Chemicals; Other Manufacturing Manufacture of Metal Products; Manufacture of Wood & Paper; Manufacture of Textiles & Clothing; Manufacture of Printing and Recorded Media; and Fuel Refining.

Longer-term Experian projections up to the operational phase of HS2 suggest that growth will occur predominantly in the following sectors in the period up to 2037: Residential Care & Social Work; Real Estate; Accommodation & Food Services; Media Activities; Health; Computing & Information Services; Manufacture of Pharmaceuticals; Administrative & Supportive Services; Professional Services; Air & Water Transport; Recreation; Education; Land Transport, Storage & Post; Specialised Construction Activities. In that longer-term, these projections suggest the following sectors will decline in terms of workforce jobs: Insurance & Pensions; Public Administration & Defence; Manufacture of Wood & Paper; Manufacture of Machinery & Equipment; Manufacture of Non-Metallic Products; Manufacture of Printing and Recorded Media; Manufacture of Computer & Electronic Products; Agriculture, Forestry & Fishing; Manufacture of Metal Products; Other Manufacturing; Manufacture of Textiles & Clothing; Fuel Refining.

A third set of projections from Cambridge Econometrics suggest that key growth sectors over the medium term (up to 2025) suggests that the following sectors will increase in employment: Other manufacturing & repair; Residential & social; Arts; Other professional services; Electricity & gas; Air transport; Public Administration & Defence; Motor vehicles; Business support services; Food & beverage services; Chemicals. Over that time frame, the Cambridge Econometrics data suggests that the following sectors will decline: Metals & metal products; Pharmaceuticals; Electrical

equipment; Agriculture, forestry & fishing; Wood & paper; Non-metallic mineral products; Textiles; Mining & quarrying; Machinery; Electronics.

The Cambridge Econometrics data suggest that up to 2030 the following sectors will increase: Residential & social; Air transport; Arts; Other professional services; Other manufacturing & repair; Electricity & gas; Public Administration & Defence; Business support services; Food & beverage services; Construction; and Retail trade. Over the same time, they suggest the following will decline: Printing & recording; Metals & metal products; Pharmaceuticals; Electrical equipment; Agriculture, forestry & fishing; Wood & paper; Textiles; Non-metallic mineral products; Machinery; Mining & quarrying; Electronics.

4.4 Different Projections of Employment Change

Table 2: Change % in Total Employment by Broad Sector 2014-2024

	Primary & utilities	Manufacturing	Construction	Trade, accom. & transport	Business & other services	Non-Market Services	Services
Lon	0	-0.4	0.2	-0.3	1.7	-1.3	0.1
SE	-0.3	-1	0.9	0.4	1	-1	0.4
East	-0.4	-1.2	1	0.5	0.5	-0.3	0.7
SW	-0.6	-1	1.1	0.5	0.7	-0.7	0.6
WM	-0.3	1.5	0.5	1.2	1	-0.9	1.3
EM	-0.2	-0.8	0.5	0.6	0.7	-0.8	0.5
Y&H	-0.3	-1.9	0.6	0.7	1.2	-0.3	1.5
NW	-0.3	-1.2	0.3	0.8	1.5	-1.1	1.2
NE	-0.1	-1.8	0.3	0.9	1.3	-0.5	1.5
Eng	-0.3	-1.1	0.5	**0.5**	1.3	-0.9	0.9
UK	-0.3	-1.1	0.6	0.5	1.2	-0.9	0.8

Source: UK Commission for Employment and Skills, 2016c.

Table 3: Projected % Change in Share Employment by SOC Major Group

	Managers & senior Officials	Professional	Associate Prof. & Technical	Admin & Secretarial	Skilled trades	Caring, leisure & other services	Sales & customer services	Process, Plant & Machine Ops	Elementary
Lon	0.9	1.8	1	-2	-0.5	0.2	-0.6	-0.5	-0.3
SE	1.1	1.3	0.6	-2	-0.6	0.7	-0.5	-0.4	-0.2
EE	1	1.2	0.7	-1.8	-0.8	1	-0.5	-0.6	-0.1
SW	0.8	1.4	0.6	-1.8	-0.6	0.8	-0.4	-0.6	-0.3
WM	1	1.3	0.9	-1.5	-1.1	0.7	-0.4	-0.9	0
EM	0.8	1.1	0.7	-1.4	-1	1	-0.2	-0.8	-0.2
Y&H	0.8	1.5	0.8	-1.4	-1.1	0.9	-0.3	-0.9	-0.3
NW	0.8	1.2	0.7	-1.5	-0.8	0.7	-0.2	-0.9	-0.1
NE	0.7	1.5	0.8	-1.4	-0.9	0.5	0.2	-1.1	-0.3
Eng	0.9	1.4	0.7	-1.7	-0.8	0.7	-0.4	-0.7	-0.2
UK	0.9	1.5	0.8	-1.7	-0.8	0.7	-0.4	-0.7	-0.2

Source: UK Commission for Employment and Skills, 2016c.

Table 4: Long-term Projection of Change in Employment by Category, in Workforce Jobs (000s)

	2016	2020	2025	2030	2035	2037	Growth 2016-2037 Nos	Growth 2016-2037 %	Growth 2016-2025 Nos	Growth 2016-2025 %
Accom. & Food Services	118.50	124.69	132.34	138.92	144.13	145.80	27.30	23.0%	13.84	11.7%
Admin. & Supp. Services	230.35	241.41	248.55	258.26	268.13	272.42	42.07	18.3%	18.20	7.9%
Agri., Forestry & Fishing	24.35	22.13	21.67	21.51	21.41	21.37	-2.98	-12.2%	-2.68	-11.0%
Air & Water Transp.	1.81	1.86	1.95	2.06	2.18	2.23	0.42	23.2%	0.14	7.7%
Chem. (manu. of)	6.89	6.80	6.66	6.35	5.89	5.68	-1.21	-17.6%	-0.23	-3.3%
Civil Eng.	20.50	20.04	20.74	21.31	21.65	21.87	1.37	6.7%	0.24	1.2%
Comp. & Elect. Products (manu.of)	18.78	17.86	17.02	16.86	16.48	16.34	-2.44	-13.0%	-1.76	-9.4%
Comp. & Info. Services	37.51	39.48	40.84	42.36	43.92	44.56	7.05	18.8%	3.33	8.9%
Const. of Buildings	43.36	42.60	43.89	45.01	45.68	46.01	2.65	6.1%	0.53	1.2%
Educ.	204.76	208.74	218.50	225.72	232.16	234.62	29.86	14.6%	13.74	6.7%
Extrac. & Mining	4.88	5.02	5.00	4.86	4.67	4.59	-0.29	-5.9%	0.12	2.5%
Finance	37.80	37.71	39.18	40.76	42.42	43.13	5.33	14.1%	1.38	3.7%
Food, Drink & Tobacco (manu. of)	61.04	62.29	61.80	60.88	59.68	59.06	-1.98	-3.2%	0.76	1.2%
Fuel Refining	0.11	0.07	0.07	0.07	0.07	0.06	-0.05	-45.5%	-0.04	-36.4%
Health	153.88	157.36	167.60	177.50	185.98	188.91	35.03	22.8%	13.72	8.9%
Ins. & Pensions	1.32	1.27	1.26	1.27	1.27	1.28	-0.04	-3.0%	-0.06	-4.5%
Land Transp., Storage & Post	120.62	122.70	128.15	135.55	142.99	146.11	25.49	21.1%	7.53	6.2%
Mach. & Equip. (manu. of)	18.61	17.79	17.36	16.49	15.72	15.45	-3.16	-17.0%	-1.25	-6.7%
Media Activities	11.18	11.83	12.48	13.06	13.58	13.77	2.59	23.2%	1.30	11.6%
Metal Products (manu. of)	39.77	37.69	35.25	33.34	31.45	30.68	-9.09	-22.9%	-4.52	-11.4%
Non-Metallic Products (manufacture of)	35.08	33.69	32.31	31.27	30.02	29.55	-5.53	-15.8%	-2.77	-7.9%

Other Manufacturing	29.66	27.42	25.66	24.75	23.96	23.69	-5.97	-20.1%	-4.00	-13.5%
Other Private Services	77.36	78.52	80.06	81.27	82.19	82.47	5.11	6.6%	2.70	3.5%
Pharmaceuticals (manufacture of)	2.14	2.28	2.32	2.37	2.41	2.42	0.28	13.1%	0.18	8.4%
Printing and Recorded Media (manufacture of)	10.57	10.33	9.61	8.37	6.94	6.38	-4.19	-39.6%	-0.96	-9.1%
Professional Services	169.97	174.46	183.33	191.87	200.64	204.66	34.69	20.4%	13.36	7.9%
Public Administration & Defence	84.47	79.16	79.46	79.65	79.44	79.35	-5.12	-6.1%	-5.01	-5.9%
Real Estate	28.71	30.46	32.20	33.78	35.33	36.02	7.31	25.5%	3.49	12.2%
Recreation	53.92	55.77	57.74	59.86	62.03	62.99	9.07	16.8%	3.82	7.1%
Residential Care & Social Work	114.36	121.61	135.84	149.20	159.51	162.81	48.45	42.4%	21.48	18.8%
Retail	217.55	213.60	217.52	219.22	219.40	219.52	1.97	0.9%	-0.03	0.0%
Spec. Const. Activities	94.04	93.60	99.08	103.30	106.53	108.08	14.04	14.9%	5.04	5.4%
Telecoms	7.19	7.15	7.27	7.32	7.38	7.42	0.23	3.2%	0.08	1.1%
Textiles & Clothing (manufacture of)	15.20	14.30	12.80	11.42	9.87	9.26	-5.94	-39.1%	-2.40	-15.8%
Transp. Equip (manu of)	30.16	30.45	30.23	30.10	30.22	30.29	0.13	0.4%	0.07	0.2%
Utilities	29.22	29.59	30.19	30.81	31.30	31.49	2.27	7.8%	0.97	3.3%
Wholesale	144.02	147.02	149.16	149.65	149.65	149.84	5.82	4.0%	5.14	3.6%
Wood & Paper (manu. of)	19.59	19.30	18.34	16.92	15.56	15.06	-4.53	-23.1%	-1.25	-6.4%

Source: Experian Projection for Nottinghamshire CC.

Table 5: Projected Change in Employment by Sector (000s)

Total	2016	2020	2025	2030	Change 2016-2025 Nos	Change % 2016-25	Change nos 2016-2030	Change % 2016-2030
Agri., forestry & fishing	10.315	8.955	7.789	6.928	-2.526	-24%	-3.387	-33%
Mining & quarrying	4.531	4.067	3.16	2.482	-1.371	-30%	-2.049	-45%
Food, drink & tobacco	36.411	37.658	38.373	38.337	1.962	5%	1.926	5%
Textiles etc	17.787	15.436	12.501	10.61	-5.286	-30%	-7.177	-40%
Wood & paper	8.836	7.884	6.668	5.599	-2.168	-25%	-3.237	-37%
Printing & recording	6.536	6.317	6.034	5.742	-0.502	-8%	-0.794	-12%
Coke & petroleum	0.028	0.03	0.028	0.027	0	0%	-0.001	-4%
Chemicals	5.322	6.048	5.831	5.317	0.509	10%	-0.005	0%

Pharma.	3.017	2.762	2.473	2.211	-0.544	-18%	-0.806	-27%
Non-metallic mineral products	20.626	17.934	14.603	12.059	-6.023	-29%	-8.567	-42%
Metals & metal products	23.201	22.272	20.692	19.011	-2.509	-11%	-4.19	-18%
Electronics	5.483	4.44	3.23	2.287	-2.253	-41%	-3.196	-58%
Electrical equipment	4.364	4.017	3.575	3.147	-0.789	-18%	-1.217	-28%
Machinery	11.567	9.85	7.886	6.72	-3.681	-32%	-4.847	-42%
Motor vehicles	5.956	6.564	6.606	6.483	0.65	11%	0.527	9%
Other transport equipment	19.431	19.874	20.25	20.462	0.819	4%	1.031	5%
Other manuf. & repair	22.179	24.249	26.373	26.55	4.194	19%	4.371	20%
Electricity & gas	11.118	11.916	12.533	13.296	1.415	13%	2.178	20%
Water, sewerage & waste	11.028	11.106	11.145	11.203	0.117	1%	0.175	2%
Const.	93.295	97.602	101.695	105.188	8.4	9%	11.893	13%
Motor vehicles trade	29.727	29.742	30.141	30.783	0.414	1%	1.056	4%
Wholesale trade	64.651	66.029	66.767	67.312	2.116	3%	2.661	4%
Retail trade	137.029	141.601	145.866	150.112	8.837	6%	13.083	10%
Land transport	27.289	26.62	25.45	24.968	-1.839	-7%	-2.321	-9%
Water transport	0	0	0	0	0	0%	0	0%
Air transport	0.637	0.699	0.714	0.779	0.077	12%	0.142	22%
Warehousing & postal	42.026	42.537	42.66	42.719	0.634	2%	0.693	2%
Accomm.	17.574	18.027	18.527	18.874	0.953	5%	1.3	7%
Food & beverage services	69.698	71.704	76.419	79.515	6.721	10%	9.817	14%
Media	7.935	7.715	7.521	7.285	-0.414	-5%	-0.65	-8%
IT services	43.713	44.8	45.41	45.265	1.697	4%	1.552	4%
Financial & insurance	24.093	22.866	23.09	22.831	-1.003	-4%	-1.262	-5%
Real estate	19.16	19.526	19.665	19.814	0.505	3%	0.654	3%
Legal & accounting	22.15	21.917	21.809	21.777	-0.341	-2%	-0.373	-2%
Head offices & manag. Consult.	42.117	43.87	44.266	44.517	2.149	5%	2.4	6%
Architectural & engineering services	25.157	26.963	26.88	26.812	1.723	7%	1.655	7%
Other professional services	24.716	26.12	27.921	29.752	3.205	13%	5.036	20%
Business support services	147.918	153.412	162.938	174.196	15.02	10%	26.278	18%

Public Admin. & Defence	63.361	65.781	70.299	75.188	6.938	11%	11.827	19%
Education	145.714	140.997	139.534	137.955	-6.18	-4%	-7.759	-5%
Health	100.765	98.193	96.652	95.496	-4.113	-4%	-5.269	-5%
Residential & social	80.892	86.775	94.797	102.701	13.905	17%	21.809	27%
Arts	9.641	10.801	11.194	11.628	1.553	16%	1.987	21%
Recreational services	25.305	24.896	24.427	24.084	-0.878	-3%	-1.221	-5%
Other services	50.709	50.61	50.545	50.705	-0.164	0%	-0.004	0%
Total	1543.01	1561.194	1584.95	1608.745	41.94	3%	65.735	4%

Source: Cambridge Econometrics for Nottinghamshire CC.

The development of HS2 connectivity may be able to help with skills shortages in the longer-term by expanding the travel to work areas in key sectors for the EM region. However, this will be dependent on the competitiveness of these key sectors; as enhanced connectivity will also strengthen competition, including for skilled staff, and the shortened travel times to London, Birmingham, Manchester and Leeds in particular might enhance existing skills shortages. As such, ***it is essential that priority/growth sectors are supported now to be as competitive as possible prior to connectivity improvements so that they gain rather than lose out from greater capacity and speed of travel***. Skills provision was identified throughout all priority/growth sectors as a major area for enhancing sectoral growth and competitiveness.

Professional and managerial employment growth is one of the strongest areas of projected future change and professional and business services are projected to increase as a sector. Professional and business services are a priority sector for LLEP, but not for D2N2.

5 Evidence review

5.1 Overview of Employment and Skills Effects of HS2

Economic and skills effects of the major transport infrastructure projects occur through three main channels: those created in the design and construction phase; the ongoing demand created by operation and maintenance of the transport connection itself; and the 'wider economic benefits' of increased connectivity. Estimates produced by HS2 Ltd as part of the appraisal of the strategic case for HS2 suggest that the total economic benefits arising from the project might total £71bn based on 2011 prices. Of these, the largest components are driven by additional economic output arising from time savings (£46bn) and wider economic benefits of more than £13bn (HS2 Ltd, 2013b). Work on the distribution of these benefits undertaken by KPMG for HS2 Ltd suggests that there are significant benefits for the EM region. This research suggests that there is a total economic benefit for D2N2 of between 1.1bn-2.2bn per year by 2037. The economic impact of increased connectivity and market size is estimated at an uplift of 14.7% for labour markets and 23.2% for business connectivity (HS2 Ltd, 2013a).

However, it is important to note that the estimation of time savings, wider economic benefits and their regional/sub-regional distribution is a challenging and controversial exercise (Graham & Melo, 2010; Nash, 2015). These specific estimates have been widely challenged for being overly optimistic (Hall, 2013; House of Commons Public Accounts Committee, 2013; Tomaney & Marques, 2013). For example, HSR may have an effect of either reducing or increasing spatial inequalities in economic growth, depending on a range of other factors (Ortega, López, & Monzón, 2012; Vickerman, 2017). As such, "there can be no universal assumption that major transport infrastructure investment such as HSR can have a transformational impact, but clearly in some circumstances it can" (Vickerman, 2017, pp. 6–7). Following this line of argument, assessing the specific benefits to a particular area from a particular project is less a matter of simply assuming a generic level of benefit and more a detailed empirical research process based on the specific design of the HSR project and existing economic, social and spatial patterns.

LEPs in the WM region have produced a strategy (Greater Birmingham and Solihull LEP, 2016) for Employment and Skills which is based on estimates of jobs and economic growth from HS2 investments. That strategy uses evidence from Albion Economics (Eyles, 2013) on the national employment effects of HS2. These estimates are based on HS2 Ltd.'s data on costs. It includes a projection of 'job years' resulting from direct and indirect (not induced) employment in HS2 construction and operation. The build phase assumptions are related to the period 2017-2026/32 for Phase 1 and 2 respectively. Operations and renewals employment is estimated as running for 60 years from project completion. The estimated jobs growth (in job years) is set out in Table 6. This suggests that around 90,000 jobs[1] will be generated by the construction and operation of the full network and that this will be around 20,000 per annum over a 13 year period. The Greater Birmingham and Solihull LEP strategy implies that the impact of this growth on the West Midlands region might be equivalent to the entire effect of Phase 1. Given that we already know that firms outside of the WM are contracted to work on contracts already let in the construction phase, this seems an unlikely outcome.

[1] Assuming that 10 job years equals a permanent job.

For example, none of the main locations of manufacturers able to supply HSR rolling stock in the UK are based in the West Midlands (Dhir, Marinov, & Worsley, 2015), and there remains a significant possibility that they may be produced outside of the UK.

Table 6: Jobs growth from HS2, estimated by Albion Economics (in job years)

	Phase 1: London to WM	Whole Network: London to Manchester/Leeds
Planning and Design	23,000	49,000
Construction	65,000	139,000
Construction supply chain	32,500	70,000
Rolling Stock	20,500	73,500
Rolling Stock Supply Chain	30,800	180,000
Operations, Maintenance and Retail	187,000	345,000
Renewals	65,000	100,000

Source: (Eyles, 2013).

The specific economic opportunities arising from HS2 in the two EM LEP areas were assessed in a recent study by ekosgen (ekosgen, 2016b), using data provided by Cambridge Econometrics. This study assumes that HS2 delivers enhanced economic opportunities in a number of ways. These include benefits related to enhanced connectivity and journey time savings; job growth at key locations such as the Hub Station, maintenance depot and Chesterfield Station; benefits arising from freeing up capacity on existing transport networks providing wider opportunities; and the procurement and supply chain opportunities created by HS2 investment (including direct, induced and multiplier effects). In relation to each of these ways in which HS2 might generate enhanced economic opportunities it is possible to think about sectors which will be directly and indirectly impacted. The method used is subject to all the usual caveats about long-term projections but appears more robust than implying that all of the benefits from construction etc. It is based on applying uplifts to 'baseline' projections of job growth, as set out in Table 5.

Using this analytical framework, the study suggested four possible growth scenarios, based on applying different levels of 'uplift' to different sector mixes:

- **'Baseline Projection'**, assuming no HS2 effect, with job and output growth in the combined LEP areas of 172,000 and £42.9bn respectively between 2014-2042.
- **'HS2-Led Projection'**, assuming that HS2 has a positive effect on directly impacted sectors only. In relation to these sectors, those that were performing above the East Midlands average are inflated to grow at the same rate as the same sectors in the best performing regions nationally. Where these sectors are projected in the baseline to grow more slowly than the EM average, they are inflated in this projection to the regional average. This projection shows an employment growth of 33,000 over the baseline projection and £2.52bn.

Sectors where employment growth is greater than 500 jobs are IT Services (8,400), Other Professional Services (7,400); Real Estate (5,300); Financial and Insurance Services (5,100); Media (2,200); Legal and Accounting (2,100); Head Offices and Management Consultancies (1,500); Architectural and Engineering Services (1,300).

- **'Strategy Led Projection'**, assuming that the direct effects are only half those mapped out in the 'HS2-Led' projection but also applies the HS2-Led uplift to sectors indirectly effected. Growth in this scenarios is assumed to be higher in the two LEP priority sectors. This projection suggests that job growth will be 74,000 above the baseline and £3.99bn will be added to economic output. In this projection the sectors where jobs growth is strongest include: Education (16,700); Construction (13,400); Other Services (6,600); Food and Beverage (5,700); Warehousing and Postal (4,700); Wholesale Trade (4,400); IT Services (4,200); Retail Trade (4,100); Other Professional Services (3,700); Real Estate (2,600); Financial and Insurance Services (2,500), Media (1,100); Legal and Accounting (1,100); Land Transport (1,000); Head Offices and Management Consultancies (700); Architectural and Engineering Services (700).
- **'Maximising Opportunities Projection'**, assuming that the HS2-Led uplifts are applied to both the directly and indirectly effected sectors. In this projection additional jobs growth is 91,000 and £5.4bn is added to the combined area in economic output, above the baseline. In this projection the key growth sectors in terms of employment are Education (16,700); Construction (13,400); IT Services (8,400); Other Professional Services (7,400); Other Services (6,600); Food and Beverage (5,700); Real Estate (5,300); Financial and Insurance services (5,100); Warehousing and postal services (4,700); Wholesale Trade (4,400); Retail Trade (4,100); Retail Trade (4,100); Media (2,200); Legal and Accounting (2,100); Head Offices and Management Consultancies (1,500); Architectural and Engineering Services (1,300); and Land Transport (1,000).

Across these projections, several sectors show decline in employment numbers. These include: Non-Metallic Mineral Products; Textiles; Health; Metals and Metal Products; Machinery; and Agriculture, Forestry and Fishing.

Table 7: Varying Projections of Economic Output and Employment Growth Resulting from HS2 and Priority Sector Support 2014-2042

	2014-2042 Employment Growth Nos.	% Change	2014-2042 GVA Growth Nos.	% Change	2014-2042 GVA growth per Employee	% Change
Baseline Projection	172,000	11%	£42.94bn	70%	£21,394	53%
HS2 Led Projection	205,000	14%	£45.46bn	75%	£21,664	53.6%
Strategy Led Projection	246,000	16%	£46.93bn	77%	£21,068	52.2%
Maximising Opportunities Projection	262,000	17%	£48.34bn	79%	£21,285	52.7%

Source: (ekosgen, 2016b).

The ekosgen report makes clear that these are figures are highly contingent and…
"… illustrate the potential scale of change that ***could*** *occur within the study area through the improved performance of specific employment sectors – they are* ***not*** *forecasts of what* ***will*** *occur."* (emphasis in the original: section 3.13).

This caution is well placed. While the figures are based on a more robust analyses than some other estimates, they are subject to the same methodological problems and they include the controversial 'wider economic impacts'. As ekosgen suggest, these figures should therefore be interpreted as *indicative* only of *potential* growth. The 2.52bn of GVA uplift in even the most modest scenario is above the HS2 Ltd. estimations derived from the much criticised KPMG data.

These changes in labour demand will be structured according to the different phases of the HS2 project. So increases in construction and engineering employment will precede those generated by increased productivity as a result of time savings and wider economic benefits, which are only possible after the line is operational from 2033. Recent research for the EM HS2 Strategic Board (EM HS2 Strategic Board, 2016, p. 2) suggests that construction demand from HS2 will hit a peak of 30,000 jobs in 2020, fall back and then hit a lower peak in the mid 2020s associated with Phase 2, when there is most likelihood of these jobs being located in the EM region. That said, it is also anticipated that significant amounts of the labour supply for the construction of HS2 will migrate from Crossrail and then follow the construction of Phase 1 and 2 'up the line'. As such, it should not be assumed that construction demand for building the line and facilities, including the stations and the Staveley maintenance depot (200-250 jobs) will automatically be met from within the EM region.

The sectoral composition of projected demand increases from HS2 might lead to reconsideration of the priority sectors for the two LLEPs. In particular, professional and business services are projected to grow without HS2 and are a major area of growth from HS2. ***The employment and skills strategy related to HS2 for the EM region might therefore suggest a review of current Priority sectors, particularly with a view to adding Professional and Business services to the D2N2 Priority Sectors***.

5.2 Determinants of Employment and Skills Growth

According to the research evidence on HSR, these economic opportunities will not just be realised but will be dependent on a number of 'determinants'. For example, the employment gains in any particular place from the design and construction phases will be dependent on the extent to which contracts in the HS2 procurement process and supply-chain, support jobs in that place. In turn, that will depend on the preparedness of firms in the area to bid as tier 1 suppliers or to enter their supply-chain. Further, even where firms win these contracts the economic impact of this will be highly dependent on a range of quantitative and qualitative factors such as the ways in which contracts are structured; value for money dynamics and the management of the contracts. For example, the effect will be quite different if a heavy premium is placed on price relative to other considerations such as the extent to which suppliers and their supply chains train their workforce, try to increase the quality of jobs on offer or the diversity of the workforce engaged.

To date a range of contracts have already been awarded for enabling, design and construction works, totalling more than £1,350m and a further nearly £9,000m worth

of contracts are currently in procurement. The Phase 1 rolling stock contract (for a minimum of 54 trains) is currently in procurement (Expressions of Interest from potential suppliers are due in June 2017), with the contract planned for award in December 2019. Throughout the supply chain, HS2 Ltd have a commitment to procure contracts which increase Equality, Diversity and Inclusion and to deliver skills upgrading, principally through the employment of Apprenticeships in the supply chain (at least 2000 in the construction phase) (HS2 Ltd, 2016).

A range of both theoretical and empirical literature focussed on HSR in the UK, France, Spain, China and elsewhere argues that the main jobs and growth benefits accruing from enhanced connectivity after construction arise in large urban centres with economies capable of integrating with other connected areas of high demand (Jiao, Wang, Jin, & Dunford, 2014; Martínez Sánchez-Mateos & Givoni, 2012; Nash, 2015; Ortega et al., 2012). As a direct sectoral example, HSR might benefit the tourism sector dependent on whether there is a high quality tourism sector capable of attracting visitors *via* the new connection (Varela & Navarro, 2016). This research also suggests that HSR has a more specific impact on particular sectors, such as business and financial services (Chen & Vickerman, 2017). ***The direct implication of this for EM strategic development is that existing priority sector support needs to be maximised to give these sectors the best chance of benefiting from HS2 connectivity and coping with any enhanced competition.***

Some research suggests that smaller or intermediate cities not connected to the main network may actually lose out in terms of the distribution of growth, especially if other services are reduced as a result of HSR investment (Chen & Hall, 2013; Vickerman, Spiekermann, & Wegener, 1999) or that even connected places can lose out from a relocation of parts of firms from regional cities to the core (Tomaney & Marques, 2013). Some of this research suggests that hub and spoke designs particularly benefit city locations at hubs (such as London and Birmingham in the current HS2 route plan) relative to spoke locations such as the East Midlands stations, Manchester and Leeds. A series of authors (Chen & Hall, 2013; Chen & Vickerman, 2017; Vickerman, 2017) argue that integration with other rail and transport modes and land use planning is central to spreading gains from HSR connectivity to areas outside the immediate vicinity of the inevitably limited number of HSR stations. ***Given that the HS2 stations in the East Midlands are outside of the main conurbations this will be doubly central to ensuring that Derby, Nottingham and Leicester benefit from enhanced connectivity.***

Much of the assumed economic benefit arising from greater connectivity is based on theoretical assumptions derived from the 'new economic geography'. It is therefore worth noting that in this theoretical literature, these assumptions are underpinned by cost-connectivity assumptions; i.e. that improved transport connectivity will reduce the costs of trade and interaction (Cheng, Loo, & Vickerman, 2015) with related effects on market size, economies of scale and specialisation (Krugman, 2011). More specifically, the micro-foundations of assumptions about the wider economic benefits arising from transport connectivity relate to whether it facilitates more efficient labour market matching (through commuter travel), increased learning between firms and sectors (through business travel) and/or increased trade and specialisation (through travel for the provision or consumption of goods and services) (Graham & Melo, 2010). Costs arise from both lost time in transport and also the price of travel. ***As such, assumed***

jobs and growth benefits arising from the improved connectivity that HSR might bring to a regional and sub-regional economy are to some extent determined not just by activities in the region and sub-region but on the pricing strategy around tickets. This is especially the case given the controversy around economic benefits from travel time savings, the relatively minimal time savings on journeys from London in particular to each of the three main conurbations in the EM region, as well as the evidence of the distance-decay ratio of wider economic benefits and their sensitivity to time savings (Graham & Melo, 2010; Hall, 2013). Regardless of the effects of these considerations on the estimates of the scale of economic benefits arising from HS2, the lessons in terms of determinants remain the same; ***given that HS2 stations will not be in the major conurbations of the East Midlands, it is crucial that connecting services are as frequent, matched to HS2 services and as quick as possible to maintain whatever benefits do in fact arise***.

Further, evidence suggests that connectivity depends not just on quantitative factors such as cost and time savings but on inducing people to switch from classic rail and to undertake journeys they would not otherwise have taken (Givoni & Dobruszkes, 2013), albeit noting the frequent optimism bias in projections of increased demand induced by HSR (Booz & Co, 2012; Flyvbjerg, 2005). In these decisions the quality and comfort of the experience and whether it enables work to be done during travel, security considerations and the like (Harvey, Thorpe, Caygill, & Namdeo, 2014). ***It is likely that such qualitative considerations would extend to the transfer experience at Toton as well as to travelling on the trains themselves, especially as a result of this being necessary to reach Derby, Nottingham and Leicester.***

5.3 Regional Capture of employment and skills effects

The studies identified as regional impact and diversity impact (see Section 3) were selected for further review. The literature suggests that employment benefits are more likely to be felt in those urban centres that have direct links to high speed rail. However, the experience in Japan for example has demonstrated that second tier cities can benefit but it depends upon a range of local factors including strong public planning and intra-regional connectivity; "Amongst second-tier cities, the observed economic impacts can differ significantly depending on their territorial framework, their positioning on the HSR network, their distance from first-tier cities on the network, their pre-existing assets, station location, land market conditions, and robustness of the local economy prior to the arrival of the HSR. This is why some second-tier station cities, such as Lille, have witnessed significant economic impacts, while others, such as Ebbsfleet, have not" (Loukaitou-Sideris et al, 2011).

There are a number of interventions that can distribute employment benefits within regions surrounding second-tier cities that have proven effective over a longer-term planning scale. Improving intra-regional connectivity is key. This has been the case in the North West region following the improvement of the West Coast Main Line where some sub-regions of the Manchester – Liverpool area saw high speed rail as an accelerant to growth – in particular those that were well connected and already had growing economic infrastructure (Chen and Hall, 2011). ***Again this suggests that much of the effects of HS2 connectivity for the EM region will depend on the quality of inter-connections between HS2 and other transport modes.***

Intra-regional connectivity impacts upon certain elements of the labour market more than others. Young people in rural areas have a strong reliance on public transport to access learning and work opportunities and transport connectivity, or lack of it, has a causal effect in maintaining a low skills equilibrium in some rural areas (Owen et al 2012). In urban areas too there is a causal link between areas with high unemployment rates and accessibility to public transport systems and this has a disproportionate effect on certain sectors of the community (in the case of Tyndall's (2015) research this was the Hispanic community in New York City) as well as those without access to a private vehicle. Potential inequalities in both the spatial and community effects of employment growth arising from HS2 could be ameliorated through effective public planning of transport infrastructure within the East Midlands region. ***Public transport to HS2 construction locations, strategic sites and then connections once the line is operational will be crucial to ensuring inclusivity in access to HS2 related job growth.***

In addition to structural planning, tools to support active labour market strategies that are relevant to HS2 in the East Midlands have been the subject of academic investigation. Active procurement strategies to capture production or employment gains are familiar to the construction industry. In the case of the London Olympics Minnaert (2012) recounts how the consortium was very forthright in its commitment to regeneration and long lasting transformation of the area. Consequently great political pressure was placed on the achievement of inclusivity and diversity in the workforce as exemplified by the introduction of the 2012 Equality and Diversity Forum. In practice this was not straightforward as different interpretation of 'local', 'diverse' and inclusive' were adopted by suppliers but nevertheless there were significant changes in the composition of the construction workforce in particular with more women employed than otherwise would have been the case (Wright, 2015). A strong and sustained commitment to the redistribution of opportunity was fundamental to effecting positive outcomes. These findings were echoed in a local study of the impact of the procurement approach taken in the construction of the Nottingham Tram (Nottingham Business School, 2016). This included a requirement for contractors to assist in education and training of local people for the building of NET Phase Two and in particular to focus on local unemployed young people. The evaluation concludes that the employment, skills and supply chain impacts associated with the project were invaluable for Nottingham and the procurement approach adopted for the Concession was a significant factor in achieving this outcome. ***This suggests that the ways that the procurement process around HS2 and related strategic sites (i.e. not just HS2 procurement but procurement that might be more influenced by local and regional stakeholders) prioritise regeneration and labour market inclusivity will determine the extent to which they have a positive benefit in the region.***

Active labour market strategies encompass addressing the supply of young people into the labour market. A further literature search was undertaken to explore research on ways to encourage young people to make career decisions that would lead them towards acquiring the skills needed in HS2 jobs; namely construction and engineering. Searches focussing on terms associated with young people, career choice, engineering and other STEM choices and policy were undertaken as indicated in Section 3. These were scrutinised for relevance to the study and a short list of 28 papers was selected. These covered a range of themes including school provision of career learning, career theory to explain how young people make choices, outreach work and its impact, the link between STEM qualifications and earnings and career resources. In addition to these

peer reviewed academic outputs there are a wide range of reports and other research published by various organisations representing the sectors such as CITB, Institute for Physics, Royal Academy for Engineering, the CBI as well as LEPs and government departments.

Most research in this area focusses on the supply side, namely how to inspire, inform and encourage young people to either continue to study subjects necessary for engineering (such as maths and physics) or to decide to go along learning pathways that will lead to such jobs. Factors determining career choice are explored such as academic aptitude and capability in particular subjects (Moakler and Kim, 2014), science literacy and family background (Archer et al 2016), teacher recommendation (Faitar and Faitar, 2013) parents and other formal and informal educators (Nugent et al 2015) as well as the prevailing effect of culturally defined stereotypes which one researcher described as "acting as an invisible hand that nudges [students] away from STEM" (Sekaquaptewa, 2011).

There is considerable focus on challenging stereotypical choices to encourage a more diverse and equal workforce. Such efforts follow a number of different models including embedding learning about jobs and careers within the curriculum through pedagogic approaches to enhancing science literacy (King et al, 2015), using real-world applications in classes (Taskinen et al 2013) or authentic professional-led fieldwork studies (Hiller and Kitsantas, 2014). An alternative model is through extra-curricular activities delivered in out-of-school environment which build on alternative interests such as technology or gaming (Xie and Reider, 2014; Bass et al (2016), mentoring (Finkel 2017) or engagement with their business community (Hutchinson and Dickinson, 2014). A third model is to deliver career education and guidance as a specific element of the curriculum with professional careers leadership in schools (Andrews and Hooley 2017) and clearly articulated learning outcomes (Hooley et al 2012). ***The implication of this literature for the EM employment and skills work on HS2 is that the strategy will need to focus on how to encourage more diverse career choices and to shape career guidance in the region in relation to the changing nature of the labour market, including the types of career opportunity available through HS2 and related investments.***

The role of different stakeholders in effecting change is also explored in the literature, notably the role of career guidance professionals, teachers, employers and their representative organisations.

There is no shortage of stakeholders and organisations involved in supporting young people to engage with STEM employment and conversely, supporting STEM employers to connect with young people. The figure below is reproduced from a Royal Academy of Engineering report (2016) report which mapped over 600 organisations involved in enrichment and enhancement of the STEM curriculum. This enrichment activity plays an important role in providing careers awareness and inspiration to enable young people to see the opportunities afforded by careers in engineering/STEM. The majority of provision is targeted at 11–14 year olds but a lack of consistent evaluation means that it is difficult to state the impact this activity has on their decision making.

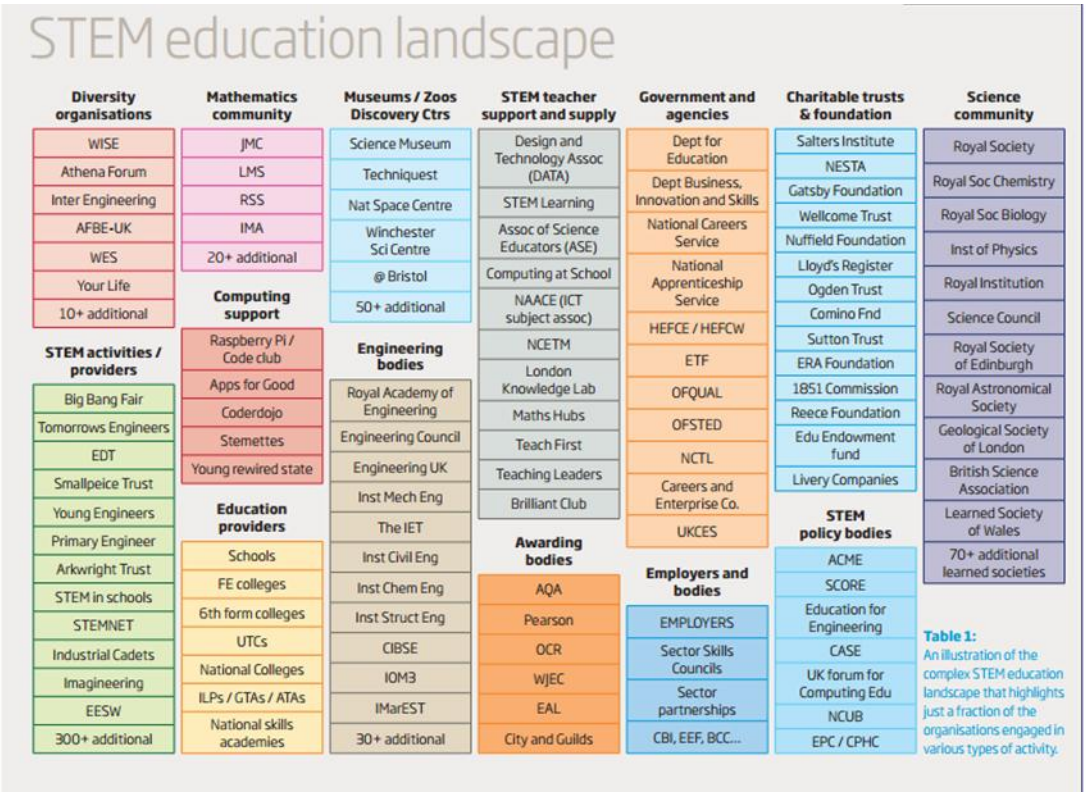

Table 1: An illustration of the complex STEM education landscape that highlights just a fraction of the organisations engaged in various types of activity.

Within the region, work has been undertaken by D2N2 to explore how to support young people to develop the skills and aptitudes that employers within priority sectors want. Their development of the employability framework is informing the practice of careers companies and also their engagement strategy for allocation of programmes of ESF funding. The implication of this evidence is that greater clarity may be needed around the provision of employability support in the formal curriculum, rather than just adding more complexity to the system. ***As such, the HS2 employment and skills strategy might recommend a review of provision to ensure evenness throughout the region and to reduce complexity, as well as incorporating HS2 opportunities in the current 'offer'.*** Further, research by the Education and Employers Taskforce (2012) suggests that the number of contacts between employers and young people during school years is central to them avoiding becoming NEET. It suggests that the evidence shows that a minimum of four contacts is desirable to avoid this. ***The EM strategy might therefore recommend that careers support for HS2 is structured around this minimum expectation.***

5.4 Making the most out of strategic sites

HS2 creates the potential for two major strategic investment sites in the EM region; the stations at Toton and Chesterfield. Current plans for both sites are at an early stage of development. Discussions around Toton suggest the potential for developing science and innovation capacity located at the site, with proposals for this to be based around flexible short-term accommodation, collaborative and meeting space and emergency medical development (ekosgen, 2016a). Several Universities in the region are also currently considering the potential for collaboration with business at the site in relation to teaching, research and innovation in a 'science park' style development.

The academic literature on science parks has grown substantially over recent decades but offers very mixed results in relation to their effects on innovation, growth and job creation, partly because of the theoretical and methodological difficulties of assessing this (Hobbs, Link, & Scott, 2016). In summarising this evidence, we drew in particular on the recent annotated literature review produced by Hobbs et al. (2016) and which reviewed more than 80 empirical, theoretical and case study research studies on science parks between the late 1980s and 2016. This literature suggests mixed evidence from matched pairs of firms located on and off science parks in terms of growth, with some finding positive effects (Siegel, Westhead, & Wright, 2003; Westhead & Batstone, 1999) while others find no effects (Ferguson & Olofsson, 2004; Lamperti, Mavilia, & Castellini, 2017; Liberati, Marinucci, & Tanzi, 2016). Even where there is no impact on growth, there may be a positive impact on innovation and spill-over (Vásquez-Urriago, Barge-Gil, & Modrego Rico, 2016), better links with universities (Fukugawa, 2006; Malairaja & Zawdie, 2008) or that Universities themselves benefit in terms of publications, patents, income and ability to attract high performing staff (Link & Scott, 2003). The effects of science parks on firm performance may also be linked to self-selection in that firm decisions to locate on science parks might be expected to be based on their propensity to gain or not from this interaction (Lindelöf & Löfsten, 2004). This literature also shows though, that the design and implementation of science parks matter in terms of realising positive benefits on productivity, growth and innovation. This suggests that a number of factors are significant such as: proximity of university and business (Lindelöf & Löfsten, 2004); quality of university research prior to engagement (Link & Scott, 2005); that the length and depth of interaction between firms and universities matter (Isabel Díez-Vial & Marta Fernández-Olmos, 2015); the degree to which university-business collaboration is linked to embedded firm competitiveness (Motohashi, 2013); and the management of science parks is significant (Albahari, Catalano, & Landoni, 2013; Fukugawa, 2013). This literature also suggests that public subsidies might be central to attracting firms to science parks (Guo & Verdini, 2015).

This literature then suggests that growth will be maximised if any activity at Toton is linked effectively through inter-modal connectivity to business and Universities in the region and that this is effectively managed to support, strengthen and expand existing strengths in the economy and research capacity. If maximised in this way, both sites might provide growth opportunities for both universities and business. ***In this sense – the development of science and research opportunities at Toton should be conceptualised within the framework of the existing priority sectors and research strategies of the region's Universities. It is also likely that significant public funding would be required to attract business to the sites.***

5.5 Working with Millennials

The rationale for this section is that HS2 will inevitably involve engaging the next generation in the workforce with new types of skills and career patterns. It is a commonplace assertion that not only will automation and competition reshape the demands of the labour market, but labour market supply is changing because of the different values, aspirations, skills and behaviours of 'Millennials': or those born between the early 1980s and the early 2000s (Myers & Sadaghiani, 2010; Thompson & Gregory, 2012) If these widely discussed assumptions were true then we might expect that younger generations now entering the workforce and making decisions regarding their education and training might behave differently to established patterns. If that were so then engaging them with an interest in new careers and skills development

would mean doing things differently to the ways they have been done in the past. The discussion in this section is based on papers derived from a rapid literature search and in the main on several significant literature reviews.

Common perceptions suggest that Millennials may be problematic in terms of workplaces because they are assumed to be self-centred, impatient and disloyal (Myers & Sadaghiani, 2010), thereby recruiting them, especially to roles lacking – in their eyes – in prestige and status, or requiring long-term sustained commitment, may be difficult. A recent special section of the Harvard Business Review includes an engaging fictitious account of how such characteristics might disrupt the workplace and cause conflict within teams (Erickson, 2009). First, a recent review of the literature on millennials (Deal, Altman, & Rogelberg, 2010) questions the extent to which widely asserted traits are indeed generational characteristics at all, and if they are present, whether they are at least as much age-related as cohort-related; that is that younger people are always different in their values, aspirations and behaviours to older people, but that they change over time. This may be problematic in the sense that it affects the behaviour of older, and often more senior, colleagues and managers who might start to anticipate particular behaviours and values among younger recruits, as well as the substantive difficulties of negotiating real differences (Myers & Sadaghiani, 2010).

Where there is relevant evidence in relation to the differences between millennials and older workers this appears to relate to increased individualism, confidence and demands for work life balance and prioritisation of goals other than career building (Carless & Wintle, 2007; Twenge, 2010), though this may be as much related to contextual factors (such as the economic conditions since 2008) and life-stage than cohort change (Myers & Sadaghiani, 2010). They also appear to have more informal communication styles and a greater willingness to utilise new technology, especially social media, more confident (Deal et al., 2010; Myers & Sadaghiani, 2010). An interesting product of increased individuality, self-confidence and lower career motivation is that millennials appear to be more willing to use time in their early working lives to maximise leisure time or to altruistically 'make a difference' through volunteering and similar activities (Deal et al., 2010), though there is mixed evidence on whether they are any more altruistic in their general orientation (Twenge, 2010) Some research suggests that individual manager relationships are central to mitigating potential problems and leveraging the considerable talents of this generation, placing greater emphasis on the importance of coaching, mentoring and individualised management styles (Hershatter & Epstein, 2010; Thompson & Gregory, 2012; Twenge, 2010). ***In terms of career engagement, it might be that more attention to individualised careers guidance as opposed to cohort guidance is more effective with this generation.***

5.6 Gaps in the Evidence base

The projections of employment growth referenced above are useful in as much as they indicate roughly what sectors HS2 might impact and the substantial scale of employment growth in some sectors. However, they do not link to detailed analyses of existing workforce demographics by sector, they do not provide timeframes by which different sectors will grow and they do not identify the changing skills needs within sectors and occupations. To some extent, this is inevitable; forecasting the nature of skills change over time is difficult because of the unpredictable nature of change in product markets, organisation and technology. Moreover, the analysis which underpins the projections does not account for very significant future changes that remain

unpredictable in terms of their overall or detailed impact on the two LEP areas, such as Brexit; automation; the nature of casualization; and wider changing trade patterns. ***As such, part of the process of developing and delivering the Employment and Skills Strategy for HS2 in the East Midlands will need to focus on ongoing research and evidence gathering about the changing nature of skills needs within sectors and occupations, as well as dynamic updating of employment forecasts between sectors and occupations.***

6 Fieldwork data

6.1 Summary of the Data

The discussion in this section is based on data derived from three sources:

- An electronic survey;
- Focus Groups; and
- 1-2-1 and small group interviews.

The electronic survey was targeted at employers, schools and other skills providers in the EM region undertaken between week commencing March 27th and 9th May 2017. The survey was distributed through the contact networks of the EM Chambers of Commerce and also through the University of Derby database of skills providers in the EM region. The survey comprised of 30 questions with some of these being tailored to different types of organisational respondent. The full questionnaire is available in Appendix One: Survey Questionnaire. There were 149 responses overall to the survey, with 85 of these being employers (see Table 8). More respondents were from the D2N2 area than from Leicester and Leicestershire (see Table 9).

Table 8: Types of respondent to the survey

Answer	Count	Percentage
Primary school (SQ001)	0	0%
Secondary school (SQ002)	1	1%
Further Education College/Provider (SQ003)	5	3%
Higher Education Institution (University) (SQ004)	1	1%
Employer (SQ005)	85	57%
Employment Service provider (Jobcentre Plus, Work Programme Provider, specialist charity etc). (SQ006)	4	3%
Careers advice and guidance provider (SQ007)	2	1%
Local Authority (SQ008)	3	2%
Local Enterprise Partnership (SQ009)	0	0.00%

Question: "Please tell us about the type of organisation that you work for". Base: 101.

Table 9: Location of Organisational Respondents

Answer	Count	Percentage
Leicester (SQ001)	13	9%
Leicestershire (SQ002)	9	6.%
Nottingham (SQ003)	17	11%
Nottinghamshire (SQ004)	21	14%
Derby (SQ005)	24	16%
Derbyshire (SQ006)	42	28%

Question: "Are you based in...". Base: 126.

Overall twelve focus groups were undertaken with these being made up of different EM Chambers of Commerce sectoral, occupational and functional groups:

- Strategy and Influence groups in Leicester/Leicestershire, Derby/Derbyshire and Nottingham/Nottinghamshire.

- HR managers in Derby/Derbyshire, Leicester/Leicstershire and Nottingham/Nottinghamshire.
- Manufacturing and Engineering sector;
- Construction sector;
- Rail sector;
- Tourism and Leisure sector;
- Sustainable business sector;
- Schools forum.

In addition to this, twenty seven one to one and small group interviews were undertaken, mainly with skills providers and local authorities in the region. The composition of the interview respondents is detailed in **Error! Reference source not found.**.

Both the focus groups and interviews were undertaken using a semi-structured design; the topic guide for these is in Appendix Two: Focus Group and Interview Topic Guides.

The discussion below summarises the data from each of these three sources, under a series of thematic headings designed to illustrate the awareness, readiness and requirements of organisations in the EM region to take advantage of economic opportunities arising from HS2. This is then intended to underpin a series of recommendations for how this data might influence the development of a strategy for employment and skills related to HS2 opportunities.

6.2 Awareness of HS2

6.2.1 Rationale

The data collection focussed initially on respondents' awareness of HS2 generally and different aspects of the plans for HS2 and its impact on the EM region. This is significant because of the contingent nature of the potential economic benefits for the EM region. If organisations in the public and private sectors are not sufficiently aware of the different elements of HS2 they are unlikely to be well placed to take action appropriate to taking advantage of these opportunities, making those economic benefits less likely to materialise.

6.2.2 General Awareness

Table 10 shows survey respondents' views of their organisation's general awareness of HS2. It suggests a high level of general awareness with 62% saying that their organisation is either somewhat or very aware. However, that is set against 36% of respondents to the survey not answering this question. Among businesses there was a greater level of overall awareness than among the other categories of respondent, though this may be somewhat self-selecting in that public sector respondents may have been more likely to respond to the survey whether or not they have knowledge of HS2, whereas private sector responses may be more conditional on already having awareness or interest in the topic.

In the focus groups and interviews there was very mixed awareness of HS2, beyond the mere recognition of the name and that there had been debate about an HSR link from London to the Midlands and North of England. Where respondents were involved from a professional point of view – for example they worked in economic development roles

(especially with spatial remit linked to Toton/Staveley/Chesterfield) or had been involved in HS2 sponsored events or direct communication, they were unsurprisingly more aware. However, this group was in the minority. In some cases, respondents were much more aware of the controversy surrounding HS2 in terms of environmental impacts, disruption to residences or debates about economic impacts than they were about specific features of the plans as they affect the EM region.

Table 10: General awareness of HS2

Answer	All Respondents Count	All Respondents Percentage	Business Employers Count	Business Employers Percentage
Very aware (A1)	59	40%	50	59%
Somewhat aware (A2)	34	23%	27	32%
Unaware (A3)	2	1%	2	2%
Very unaware (A4)	2	1%	1	1%
Not sure (A5)	0	0.00%	0	0%
No answer/not completed	52	36%	5	6

Question: "How aware would you say your organisation is of the following...[The plans for a High Speed Rail link between London, the Midlands and North of England (HS2)]". Base: 149.

6.2.3 Detailed awareness of HS2 in the EM

The survey asked respondents about different aspects of the HS2 proposals, including plans for the station at Toton, the impact on journey times, the maintenance depot in Staveley, and the connection to Chesterfield. The survey data (see Table 11) shows awareness of these different aspects of HS2. Cross-referencing the data by organisation type continued to show a higher level of awareness among business employers than other types of organisational respondent. It also shows greater awareness of journey times and the Toton Hub Station than other aspects of the plan for the EM region. This is to be expected and is consistent with the findings reported above. It is noted that journey speed has dominated the arguments made in support of HS2 plans, with this only latterly switching to capacity based considerations in the public debate nationally (Durrant, 2015; Hall, 2013; Tomaney & Marques, 2013) and the location of the hub station for the EM region was also a matter of more regional publicity. By contrast the main link to Chesterfield is a more recent announcement, and it is arguable that the location of maintenance depots is always likely to have less widespread interest. In the focus group and interview discussions this more detailed awareness was also more mixed; with the majority of respondents being more clear about Toton than other aspects of the route and specifics of HS2 in the region. For some, the prior controversies about HS2, the length of time that it took for formal governmental approval and continued political uncertainties had clearly served to confound their awareness. Some respondents continued to question whether an HS2 link to the EM would actually materialise.

Table 11: Awareness of different aspects of HS2 in the EM region

Awareness of different aspects of HS2 in the EM Region	Very/Somewhat Aware All Responses	Very/Somewhat Aware Business Responses
Journey Times	49%	69%
Toton Hub Station	54%	79%

Staveley Depot	30%	44%
Chesterfield Station	24%	39%

Question: "How aware would you say your organisation is of the following… [HS2 Journey times between the East Midlands and other parts of the country]; [The plans for a 'hub' station at Toton]; [The plans for an Infrastructure Maintenance Depot at Staveley]; [The plans for station improvements at Chesterfield]". Base: 97; 95; 93; 94.

6.2.4 Awareness of Potential Economic Opportunities Arising from HS2

Research participants were also asked about their organisation's awareness of potential economic opportunities that might arise from HS2, as discussed above in Section 4. The survey responses (see Table 12) showed lower levels of awareness of the different types of economic opportunity that might arise from HS2 than the overall awareness of HS2. In general, somewhere between 30 and 40% of respondents were aware of the numbers or types of jobs different types of skills that might be required to implement the construction and rolling stock requirements of HS2 or the enhanced demand that might be generated by better connectivity between the EM and other parts of the country.

Focus group and interview discussions revealed similar patterns. Generally there was awareness among some that there may be some economic opportunities arising from HS2 but not much evidence of widespread strategic thinking on this issue. A small number of respondents across the focus groups were already involved in some way in the procurement process, either in active projects in the supply chain to tier one suppliers or had been part of recently submitted proposals. These respondents were all associated with different aspects of the construction sector and were unsurprisingly more attuned to the specific opportunities available to their organisations but, even then, this did not extend far beyond the requirements of these particular contracts. Even in sectors where there might be expected to be a higher degree of awareness (e.g. rail businesses) there was mixed awareness of the opportunities that might be available. When prompted most respondents could anticipate in more detail the nature of the scale of demand in construction and engineering and acknowledged the potential for skills shortages, but this was not detailed or based on evidence, as opposed to a more general 'thinking through' the issues.

A major barrier to awareness of these more detailed aspects of the economic opportunities, whether direct or indirect, was a lack of awareness of HS2 procurement opportunities, the future work programme and bidding processes. This was particularly relevant to detailed skills needs. Many respondents – both employers and skills providers – commented that they would not be able to respond to the likely opportunities arising from HS2 without greater detail. Employers linked this to anticipation of direct contractual requirements in the procurement/tiered supply chain for HS2 related work. They suggested that without being directly involved in these discussions – as part of proposals – they could not be specific about either the volume of jobs or the types of skills they would require. Similarly, skills providers commented that they could not anticipate changing skills requirements without employers – armed with this information – translating that into direct information about their recruitment requirements. Overall, while awareness here was mixed, the general story that emerged from these discussions is the need to diffuse information about HS2 (and other drivers of likely future growth and dynamism in skills needs) to a wider range of public, private and third sector organisations in the region. ***Without wider and deeper awareness of***

the likely demand requirements arising from HS2, it is difficult for any of these different types of organisation to respond in ways that will maximise the potential.

Several features of this discussion were comment-worthy. On more than one occasion, respondents repeated an anecdotal account of HS2 requirements being focussed on 'technology not yet invented' to underline their uncertainty about the nature of the skills requirement. Second, the fractured nature of the 'business' structure in relation to both the skills system and employers (especially in construction and engineering) contributed to a sense of risk aversion regarding training to meet future skills needs. Smaller employers were averse to risking investment in apprenticeships for instance, in areas of potential new business development without surety about future demand to match this. But even large skills providers also exhibited risk aversion regarding developing new courses and course content without being assured that students undertaking those courses would find employment. Skills providers also commented that it is individual learners that drive demand for their courses and as such, awareness of future careers and skills needs has to be raised among learners as well as employers and skills providers. This fractured system clearly generates a barrier to both awareness and incentives to act on that awareness. ***Taken together this evidence suggests that more might be done to bring employers and skills providers – and other policy and service delivery stakeholders – together in order to engage in more integrated policy planning. This is a general finding which is illuminated but not limited to HS2 related discussions and might focus on priority sectors in the first instance.***

Table 12: Awareness of different aspects of economic opportunity arising from HS2

Different Economic Opportunities	Very/Somewhat Aware
Nos of Jobs in Construction of HS2	34%
Different skills in Construction	39%
Nos of Jobs in Rolling Stock	30%
Different skills in Rolling Stock	30%
Nos of Jobs from enhanced connectivity	35%
Different skills from enhanced connectivity	34%

Question: "How aware would you say your organisation is of the following… [The numbers of jobs that might be generated by construction of the HS2 line and other infrastructure in the East Midlands]; [The different skills that might be needed to build the HS2 line]; [The numbers of jobs that might be generated by the construction of HS2 rolling stock]; [The different skills that might be generated by the construction of HS2 rolling stock]; [The numbers of jobs that might be created by better and faster connections to and from the East Midlands]; [The different skills that might be might be created by better and faster connections to and from the East Midlands]. Base: 95.

6.3 Organisational Plans and Activities related to HS2

6.3.1 Rationale

If awareness is to translate to activity, it must run through an organisational planning process, however informal that might be. In this section we report data on respondents' organisational levels of planning and strategic preparedness for taking advantage of HS2. This is used also to highlight gaps in the readiness of the region to make the most of the opportunities available.

6.3.2 General Planning in relation to HS2

Survey respondents were asked about whether high level board or senior management discussions had taken place inside their organisation in relation to HS2. This suggested that around a quarter of organisations have seen board and senior management level discussion of HS2 opportunities. In order to compare the extent to which HS2 was featuring in high level discussions inside organisations in the region, we compared this with those organisations who reported that they have a general plan in place to address other types of changes, aside from HS2. About a quarter of respondents reported that they did have such a plan in place, suggesting that HS2 is seen on comparable terms to other major changes in the region. Across all these questions the number and proportion of respondents who said their organisation had not discussed HS2 or have a broader plan for adjustment to regional changes was larger than those who had, and over a quarter of respondents did not answer these questions at all, suggesting that these things are not in place, or are not seen internally as of high priority at the moment.

Table 13: Proportion of survey respondents' organisations where high level discussions have focussed on HS2

Type of discussion	Detailed or some discussions had taken place
Board discussion	26%
Senior Leadership discussion	28%

Question: "Has your board (e.g. board of governors / governing council / board of directors) discussed the potential benefits and challenges arising from HS2?; Have your senior leadership/management team discussed the potential benefits and challenges arising from HS2? (please use the space provided to add any further detail you may wish to communicate). Base: 133.

6.3.3 Detailed Planning in Relation to HS2

Survey respondents were asked a range of more detailed questions to assess the extent to which HS2 had influenced their more detailed organisational development and business planning (see Table 14). Across most aspects of business planning HS2 had had some influence in around 1 in 10 organisations. In discussions about new business opportunities this rose to 2 in 10. Again though, a large proportion (around a third) of respondents to the survey did not answer at this level of detail. Additionally, 17% of respondents suggested that they had identified particular groups, communities or spatial areas that might be impacted by HS2.

Table 14: Respondents where HS2 had influenced business planning

Area of Business Planning	HS2 has influenced this to a significant or some extent
Staff Recruitment	10%
Capital Investment	11%
Training Investment	9%
Leadership Development	7%
Premises Development/relocation	9%
Mergers and Acquisition	3%
Supply Chain Development	7%
Product Strategy/Curriculum Offer	11%
Customer / Service User Strategy	11%
New Business Opportunities	20%
Partnership Developments	12%

Investor Relations	6%

Question: "To what extent has HS2 featured in your organisational planning in the following areas?" Base: 99.

The survey also prompted respondents in relation to human resources plans, strategies and processes that they might already have and asked them whether these had been influenced by HS2. Respondents' answers (see Table 15) suggested that few organisations have HR processes that have so far been influenced by HS2. This might be expected given that such plans and processes will be well embedded in many organisations, especially larger ones. However, perhaps more concerning is that very few organisations reported that they planned to develop such plans in the future where HS2 will influence them. ***Again, as the analysis above suggests, this indicates that more work needs to be done to diffuse information about the ways in which organisations in the region might respond to HS2 in order to make the most out of the potential opportunities and to respond to challenges, such as increased competition in key markets (including for staff)***. This was also despite the wider evidence about staff recruitment and retention problems in the region. This is noted in the wider evidence, was frequently discussed as a problem (and potential future problem) in the focus groups and interviews and our survey findings which suggested that two thirds of those that had tried to recruit new staff in the last 12 months had experienced difficulties recruiting enough staff and staff with the right skills and more than half of respondents who answered the question reported responding to competition was a challenge.

This aligns with data from the focus group discussions where employers frequently identified skills shortages and/or difficulty recruiting and retaining staff with the rights skills and experience. In the focus group discussions (and interview feedback from stakeholders working with business) this related to several more nuanced dynamics. Some recruitment and retention difficulties related to sector/occupational wage rates and the perspective that some occupations were seen as comparatively unattractive because of the intersection of status, terms and conditions and pay. These mainly related to manual roles in construction and engineering. In other discussions problems with recruitment and retention related to niche or high skilled professional roles where skills needs may be in rapid flux because of technological or organisational dynamism. On this, there was some concern among employers about the capacity of skills provision system to keep up with the pace of change, but also the ability of employers themselves (especially SMEs) to identify, anticipate and communicate their changing skill requirements and to train their own workforces. A third element of skills shortage/recruitment/retention discussions related to Brexit and the potential for the loss of access to labour from the EU would have a serious and detrimental effect on the ability of some businesses to sustain their business activity.

We also asked respondents to identify business challenges facing their organisation unprompted. The answers suggested that the most frequently identified challenge – by around half of the organisations who answered the question and with twice the regularity of any other factor – was staff retention and recruitment, with IT, finance, leadership and management being the most frequently mentioned specific challenges. Other prominent challenges included Brexit, with this being linked to concerns regarding access to staffing, market uncertainty and exchange rare volatility. Some organisations also reported staffing challenges in specific locations – i.e. that it was

locational factors associated with the East Midlands or sub-regions that presented the barrier to recruiting and retaining staff. Other prominent business challenges included increased competition and market volatility. Two respondents suggested that the negative impact of the HS2 route on their organisation was a challenge.

This data is a concern in relation to skills provision to support HS2. ***Planning is essential now to expand skills supply but also to make the best use of the existing and latent workforce in the region, including greater focus on equality and diversity in the workforce.***

Table 15: Has HS2 influenced HR strategies

	Workforce development Plan	A workforce development plan / training plan which specifies in advance the level and type of training your employees will need in the coming year?	Budget for training expenditure	Staff Job Description	Staff Have an Annual Performance Review	Have provided on-the-job or informal training and development over the last 12 months, which would be recognised by the beneficiaries as training	A process for monitoring the equality and diversity of your workforce	A plan to increase the diversity of your workforce
We have one & HS2 influenced it to a significant extent	2%	1%	1%	1%	1%	1%	1%	1%
We have one & HS2 influenced it to some extent	3%	3%	3%	3%	3%	3%	2%	2%
We have one but HS2 did not influence it much	7%	7%	8%	5%	5%	5%	5%	3%
We have one but HS2 did not influence it at all	23%	23%	26%	34%	34%	34%	30%	21%
We plan to develop one & HS2 will influence it	3%	1%	0%	0%	0%	0%	0%	0%

We plan to develop one but HS2 will not influence it	7%	4%	7%	5%	6%	5%	5%	6%
We don't have one or plan to develop one	7%	10%	5%	4%	4%	4%	8%	13%
Don't know	2%	2%	3%	2%	1%	1%	2%	3%
No answer or not completed	46%	48%	47%	45%	47%	47%	47%	50%

Question: “Please tell us about other workforce strategies and plans that you may have and the extent to which they have been or will be influenced by HS2…”. Base: 149.

6.4 Barriers and Support

6.4.1 Rationale

In order to identify where regional stakeholders might implement interventions to enable organisations to make the most of the potential opportunities from HS2, we asked respondents to suggest where they faced barriers, specifically in relation to employment and skills related to HS2. We also asked them to identify the sorts of support they might need in order to overcome these barriers.

6.4.2 Barriers to taking advantage of HS2 Opportunities

Table 16 shows survey respondents' views on what constitutes the main barriers to organisations in the region engaging with the employment and skills implications of HS2. The most prominent answer across the prompted options in the survey related to relevance of HS2 to their organisation, with this being stronger for business respondents than all respondents. Moreover, the high proportion of respondents who did not answer this question also suggests that perceived relevance is a key issue. Aside from that, and linked to it, a lack of information or a lack of clarity in information about what the employment and skills information related to HS2 direct, indirect and induced demand might be are also major barriers to engagement. To some extent these findings might be expected given the issues raised above about awareness and the timeframes involved. Most businesses operate with relatively short time-horizons and where they are not likely to be involved in the construction phase, the impacts of HS2 are not likely to be relevant for some considerable time. Similarly, while it may be easier in some ways for public sector organisations, skills providers to anticipate their links to the HS2 employment and skills agenda, many of these organisations are facing more immediate changes in their regulatory and funding structures. Indeed, some organisations identified frequent changes in the skills system itself as a general business challenge to their organisation and some skills providers were concerned about the proliferation of regional strategies and plans and were keen to streamline these so that they could more easily engage and deliver regional agendas.

A very small number of respondents identified specific additional barriers to making the most out of HS2 opportunities. These focussed on the HS2 procurement process. In particular, they related to the placing of contracts with large contractors who are then expected to be responsible for maintaining a supply chain, including SMEs. This was identified as a barrier to smaller organisations – especially micro-businesses with less than ten people – accessing opportunities.

This finding very much tallied with the focus group responses where private sector representatives were very concerned about accessing the supply chain for new business. Specific concerns related not only to this procurement mechanism and the difficulty that gave SMEs in engaging with a prime supplier, but they also worried that this meant that they were unable to access information about how to engage, what the specific requirements might be (in this case of tier one providers) and therefore in being included in proposals. Smaller businesses worried not only that they did not have adequate networks with these larger firms but also that there was no mechanism for larger organisations to be held to account for actually placing the work with their proposed supply chain if they won the contract. They therefore feared that the work that they might put – and in some cases had put – into developing innovative proposals

for packages of work within tier one suppliers' broader proposals might be used as 'bid candy' with no real intention of ever fulfilling such orders. As such, SMEs were concerned that work they put into compliance and bidding for HS2 contracts through these mechanisms might be wasted, or used to support the business of competitors. Others worried about the costs associated with compliance in the supply chain – such as the upfront commitment to apprenticeships – without any guarantee that work corresponding to that time/investment commitment would materialise. Some businesses with an interest in rail or rail-related demand (e.g. construction), and who therefore might otherwise be expected to be most likely to benefit from HS2, suggested that they had made a decision not to engage with HS2 precisely for these reasons.

Other barriers identified in focus group discussions related to labour market regulation and changing recruitment and business practices. Some respondents – for instance in HR and recruitment – were concerned that recent moves in the direction of greater flexibilisation in HR practices and the prevalence of sub-contracting meant that employers had decreasing incentives to train their workforce and that this appeared as a cost-competition pressure. As such, they were concerned about sub-optimal social outcomes in relation to the availability of skilled labour in the labour market beyond the individual firm. Similarly, they and others were concerned that these same pressures prevented, or reduced the quality of, links between employers and skills providers; a problem made worse by frequent changes in the organisation of the skills system and qualification structures. Dissatisfaction with changes to the apprenticeship system were specifically mentioned by several respondents in this regard.

In other discussions, the pace of technological change combined with political uncertainty (Brexit, election, immigration and trade rules etc., as well as related more directly to HS2) were barriers to business understanding the ways in which their core product and labour markets were changing, acting as a disincentive to long-term planning and investment. Others saw these developments as necessitating discussions around diversification or business change, but it was not clear what direction this would lead in.

Some more informed respondents suggested that a major barrier to jobs growth in the EM region in the design and construction phase is the plan to utilise workers and skills developed on Cross Rail and which might 'move up the line' with HS2 through Phases 1 and 2. There were therefore concerns that unless EM sub-contractors got involved in the first stages of construction, there would be little jobs growth in the EM. A further concern related to Leicester/Leicestershire where some respondents clearly felt disengaged with HS2 because of the distance from Toton. Generally therefore, awareness of HS2 was even lower in Leicester/Leicestershire and there were some concerns reported there about the maintenance of existing classic rail capacity.

This data suggests that EM employment and skills related work needs to start with engaging business and supporting EM employers to access the HS2 procurement process and supply chain. It also suggests that where possible EM stakeholders should use local and regional procurement associated with HS2 (e.g. around strategic sites) to support inclusive growth and SME involvement.

6.4.3 Support Required

6.4.3.1 Survey responses

Survey respondents were asked to suggest areas in which they would benefit from support from an HS2 strategy for employment and skills for the region. Answers to this question were sparse – only 22 of the 149 survey respondents gave any answer at all. ***Again, this continues to support the main headline finding from this research – that employers across all sectors are not yet prepared for HS2 or view it as having mixed relevance for their organisations. Those that did respond highlighted a number of areas in which they may benefit from support, presented below in order of prevalence:***

- ***Support with accessing the procurement / supply-chain process, or revisions to the procurement process and early access to information about contract opportunities to enable planning and partnership working.***
- ***Briefings and information on the economic, employment and skills dimensions of HS2 demand and greater diffusion of information about existing plans.***
- ***Public funding (and information on this) which might help organisations in both the public and private sectors build capacity to engage with HS2 relevant employment and skills challenges.***

6.4.3.2 Focus Group and Interview responses

Focus group and interview discussions supported the desirability of all these components of an employment and skills strategy. Several strong themes arose from these discussions:

Greater clarity of information on HS2 related employment and skills growth

In particular, a strong theme in both related to greater clarity about information on employment demand factors arising from HS2 – and that this arose not from economic projections so much as direct information on contract opportunities from HS2/tier one suppliers in advanced information and 'meet the buyer' sessions. Businesses – especially, but not only, small businesses – were keen that the information that they work with related to actual work streams that might related to them, as opposed to abstract projections of aggregate employment change. Similarly skills providers were concerned that investments they make in changes in curriculum or expansion of capacity relate to actual business demand for their students.

SME Support

A related need from an Employment and Skills strategy related to HS2 in the EM region which arose from Focus Group discussions in particular revolved around the determinants of economic development *in the region*, from HS2. Since this is to a significant extent dependent on the success of organisations in the region in winning work as part of the design/build/operate phases, there is a need a to go beyond just facilitating the flow of information and 'meet the buyer' events. Many smaller SMEs and micro-businesses have strong technical capacity in relation to their core business area but lack business development, networking and proposal writing/bidding skills.

In several focus group and interview discussions the subject of access to apprenticeships was raised. ***Where SMEs were concerned about the costs of apprenticeships, there was some discussion about the possibility of shared apprenticeship schemes, with brokers such as the East Midlands Rail Forum, Derby City Council or larger firms being able to facilitate this through their supply-chains***. Several respondents were interested in this as a potential method of satisfying

procurement criteria while overcoming risk aversion regarding apprenticeship and similar investments.

Similarly, some other ***SMEs were interested in interventions to facilitate SME collaboration and networking such that they were able to join together within tier one supply chains. This is clearly linked to the development of bidding/business development skills and meet the buyer/procurement information provision***. In addition to this, SME respondents suggested that ***SME directories would be beneficial to them in seeking out partners for collaboration in large bidding exercises*** such as related to strategic infrastructure.

Planning of Skills Provision and Demand

Several skills provider and careers, advice and guidance representatives argued that the strategy needed to work with employer demands but also needed to shape learner aspirations not only regarding the level of skills acquisition – but about the types of skills and subjects chosen by learners. Colleges and other skills providers often respond to market demand from learners rather than employers and in this sense – a perception that (especially post-16) skills providers do not produce skills relevant to the labour market is sometimes more a reflection of learner demand than their lack of responsiveness to employer needs. ***A particular theme related to the need to shape learner demands related to increasing equality and diversity in sectoral and occupational workforces as a means of breaching skills and employment demands***.

This emphasis on ***shaping provision and learner demands around labour market demands was frequently discussed in ways that suggested that greater collaboration and planning around skills provision would be beneficial both within and between skills levels***. For example, several respondents argued in favour of greater coordination through skills levels through 'pathways' and 'escalators'. It was argued that greater clarity, transparency and stability in skills provision so that employers (with little time available to constantly re-learn the nature of the skills provision system). These pathways and escalators were discussed positively in that learners and employers would be able to understand where to go to get particular types and levels of skills and that they would enable learners to engage iteratively throughout their working life to reskill and upskill to respond to changing labour market needs. Skills providers themselves were keen to suggest that it is possible for them to respond rapidly to changing demands but that this was easier to do where they had confidence in information about employer demands and that this was coordinated with other suppliers who might otherwise be in competition. As an extension of this discussion several skills providers expressed the desire to know more and engage more with the National College for High Speed Rail so that they could better understand how to prepare graduates for entry to it. Similarly, HEIs reported that they saw potential for collaboration between them on the development of Degree and Higher Level Apprenticeships related to HS2, and that they were keen to do this in discussion around the Toton station site.

Engaging with Government, HS2 and Rail Planning

A range of other suggestions included encouraging HS2 and suppliers to engage with a range of regional structures and programmes. These included:

- Schools outreach, such as the Enterprise for Education programme in Derby; the STEM ambassador programme in Derbyshire; the 'Get me into Engineering' programme operated across D2N2; wider D2N2 careers fairs; and

DC programmes such as the Avenue Programme in NEDC or Made in Chesterfield.

- Engagement with Jobcentre Plus, Work Programme providers and sub-regional programmes such as NEDC/Bolsover/Chesterfield/Derbyshire Dales and Bassetlaw Ambition programme.
- Engagement with regional growth plans and strategies to improve the flow and quality of information about the levels and types of employment demand arising from HS2 investment. This might also provide an opportunity to ensure greater information flow about the potential for business in the region to benefit from procurement/supply-chain opportunities.
- Discussion with regional stakeholders to (re)shape HS2 procurement processes to include local labour clauses, ensure that current procurement conditions are effectively monitored when contracts are let to ensure that commitments regarding SME involvement in supply chains and apprenticeships are delivered.
- Lobbying with Government for financial support around strategic sites linked to HS2, especially Toton/Chesterfield, to facilitate University-University and University-industry collaboration at these sites.

In addition to this, several respondents suggested that regional stakeholders might also engage to ensure that rail service changes associated with HS2 benefit jobs and growth in the region. In particular this related to maintaining existing classic rail services to Leicester, Nottingham and Derby and to make the most of any released capacity in relation to freight transport.

Table 16: Barriers to making the most out of HS2 Employment and Skills Opportunities

	Insufficient time	Insufficient Info about HS2 Related Employment & Skills	Lack of Clarity about HS2 Related Employment & Skills	Insufficient finance	Internal Inertia / Resistance	Partner Inertia/ Resistance	Other Competing Demands	Oher
All Respondents								
A major barrier (A1)	0%	3%	4%	1%	0%	0%	1%	3%
A partial barrier (A2)	8%	10%	10%	5%	1%	1%	11%	1%
No barrier (A3)	18%	13%	13%	21%	26%	25%	13%	11%
HS2 isn't relevant to our organisation (A5)	17%	15%	15%	16%	15%	17%	15%	14%
Don't know (A4)	5%	7%	6%	5%	5%	4%	5%	3%
No answer / not completed	52%	51%	51%	52%	52%	54%	54%	68%
Business Respondents								
A major barrier (A1)	0%	5%	6%	1%	0%	0%	1%	4%
A partial barrier (A2)	12%	16%	16%	6%	1%	1%	16%	1%
No barrier (A3)	28%	19%	19%	33%	39%	36%	20%	15%
HS2 isn't relevant to our organisation (A5)	28%	26%	26%	27%	26%	28%	26%	24%
Don't know (A4)	7%	9%	8%	6%	7%	6%	6%	6%
No answer / not completed	25%	25%	25%	27%	27%	28%	30%	50%

Question: What barriers does your organisation face in responding to changing employment and skills requirements related to HS2? Base: 149.

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Appendix One: Survey Questionnaire

1 HS2 Skills and Employment Strategy Consultation

A survey of schools, FE colleges, universities, employers and other stakeholders in Derbyshire, Nottinghamshire and Leicestershire about the development of a Skills and Jobs Strategy to maximise the benefits from the development of High Speed rail.

HS2, the high speed rail link between the London, the Midlands and North of England will bring business growth and employment opportunities to the East Midlands. Local Economic Partnerships (LEPs) covering the geographies of Derbyshire, Nottinghamshire and Leicestershire are working together to maximise those opportunities for local communities.

These LEPs (D2N2 and LLEP) have commissioned us to support their work in formulating a skills and employment strategy, to get the most out of HS2. This work is being led by the East Midlands Chamber of Commerce with the support of the Rail Forum East Midlands and ourselves at the University of Derby.

We are inviting you to participate in a survey of schools, FE colleges, universities, employers and other stakeholders to see what can be done to ensure that people of all ages are aware of such opportunities and are able to benefit from them.

You have been asked to participate in this because your organisation may have a part to play in this process, and we want to know more about what you might need to help this happen.

Information about HS2 is also attached / can be found here.

The survey should take no more than 15 minutes. You are asked to provide your name and that of your organisation for monitoring purposes but neither you or your organisation will be named in any report we prepare.

This work is also involving a number of participative forums and discussion groups. If you would like to know more about HS2 and share your views on its skills and employment aspects then we would be pleased to share these details with you.

By completing the survey you are agreeing to let us use the data you provide to inform the development of the strategy. If you have any questions about this survey or would like to withdraw once you have completed it, please contact Jo Hutchinson (j.hutchinson@derby.ac.uk) or Alex Nunn (a.nunn@derby.ac.uk).

There are 30 questions in this survey

1.1 About you

1.1.1 []Please tell us your name. (this will not be revealed in the reports and outputs from this project)

Please write your answer here:

1.1.2 []Please tell us your email address.

Please write your answer here:

1.2 Your organisation

1.2.1 []Please tell us the name of your organisation (this will not be revealed in any outputs from the process).

Please write your answer here:

1.2.2 []Please tell us about the type of organisation that you work for.

Please select at most one answer

Please choose **all** that apply:

- ☐Primary school
- ☐Secondary school
- ☐Further Education College/Provider
- ☐Higher Education Institution (University)
- ☐Employer
- ☐Employment Service provider (Jobcentre Plus, Work Programme Provider, specialist charity etc).
- ☐Careers advice and guidance provider
- ☐Local Authority
- ☐Local Enterprise Partnership

1.2.3 []Please tell us what the primary activity of your organisation is (use the space to provide more detail if you wish)

Only answer this question if the following conditions are met:
Answer was 'Employer' at question '4 [Org Type]' (Please tell us about the type of organisation that you work for.)

Please select at most one answer

Please choose all that apply and provide a comment:

- ☐Agriculture
- ☐Mining and quarrying
- ☐Manufacturing rail
- ☐Manufacturing rail supply chain
- ☐Manufacturing other
- ☐Electricity, gas and water
- ☐Wholesale and retail
- ☐Hotels and restaurants
- ☐Trade, Accommodation and Transport
- ☐Financial services
- ☐Business services
- ☐Public administration

- ☐Education

- ☐Health and social work

- ☐Community, Social and Personal services

- ☐Other

1.2.4 []Please tell us about how many employees your organisation has

Please select at most one answer

Please choose **all** that apply:

- ☐Fewer than 10
- ☐11-20
- ☐21-50
- ☐51-250
- ☐251-1000
- ☐1000+
- ☐Don't know

1.2.5 []Is your organisation based only in the East Midlands, or is it part of a larger organisational structure with sites/establishments outside of the East Midlands?

Please select at most one answer

Please choose **all** that apply:

- ☐The only establishment/site in the organisation
- ☐One of a number of establishments/sites within a larger organisation, with other sites/establishments in the East Midlands
- ☐One of a number of establishments/sites within a larger organisation, with sites/establishments outside of the East Midlands
- ☐Don't know

1.2.6 []Roughly how many employees does your organisation have in the East Midlands?

Only answer this question if the following conditions are met:
Answer was 'One of a number of establishments/sites within a larger organisation, with other sites/establishments in the East Midlands' at question '7 [Main site]' (Is your organisation based only in the East Midlands, or is it part of a larger organisational structure with sites/establishments outside of the East Midlands?)

Please select at most one answer

Please choose **all** that apply:

- ☐fewer than 10
- ☐11-20
- ☐21-50
- ☐51-250
- ☐251-1000
- ☐1000+
- ☐Don't know

1.2.7 []Is your establishment/site the Head Quarters of your organisation?

Only answer this question if the following conditions are met:
Answer was 'One of a number of establishments/sites within a larger organisation, with sites/establishments outside of the East Midlands' ***or*** 'One of a number of establishments/sites within a larger organisation, with other sites/establishments in the East Midlands' at question '7 [Main site]' (Is your organisation based only in the East Midlands, or is it part of a larger organisational structure with sites/establishments outside of the East Midlands?)

Please select at most one answer

Please choose **all** that apply:

- ☐Yes
- ☐No
- ☐Don't know

1.2.8 []Are you based in...

Please choose **all** that apply:

- ☐Leicester
- ☐Leicestershire
- ☐Nottingham
- ☐Nottinghamshire
- ☐Derby
- ☐Derbyshire

1.3 Awareness

1.3.1 []How aware would you say your organisation is of the following...

Please choose the appropriate response for each item:

	Very aware	Somewhat aware	Unaware	Very unaware	Not sure
The plans for a High Speed Rail link between London, the Midlands and North of England (HS2)	○	○	○	○	○
HS2 Journey times between the East Midlands and other parts of the country	○	○	○	○	○
The plans for a 'hub' station at Toton	○	○	○	○	○
The plans for an Infrastructure Maintenance Depot at Staveley	○	○	○	○	○
The plans for station improvements at Chesterfield	○	○	○	○	○
The numbers of jobs that might be generated by construction of the HS2 line and other infrastructure in the East Midlands	○	○	○	○	○
The different skills that might be needed to build the HS2 line	○	○	○	○	○

	Very aware	Somewhat aware	Unaware	Very unaware	Not sure
The numbers of jobs that might be generated by the construction of HS2 rolling stock	○	○	○	○	○
The different skills that might be generated by the construction of HS2 rolling stock	○	○	○	○	○
The numbers of jobs that might be created by better and faster connections to and from the East Midlands	○	○	○	○	○
The different skills that might be might be created by better and faster connections to and from the East Midlands	○	○	○	○	○

1.3.2 []Has your board (e.g. board of governors / governing council / board of directors) discussed the potential benefits and challenges arising from HS2? (please use the space provided to add any further detail you may wish to communicate)

Please select at most one answer

Please choose all that apply and provide a comment:

- ☐Yes, detailed discussions have taken place

- ☐Yes, some discussions have taken place

- ☐No discussion has taken place

- ☐I don't know if any discussions have taken place

- Other:

1.3.3 []Have your senior leadership/management team discussed the potential benefits and challenges arising from HS2? (please use the space provided to add any further detail you may wish to communicate)

Please select at most one answer

Please choose all that apply and provide a comment:

- ☐Yes, detailed discussions have taken place

- ☐Yes, some discussions have taken place

- ☐No discussion has taken place

- ☐I don't know if any discussions have taken place

- Other:

1.4 Current plans, strategy and activity

1.4.1 []Does your organisation have plans to respond to changes in the region aside from HS2? (this might include business plans, recruitment or workforce development plans)

Please select at most one answer

Please choose **all** that apply:

- ☐We have a plan which we would be happy to share
- ☐We have a plan but we would not want to make this public
- ☐We do not have such a plan
- ☐I do not know
- ☐Other:

1.4.2 []Where can be find this plan? Please give a weblink or email address for how we might obtain it.

Only answer this question if the following conditions are met:
Answer was 'We have a plan which we would be happy to share' at question '14 [Plans1]' (Does your organisation have plans to respond to changes in the region aside from HS2? (this might include business plans, recruitment or workforce development plans))

Please write your answer here:

1.4.3 []To what extent has HS2 featured in your organisational planning in the following areas?

Please choose the appropriate response for each item:

	To a significant extent	To some extent	Not much	Not at all	Not relevant to my organisation	Don't know
Staff recruitment	○	○	○	○	○	○
Capital investment	○	○	○	○	○	○
Training investment	○	○	○	○	○	○
Leadership development	○	○	○	○	○	○

	To a significant extent	To some extent	Not much	Not at all	Not relevant to my organisation	Don't know
Premises development / relocation	○	○	○	○	○	○
Mergers and acquisitions	○	○	○	○	○	○
Supply chain development	○	○	○	○	○	○
Product strategy / Curriculum offer	○	○	○	○	○	○
Customer / service user strategy	○	○	○	○	○	○
New business oppportunities	○	○	○	○	○	○
Partnership developments	○	○	○	○	○	○
Investor relations	○	○	○	○	○	○

1.4.4 []If appropriate, please identify how we might learn more about these plans, by entering website or email adress for us to follow-up.

Please write your answer here:

1.4.5 []Are you working with any partners in relation to HS2 (please use the space below to identify who, if appropriate)?

Please select at most one answer

Please choose **all** that apply:

- ☐Yes
- ☐No
- ☐Further detail:

1.4.6 []Have you identified any particular types of individuals, groups, communities or spatial areas that might benefit from opportunities generated by HS2 and your own plans? (please use the space provided to add more detail, where appropriate)

Please select at most one answer

Please choose all that apply and provide a comment:

- ☐Yes, we have a well defined strategy to target particular groups or areas
- ☐Yes, but this needs more detailed development
- ☐Yes, but this is commercially sensitive/inappropriate to share
- ☐No
- ☐Don't know

1.4.7 []Please tell us about other workforce strategies and plans that you may have and the extent to which they have been or will be influenced by HS2.

Please choose the appropriate response for each item:

	We have one & HS2 influenced it to a significant extent	We have one & HS2 influenced it to some extent	We have one but HS2 did not influence it much	We have one but HS2 did not influence it at all	We plan to develop one & HS2 will influence it	We plan to develop one but HS2 will not influence it	We don't have one or plan to develop one	Don't know
A workforce development plan	○	○	○	○	○	○	○	○
A workforce development plan / training plan which	○	○	○	○	○	○	○	○

	We have one & HS2 influenced it to a significant extent	We have one & HS2 influenced it to some extent	We have one but HS2 did not influence it much	We have one but HS2 did not influence it at all	We plan to develop one & HS2 will influence it	We plan to develop one but HS2 will not influence it	We don't have one or plan to develop one	Don't know
specifies in advance the level and type of training your employees will need in the coming year?								
A budget for training expenditure	○	○	○	○	○	○	○	○
Staff have a job description	○	○	○	○	○	○	○	○
Staff have an annual performance review	○	○	○	○	○	○	○	○
Have provided on-the-job or informal training and development over the last 12 months, which would be recognised by the beneficiaries as training	○	○	○	○	○	○	○	○
A process for monitoring	○	○	○	○	○	○	○	○

	We have one & HS2 influenced it to a significant extent	We have one & HS2 influenced it to some extent	We have one but HS2 did not influence it much	We have one but HS2 did not influence it at all	We plan to develop one & HS2 will influence it	We plan to develop one but HS2 will not influence it	We don't have one or plan to develop one	Don't know
the equality and diversity of your workforce								
A plan to increase the diversity of your workforce	○	○	○	○	○	○	○	○

1.4.8 []In the last 12 months have you been able to...

Please choose the appropriate response for each item:

	Yes with no problems	Yes, but with some difficulty	No	Don't know
Recruit enough staff	○	○	○	○
Recruit staff with the right skills	○	○	○	○
Retain staff	○	○	○	○
Optimal use of the skills of your staff	○	○	○	○
Release some staff	○	○	○	○
Been able to respond effectively to competition	○	○	○	○

1.4.9 []What are the key challenges facing your organisation's ability to operate effectively?

Please write your answer here:

1.5 Barriers and needs

1.5.1 []What barriers does your organisation face in responding to changing employment and skills requirements related to HS2?

Please choose the appropriate response for each item:

	A major barrier	A partial barrier	No barrier	HS2 isn't relevant to our organisation	Don't know
Insufficient time	○	○	○	○	○
Insufficient information about HS2 and resulting employment and skills changes	○	○	○	○	○
Lack of clarity of information about HS2 and resulting employment and skills changes	○	○	○	○	○
Insufficient financial resources	○	○	○	○	○
Internal resistance or inertia	○	○	○	○	○
Partner resistance or inertia	○	○	○	○	○
Other competing demands	○	○	○	○	○
Other	○	○	○	○	○

1.5.2 []Please tell us more about this other barrier

Only answer this question if the following conditions are met:
Answer was 'A major barrier' ***or*** 'A partial barrier' at question '23 [Barriers]' (What

barriers does your organisation face in responding to changing employment and skills requirements related to HS2? (Other))

Please write your answer here:

1.5.3 []What support would your organisation need to better enable it to respond to the employment and skills opportunities generated by HS2?

Please write your answer here:

1.6 Organisation specific questions

1.6.1 []Does your school deliver any of the following?

Only answer this question if the following conditions are met:
Answer was at question '4 [Org Type]' (Please tell us about the type of organisation that you work for.)

Please choose the appropriate response for each item:

	Yes we do this	No we do not do this	We will do this, including a focus on HS2	Don't know
A career guidance strategy	○	○	○	○
All pupils have at least one encounter with an employer each year	○	○	○	○
All pupils receive information about post-16 progression to FE colleges / 6th forms and other learning providers	○	○	○	○
Personalised support for young people to help them make informed and aspirational choices	○	○	○	○
An individual plan for each pupil related to their next steps	○	○	○	○

	Yes we do this	No we do not do this	We will do this, including a focus on HS2	Don't know
Support to access to labour market information to help with subject and progression choices	○	○	○	○
A plan showing where transferable/employability skills are present in the curriculum and its delivery	○	○	○	○

1.6.2 []Does your organisation currently do any of the following?

Please choose the appropriate response for each item:

	Yes we do this regularly	Yes, we sometimes do this	No we don't do this	Don't know
Outreach work into schools	○	○	○	○
Outreach work into FE colleges	○	○	○	○
Outreach work into Universities	○	○	○	○
Offer visits to schools to your workplace(s)	○	○	○	○
Offer visits to FE colleges to your workplace(s)	○	○	○	○
Offer visits to Universities to your workplace(s)	○	○	○	○
Provide workplacements for FE college students	○	○	○	○
Provide workplacements	○	○	○	○

	Yes we do this regularly	Yes, we sometimes do this	No we don't do this	Don't know
for University students				
Register vacancies with Jobcentre Plus	○	○	○	○
Liaise with skills providers (schools, FE colleges, Universities, Jobcentre Plus or other employment services) about the changing skills requirements of your organisation	○	○	○	○
	○	○	○	○

1.6.3 []Does your organisation have any of the following in place?

Only answer this question if the following conditions are met:
Answer was 'Further Education College/Provider' ***or*** 'Higher Education Institution (University)' at question '4 [Org Type]' (Please tell us about the type of organisation that you work for.)

Please choose the appropriate response for each item:

	Yes we do this for all students	Yes we do this for for all students, and it will focus on HS2	Yes we do this for most students	Yes we do this for most students, and it will focus on HS2	Yes we do this for some students	Yes we do this for some students, and it will focus on HS2	We don't currently do this	Don't know
Provide your own students with careers information,	○	○	○	○	○	○	○	○

	Yes we do this for all students	Yes we do this for for all students, and it will focus on HS2	Yes we do this for most students	Yes we do this for most students, and it will focus on HS2	Yes we do this for some students	Yes we do this for some students, and it will focus on HS2	We don't currently do this	Don't know
advice and guidance								
Provide your own students with work placement opportunities	○	○	○	○	○	○	○	○
Provide transferable and employability skills within the curriculum and its delivery	○	○	○	○	○	○	○	○
Provide opportunities for employers to showcase vacancies or employment schemes	○	○	○	○	○	○	○	○
Liaise with employers about their changing skills and employment requirements	○	○	○	○	○	○	○	○

1.7 Next steps

1.7.1 []Please tell us if you would like to be involved in any of the future activities associated with the development and delivery of the employment and skills strategy related to HS2

Please choose the appropriate response for each item:

	Yes	No	Someone else from my organisation should be involved
Follow-up interviews and focus groups	○	○	○
Consultation events related to the draft strategy	○	○	○
Information and support provided as part of the delivery of the strategy	○	○	○
Future surveys or research related to evaluating the success of the strategy	○	○	○
Other information, events or activities related to HS2	○	○	○

1.7.2 []Please tell us who else at your organisation should be involved. Please provide a name and email address.

Only answer this question if the following conditions are met:
Answer was 'Someone else from my organisation should be involved' at question '29 [further participatio]' (Please tell us if you would like to be involved in any of the future activities associated with the development and delivery of the employment and skills strategy related to HS2 (Future surveys or research related to evaluating the success of the strategy))

Please select at most one answer

Please choose all that apply and provide a comment:

- ☐Name

- ☐Email address

Many thanks for your participation in the survey, your time and input is valuable to our work to help develop a Skills and Employment Strategy and Action Plan for Derbyshire, Nottinghamshire and Leicestershire.

If you have any questions about this survey or would like to withdraw once you have completed it, please contact Jo Hutchinson (j.hutchinson@derby.ac.uk) or Alex Nunn (a.nunn@derby.ac.uk) before May 15th 2017.

05-18-2017 – 00:00

Submit your survey.
Thank you for completing this survey.

Appendix Two: Focus Group and Interview Topic Guides

Notes on use:

Please use this topic guide as a semi-structured guide. It is not necessary to mechanically ask all questions in the order they are represented here. Try to ensure coverage of all themed headings, using the questions and prompts, where necessary, to facilitate discussion.

Please do read out the statement at the beginning of the guide, to provide respondents with the information required to ensure 'informed consent'.

Informed Consent Statement

"We are conducting this interview/focus group as part of research commissioned by the Local Enterprise Partnerships of Leicestershire, Nottingham and Derby, designed to inform the development of an employment and skills strategy linked to getting the most out of High Speed rail links to the region – known as HS2. More information on HS2 and the project is available in the information sheet provided to you in advance of this discussion. Where possible we would like you to provide us with a signed copy of the permissions slip, but taking part in the interview/focus group implies your consent to be involved in the research.

We want to use your answers to our questions to inform the development of the strategy. We will not reveal your own personal identity or associate your organisation with any particular responses in the outputs from the project, unless you expressly ask us to do so. You are also free to withdraw from the project at any time and you can do so by writing to either Jo Hutchinson or Alex Nunn, whose email addresses are on the information sheet"

j.hutchinson@derby.ac.uk
a.nunn@derby.ac.uk

This project has been approved through the University of Derby research ethics procedures.

TOPIC GUIDE

Introductions: Do a round of introductions (name, role, organisation).

Respondents	Names	Roles
Organisation		
Interviewer/facilitator		
Date and place		
Interview or Focus Group No.		

1 Awareness

1.1 To what extent are you familiar with HS2 plans for the East Midlands?

Prompt in relation to:

- Reduced journey times
- Timeframes for construction
- Hub station at Toton
- Stations connected
- Chesterfield improvements
- Depot at Staveley
- Potential economic impacts – e.g. Kings Cross/St Pancras surrounding area, land prices in Birmingham, Leeds etc, agglomeration affects.

1.2 To what extent is your organisation familiar with HS2 plans for the East Midlands?

Prompt in relation to:

- Reduced journey times
- Timeframes for construction
- Hub station at Toton
- Stations connected
- Depot at Staveley
- Potential economic impacts – e.g. Kings Cross/St Pancras surrounding area, land prices in Birmingham, Leeds etc., agglomeration affects.

1.3 Has your board/governors/directors etc. discussed HS2? Are they well informed about the potential opportunities for your organisation?

Prompts:

- Are they engaged/disengaged?
- Why/Why not?
- If not – what are the barriers/perceived problems?

1.4 Has your senior leadership etc discussed HS2? Are they well informed about the potential opportunities for your organisation?

Prompts:

- Are they engaged/disengaged?
- Why/Why not?
- If not – what are the barriers/perceived problems?

2 Current Plans and Activities re HS2

2.1 Who, if anyone, in your organisation is responsible for working on HS2 related matters?

Prompts:

- Why were they particularly chosen

2.2 What is the general view of the opportunities that HS2 may pose for your organisation?

Prompts:

- Reasons behind these.
- Quantify or get detail where possible
- Identify issues of disagreement etc.
- Specific prompts:
    - How do they expect it to affect their key customer/service user groups?
    - How do they expect it to affect their product markets?
    - How do they expect it to affect their ability to attract investment/public funds?
    - How do they expect it to affect their workforce/recruitment/talent strategies?
    - Ask to think about design/build-maintain/operate phases/opportunities.

2.3 What is the general view of the challenges that HS2 may pose for your organisation?

Prompts:

- Can revisit the list at 2.2.

2.4 Are you working with specific partners on engagement with HS2?

Prompts:

- Who are the partners
- What is going well with this
- What are the challenges/barriers
- What support might help

2.5 Are there any specific plans or strategies in place in your organisation to maximise opportunities and overcome challenges? What is the approach you are taking to this?

Prompts:

- Try to get hold of written plans where necessary.
- Get them to talk through detail of the plans and how they were arrived at/what shaped the thinking?

2.6 Where no Strategy/Plan in Place: are there processes in place to develop a plan/strategy or what is the reason for not doing so?

2.7 To what extent have HS2 opportunities shaped other plans and strategies etc in your organisation?

Prompts, as per table below, where relevant (get from survey):

	Yes we have	Yes, and HS2 inc.	Not got one
Work force development strategy			
Etc etc			

3 Barriers and support

3.1 What support might you need to help from external organisations to help you make the most of the opportunities presented by HS2?

Prompts:

- Get detail where possible and prompt in relation to:
  - Information
  - Advice and guidance
  - Resources
  - Partnership opportunities

3.2 What are the specific barriers you might have identified to your organisation engaging with/benefitting from HS2 investment?

Prompts:

- Information
- Resources
- Staffing
- Lack of partners
- Internal/external resistance/opposition

4 Anything else?

4.1 Is there anything you would like to add about your organisation and HS2 that we haven't asked about?

5 Next Steps

For information, but collect any relevant information forthcoming

5.1 We have a survey out and would very much welcome it if you were able to complete this? Have you had the survey?

Explain reasons for survey and focus group/interview.

5.2 We will be undertaking some consultation events based on the draft strategy and action plan that we develop from this research. Would you like to be involved with this?

5.3 We may also evaluate the final strategy/action plan in the future (12-24 months time). Would you like to be involved in that process, or suggest ways in which we might judge this to be a success or otherwise?