

HS2

Building the skills to deliver HS2

Phase One and Phase 2a



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CEO's Foreword

HS2 has always been more than a railway. At its heart it is an economic project; playing an integral part to increase economic growth in the Midlands and the North and help level-up the country. HS2 remains at the forefront of the Government's plans to 'build back better', creating the low-carbon infrastructure of a national transport system that will support jobs up and down the country. HS2 will underpin the construction industry for years to come, improving standards, driving innovation, and bringing thousands of new skilled people into the workforce.

The UK economy faces some serious challenges. Not just adjusting to the impact of the pandemic, but also to the impact of Brexit on our economy and Britain's new path in the international markets. In this context, the importance of building HS2 has never been more critical. This is the right project at the right time.

As this report demonstrates, HS2 will deliver jobs when we need them most. There is a constant labour demand of up to 26,500 people, from now until 2026, to build the project. At peak HS2 will support over 34,000 jobs and over 2,000 new apprentices will start or reset their careers on HS2. 650 are already working with us, learning new skills and setting themselves up for success.

It is not just engineering and construction skills that HS2 will support. We will be supporting the careers of IT programmers and software developers, project managers and credit controllers, health and safety officers and conservation professionals. To look after our sites we need security guards, caretakers and transport managers. We need planning experts, architects, surveyors and telecoms engineers. HS2 will start and sustain careers for thousands of people across the lifetime of construction.

As a nation, we face a shortage of expertise; nearly half of the construction workforce are over 45 years old. This ageing workforce means we must attract thousands of new people to the industry every year in order to fill the skills shortage and to support the country to deliver world-class infrastructure – not just new railways, but new roads, houses, low-carbon energy and communications.

HS2 will be a catalyst for upskilling Britain. We are drawing people into the workforce that may never have considered a career in construction or transport before; people from BAME backgrounds, women, disabled people and those who are unemployed. We are encouraging science, technology, engineering and maths subjects at school. We are seeking to inspire a new generation with new possibilities.

For our workforce, HS2 will provide livelihoods, new skills, and new career paths. For the UK, HS2 will play its part in an economic transformation of the country.



A handwritten signature in black ink, appearing to read 'Mark Thurston', written in a cursive style.

Mark Thurston
Chief Executive Officer, HS2 Ltd

Introduction

HS2, Great Britain's new high-speed railway, is now being built. It will form the low-carbon spine of our transport network and serve 25 towns and cities from Scotland to the South East. The new high-speed track will be built between Birmingham, Manchester, Leeds and London; HS2 trains will also run on the existing network serving towns and cities in the North West, North East and Scotland.

HS2 is the most important economic regeneration project in decades. It will act as a catalyst for growth and help level-up the country, boosting growth in the Midlands and the North and opening up new employment and leisure opportunity for millions of people. It will be the low-carbon alternative for long-distance travel, reducing the need for car and plane journeys, and play a vital role in delivering the Government's ambitious goal of Britain becoming net-zero carbon by 2050. It will add vital capacity to the existing rail network by taking long distance trains off it, creating thousands of extra seats and space for more local, commuter and freight services.

HS2 is also playing a pivotal role in the Government's Plan for Jobs, creating and supporting thousands of jobs and benefiting small and medium enterprises (SMEs) up and down the country. In order to build Phase One of the railway, HS2 Ltd and its Tier One contractors expect to recruit for over 20,000 roles in the coming years, such jobs offer people a route back into work after the pandemic.

Construction of Phase One of HS2 from London to Birmingham is underway. Phase 2a which extends the line from the West Midlands to Crewe has been approved by Parliament and the first contracts for early works have been awarded. As part of its Integrated Rail Plan, the Government is considering how best to integrate Phase 2b, which extends the line to Manchester in the West and Leeds via the East Midlands in the East, into plans for other rail projects such as Northern Powerhouse Rail. HS2 Ltd has been instructed to prepare legislation for the western leg. The new line between London and Crewe is expected to open between 2029 and 2033, and the line from the West Midlands, Manchester and Leeds between 2035 and 2040.

The construction of HS2 will last the best part of two decades and help underpin the health of the construction and engineering industry. This is particularly important as the British economy recovers from the pandemic. HS2 is an important part in the Government's strategy to 'build back better'. It will leave a lasting legacy of new skills, new innovative processes and products, and new avenues for export that will support the development of UK and international infrastructure in the future. Over the course of construction, tens of thousands of different people will work on HS2 at some point – whether it is with HS2 Ltd itself, with our main contractors or within their supply chain.

However, the UK infrastructure labour market has clear skills shortages in some specialist areas. To deliver HS2 and other large infrastructure projects, we need to use this opportunity to help upskill Britain and have a more diverse range of people working in the sector.

This report focuses on the forecasts of jobs and skills needed to deliver HS2 Phase One and 2a – between London and Crewe. The scope of Phase 2b will be set out in the Integrated Rail Plan (IRP), not available at the time this workforce analysis was undertaken; however initial analysis of the requirement for Phase 2b Western Leg has been included as the legislation is being prepared. HS2's total jobs and skills requirement could expand depending on the outcome of the IRP.

The regional analysis for constructing HS2 between London and Crewe set out in this report is based on where the work requirement is 'generated' not 'delivered'. As the work sites are mainly along the route, the main points of work generation are in the West Midlands, London and the South East. However, the workforce of HS2 and the supply chain that supports it, is being drawn for all over the country. For example, a business that builds pre-fabricated cabins in its factory in Cheshire, but delivers them to a work site in the West Midlands would be included in the West Midlands figures, even though the work and the jobs required to support that activity were based elsewhere. HS2 is a national project and will support employment across the country.

Why is Skills, Employment and Education important to HS2?

Skills, Employment and Education (SEE) is one of our seven strategic objectives and it is fundamental to the success of HS2 and our legacy.

The Government has recognised the contribution we are making to the Covid-19 economic recovery and their Plan for Jobs. The construction of Phase One is already creating thousands of new jobs – over 20,000 will be supported by work on the London-West Midlands route in the next few years – and we have passed the milestone of creating 650 apprenticeships. We are not stopping here, however, and plan to create at least 2,000 apprenticeships over the lifetime of the programme.

To make sure we maximise the opportunities offered by HS2, we need to address Britain’s skills shortages and equip a new, more diverse, generation of workers with the knowledge they will need to thrive in the infrastructure sector.

HS2 Strategic Goals



Catalyst for growth



Capacity and connectivity



Skills and employment



Customer experience



Value for money



Health, safety and security standards



Sustainable and a good neighbour



We have passed the milestone of creating **650 apprenticeships...**



with plans to create at least **2,000 apprenticeships** over the lifetime of the programme.



Why have we updated the forecasts now?

In 2018, HS2 Ltd published its SEE Strategy, that was underpinned by work to forecast the labour and skills needed to deliver the HS2 construction and rail engineering programmes. As well as providing robust evidence to inform the SEE Strategy, the analysis also provided an assessment of where the HS2 Programme and the wider construction and infrastructure sectors could face challenges in recruiting and retaining skills.

It is vital that HS2 Ltd works from an evidence base that provides the best available insight on programme labour and skills requirements in terms of volume, occupation, qualification, timing, geographic area and duration to ensure the SEE strategic approach continues to focus on areas which are likely to yield the greatest benefit.

We have now updated and refined these forecasts to reflect the new costs and maturity of the HS2 programme, and changes to labour demand from the HS2 Programme and the economy-wide construction sector. The forecast of the labour and skills demand and supply has also been revised to reflect the key factors which may affect the availability of labour and skills for the HS2 Programme. These include the impact of other major infrastructure projects, a new workforce migration regime introduced following the UK's exit from the European Union, and the impact of the Covid-19 pandemic.

It should be remembered, however, that these forecasts reflect a snapshot in time, and represent a preliminary cost-based top-down analysis of labour demand. We will continue to validate the findings against the bottom-up information provided by our supply chain and will reforecast at intervals throughout the programme as more information becomes available or circumstances change.



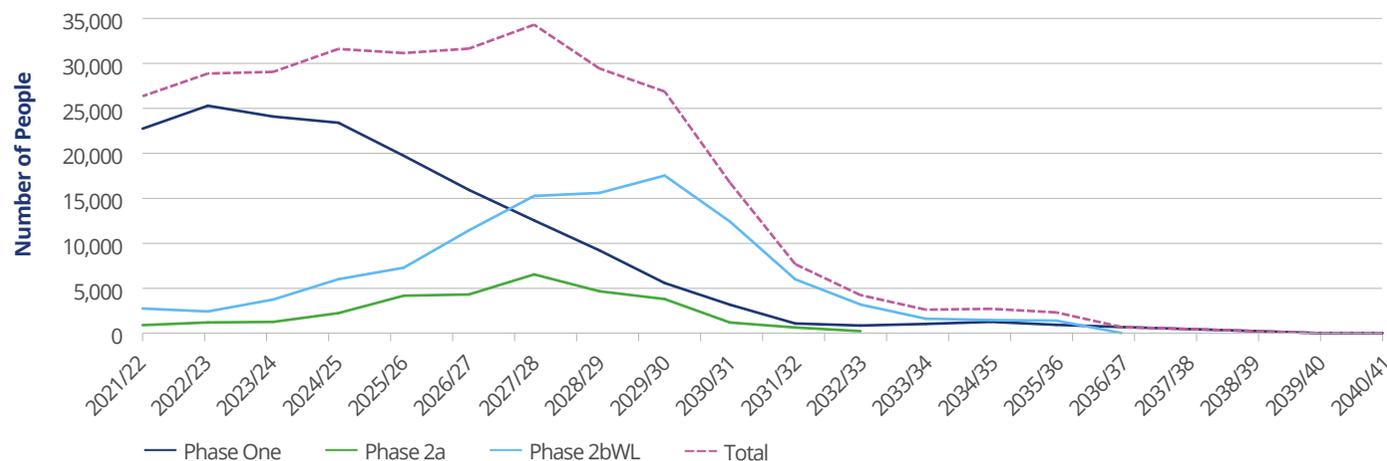
What is the overall labour demand for HS2?

The analysis of the labour demand arising from HS2 is based on the estimated spend profile for the design and construction of HS2. These forecasts have been created for the elements of the route where we have greatest certainty – namely:

- **Phase One** – the 140 miles from Birmingham to London);
- **Phase 2a** – the extension from Fradley in the West Midlands to Crewe in Cheshire; and
- **Phase 2b Western Leg** – from Crewe to Manchester¹.

As can be seen in Figure 1², demand rises from the level of around 25,000 in 2021/22 to peak at around **34,300** in **2027/28**. This total demand is driven by concurrent peaks for the Phase 2b WL (16,500 people) and Phase 2a (6,500 people).

Figure 1: Total labour demand by phase – Phases One, 2a and 2bWL



Other key findings from the analysis are:

310,000

person years³ will be required to build HS2 Phase One, 2a and the western leg of Phase 2b

75%

of the workforce is within the **construction sector**, the remainder is working in **rail engineering**

30,000

Sustained high demand of around **30,000** people until 2029

Table 1: Total labour demand by phase – Phases One, 2a and 2bWL

Phase	Total person-years	Peak workforce	Timing of peak
Phase One	168,000	25,300	2022/23
Phase 2a	30,900	6,500	2027/28
Phase 2bWL	107,900	17,500	2029/30
Total⁴	306,800	34,300	2027/28

Given the relative maturity of the different phases of the programme, the interventions already in place and the relative urgency of addressing the skills mismatches, the rest of this document will focus on Phase One and Phase 2a.

In the future, once we have greater clarity on the route and timelines, a similar exercise will be undertaken for Phase 2b.

- 1 Since the costs and schedules for Phase 2bEL are under review, we cannot accurately profile the labour demand for this phase.
- 2 The forecasts include an allowance for risk and contingency less efficiencies and forecasts have been prepared separately for construction and rail engineering. The forecasts do not include HS2 Ltd staff or the labour and skills that will be required to operate HS2 services. More detail on the methodology behind the forecasts can be found in the main report.
- 3 Total workforce is measured in person-years. A person-year is the equivalent of one person working for 12 months. All person-years are measured from 2021/22 onwards and do not take account of any past spend. This figure can be used as a measure of the total labour demand required to deliver HS2.
- 4 The total peak workforce does not equal the sum of the rows because of differences in the timing of the peaks.

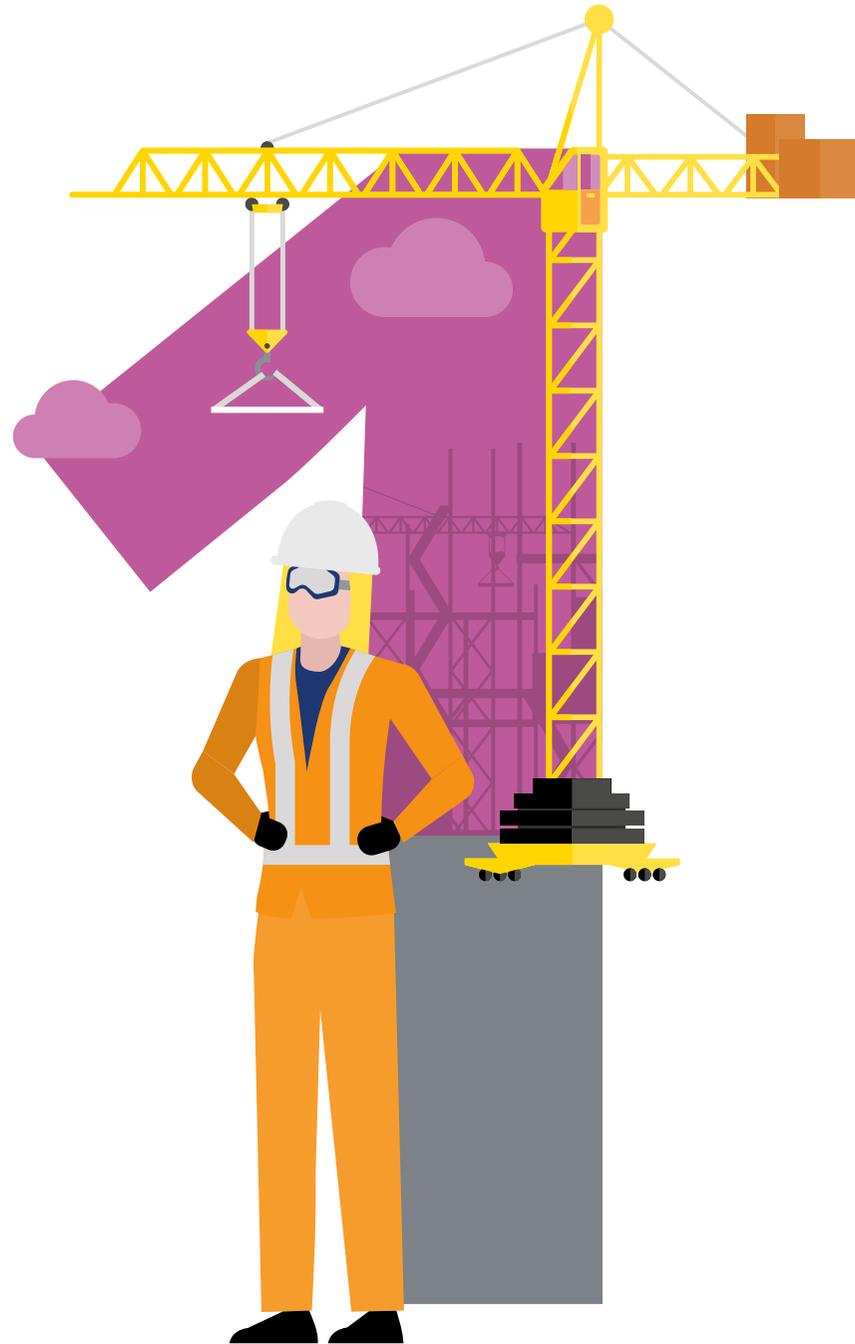
Section 1

What are the challenges and opportunities for Phase One and Phase 2a?

The forecasting work gives an opportunity to examine the scale of the challenges and opportunities that the HS2 Programme poses in terms of jobs and skills. In this section, we will examine:

- What are the total labour demand requirements for construction and railway engineering in Phase One and Phase 2a?
- What are the future supply forecasts for construction and for rail engineering?
- What are the key skills mismatches?
- What does this mean on a regional level for the West Midlands, London and the South East?

The later sections of this document provide examples of the interventions already in place and what further interventions will be needed.

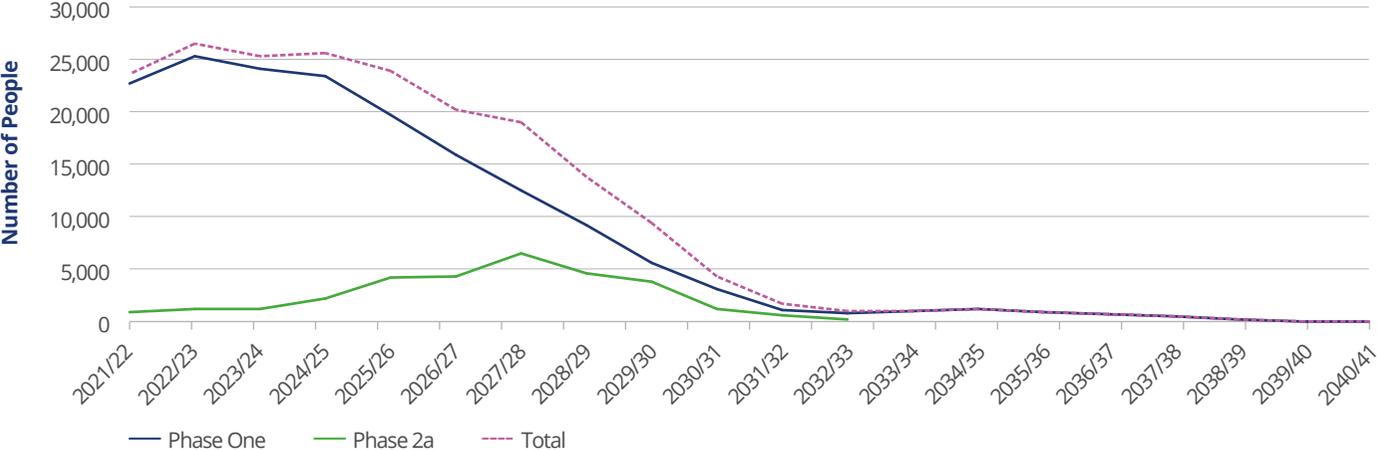


What are the total labour demand requirements for construction and rail engineering?

Figure 2 shows a breakdown of total labour demand across Phase One and Phase 2a, split between construction and rail engineering skills.

The total workforce peaks at around 26,500 people in 2022/23 and overall, there is a constant labour demand of 23,600–26,500 people from now until 2025/26. There is then a steady decline in labour demand towards the end of the decade, which then remains under 1,000 throughout the 2030s. The peak construction labour demand of 26,500 occurs in 2022/23. Rail engineering labour demand steadily increases from its current level of about 1,000 to just under 9,000 people in 2028/29 before tailing off sharply. Different mixes of occupation and qualification levels will be required at different times and more detail on these can be found in the main report.

Figure 2: Total labour demand – Phase One and Phase 2a



There is a constant **labour demand of 23,600–26,500** people from now until 2025/26.

23,600-26,500

What is the regional picture?

Figure 3 below shows the regional breakdown of workforce for both construction and rail engineering.

Whilst HS2's workforce will be drawn from all over the country, including SMEs located in regions away from main work sites, for the purposes of the regional analysis below, it refers to the region in which the labour demand is generated. It may not necessarily be the case that this work is delivered by workers based in the same region. Some occupations (especially those in professions such as design and management roles) do not need to be based on-site and can deliver work remotely. There may also be opportunities to deliver some work through off-site manufacturing.

No assumptions have been made in respect to this for this analysis.

- There is a constant labour demand generated for the West Midlands of around 10,000 people between now and 2027/28.
- The labour demand generated for London and the South East is at or around the peaks from 2021/22 to 2024/25, before declining towards the end of this decade.
- The labour demand generated for London peaks at around 9,000 people and the South East at around 6,500 people.
- There is a small labour demand generated for the North West, for Phase One and Phase 2a.

There is a **constant labour demand** generated for the **West Midlands** of around **10,000** people between now and 2027/28



10,000

The **peak labour demand** for **London** is around

9,000

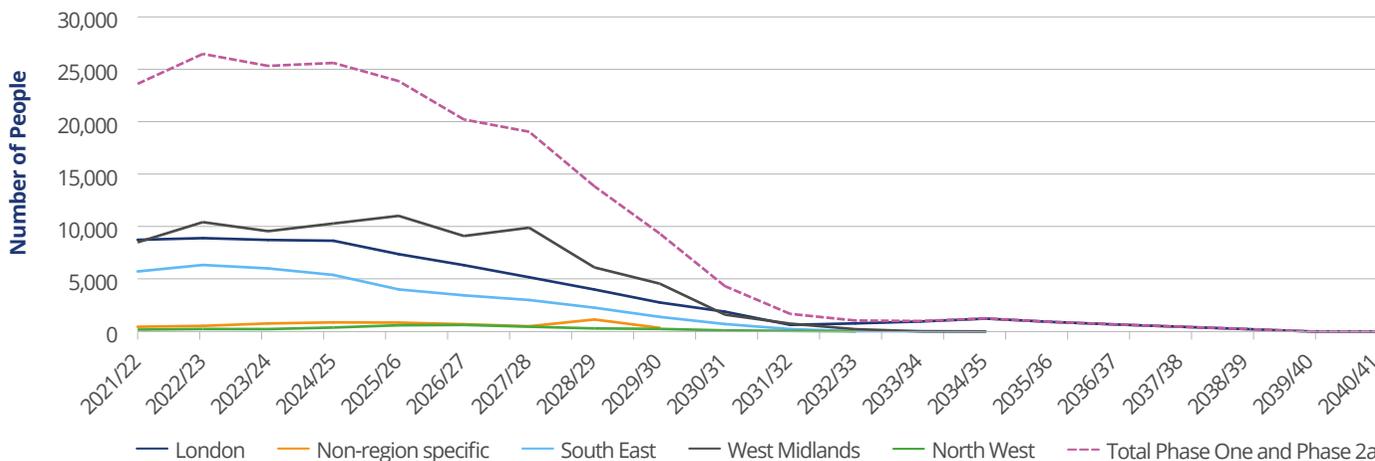


The **peak labour demand** for **South East** is around

6,500



Figure 3: Total labour demand by region – Phase One and Phase 2a⁴



⁴ The regional analysis refers to the region in which the labour demand is generated. It may not necessarily be the case that this work is delivered by workers based in the same region. Some occupations (especially those in professions such as design and management roles) do not need to be based on-site and can deliver work remotely. There may also be opportunities to deliver some work through off-site manufacturing. No assumptions have been made in respect to this for this analysis.

What are the future supply forecasts for construction and rail engineering?

In this section we will look at the supply forecasts for construction and for rail engineering separately.

Similar analyses have been carried out for both the construction and rail engineering sectors. However, there are some differences between the sectors. Rail engineering is much smaller than construction and, as such, the same level of detail of the underlying data is unavailable. Furthermore, the future forecasts of construction sector labour demand are based on future projections of UK-wide macroeconomic indicators whereas the rail engineering sector is based on projections of future investments.

What alternative scenarios for construction were considered?

The macroeconomic forecasts for the UK – and hence for construction sector output and employment – are subject to a high degree of uncertainty. This risk is particularly elevated at the present time due to Covid-19 and Brexit. To understand how varying economic backdrops might impact output and labour demand in the UK construction sector, three alternative scenarios were considered:

- mild scenario: a faster-than-expected growth scenario;
- severe scenario: a more prolonged period of economic weakness (seen in a number of key indicators such as GDP, unemployment rates, etc.) due to Covid-19; and
- low migration scenario: tighter points-based restrictions.

These scenarios were simulated by shocking the macroeconomic indicators that are judged to be most relevant in determining construction demand. These are GDP, consumer spending, business investment, employment growth and interest rates.

The scenarios consider how differing periods of Covid-19 restrictions or lower EU migration due to Brexit would indirectly impact the UK construction sector, by considering the scenario's impact on demand conditions in the wider economy. More details can be found in section 4.3 of the main report.

What are the future supply forecasts for construction and rail engineering? continued

Construction sector analysis

The construction of HS2 will take place alongside UK construction activity that is anticipated to total more than £175 billion per year for the next two decades. To understand the impact on labour and skills, forecasts were prepared of future scenarios of construction employment and the employment issues in the wider construction industry were analysed.

- Total construction employment in the UK is estimated at 2.6 million in 2020, a 5.6% fall from 2019.
- In a baseline scenario, growth is expected to average 1.2% per annum taking total construction employment to 3.3 million by the end of 2040.
- Under a mild scenario (a more optimistic case relative to the baseline scenario), construction employment growth will average 1.4% per annum throughout the forecast horizon, with employment in the sector reaching 3.4 million by 2040.
- Under a severe scenario (a more pessimistic case relative to the baseline scenario), employment growth in the sector is forecast to be similar to the baseline at 1.2% per annum, with employment in the sector touching 3.2 million by 2040.

The construction of HS2 will take place alongside **UK construction activity** that is anticipated to total more than **£175 billion per year** for the next two decades.

£175 billion



Total **construction employment** in the UK is estimated at **2.6 million** in 2020, a 5.6% fall from 2019.

2.6 million



In a **baseline scenario**, **growth** is expected to average

1.2%



taking total **construction employment** to

3.3 million

by **2040**.

In a **mild scenario**, **growth** is expected to average

1.4%



taking total **construction employment** to

3.4 million

by **2040**.

In a **severe scenario**, **growth** is expected to average

1.2%



taking total **construction employment** to

3.2 million

by **2040**.

What are the future supply forecasts for construction and rail engineering? continued

Construction sector analysis continued

The latest forecasts identified similar challenges and opportunities to the previous 2018 report. However, they also show that the UK's exit from the European Union and the economic impact of Covid-19 are likely to lead to recruitment challenges and potential skills issues for HS2 and the construction industry, as well as some longer-term challenges arising from workforce demographics and educational trends:

- It is possible that new UK immigration laws may constrain net migration which could well impact HS2, given that half of London's construction workforce is born outside the UK. As a result, recruitment could become more difficult in London and the South East regions in the construction of Phase One and 2a. Between 2016 and 2018, there was a 28% decline in the number of construction workers of non-UK origin entering the UK, which could further impact labour supply.

- Apprenticeship starts in construction have been declining since 2017/18 and the impact of Covid-19 could compound this decline, which in turn could constrain the availability of trained apprentices for HS2. Between 2017/18 and 2019/20, the number of Level 2 construction apprenticeship starters, which includes a range of construction trades, e.g. civil engineering operatives, fell by 28% across the regions on the HS2 route.
- HS2 could face less of a challenge in recruiting higher education graduates, especially as the number of UK-domiciled achievements from civil engineering courses has been on the rise since 2017/18.
- Nearly half of construction's workforce is aged 45 and above compared to just under 10% that is aged 16-24. An ageing workforce could impact the availability of labour supply and skills. Combined with a reduction in apprenticeship starts, HS2 may face significant skills challenges.

Are there any skills not covered by the analysis?

Due to the top down nature of the forecasts, there are a number of niche skills that the cost-based model is not able to address. The forecast data has been shared with key Tier 1 contractors in the supply chain for them to validate the finding and share details of niche skills and roles that have a smaller labour demand, but are vital to the delivery of the programme on time and cost. Areas identified so far include:

- Tunnelling
- Land referencing
- Consents
- Planners

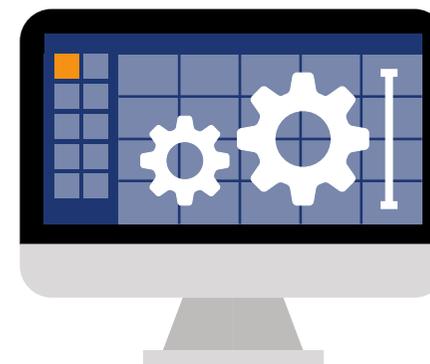
28% ▼

decline in the number of **construction workers of non-UK origin** entering the UK between 2016 and 2018

28% ▼

decline in the number of **Level 2 construction apprenticeship starters** Between 2017/18 and 2019/20

The number of **UK-domiciled** achievements from **civil engineering courses** has been on the rise since 2017/18



Nearly half of construction's workforce is aged

45+

compared to just **under 10%** that is aged

16-24

What are the future supply forecasts for construction and rail engineering? continued

Rail engineering sector analysis

The rail engineering sector has a workforce of around 250,000 people in the UK.

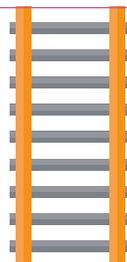
- The workforce is spread across a number of asset types including those which are of most relevance to HS2
 - track (38,300 people);
 - electrification and plant (4,200 people);
 - signalling, systems & telecommunications (14,100 people); and
 - traction and rolling stock (15,800 people).
- Approximately 23% of the total sector workforce are employed on capital projects (around 55,000 people). Around half of the workforce are based in London and the South East.
- The median age of the rail investment projects workforce is 41. For maintenance and operations activities it is 45, and for the rail sector as a whole, the median age is 44. This has increased over time and continues to do so.

The **rail engineering sector** has a workforce of around **250,000 people** in the UK

250,000

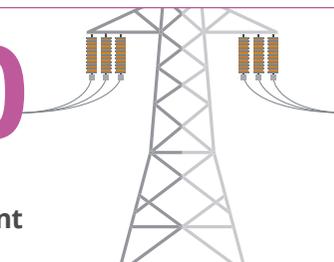
38,300

people required for **track**



4,200

people required for **electrification and plant**



14,100

people required for **signalling, systems & telecommunications**



15,800

people required for **traction and rolling stock**



23%

Approximately **23%** of the total sector workforce are **employed on capital projects**

50%

Around **half** of the workforce are based in **London and the South East**

41

The **median age** of the rail investment projects workforce is **41**

What are the future supply forecasts for construction and rail engineering? continued

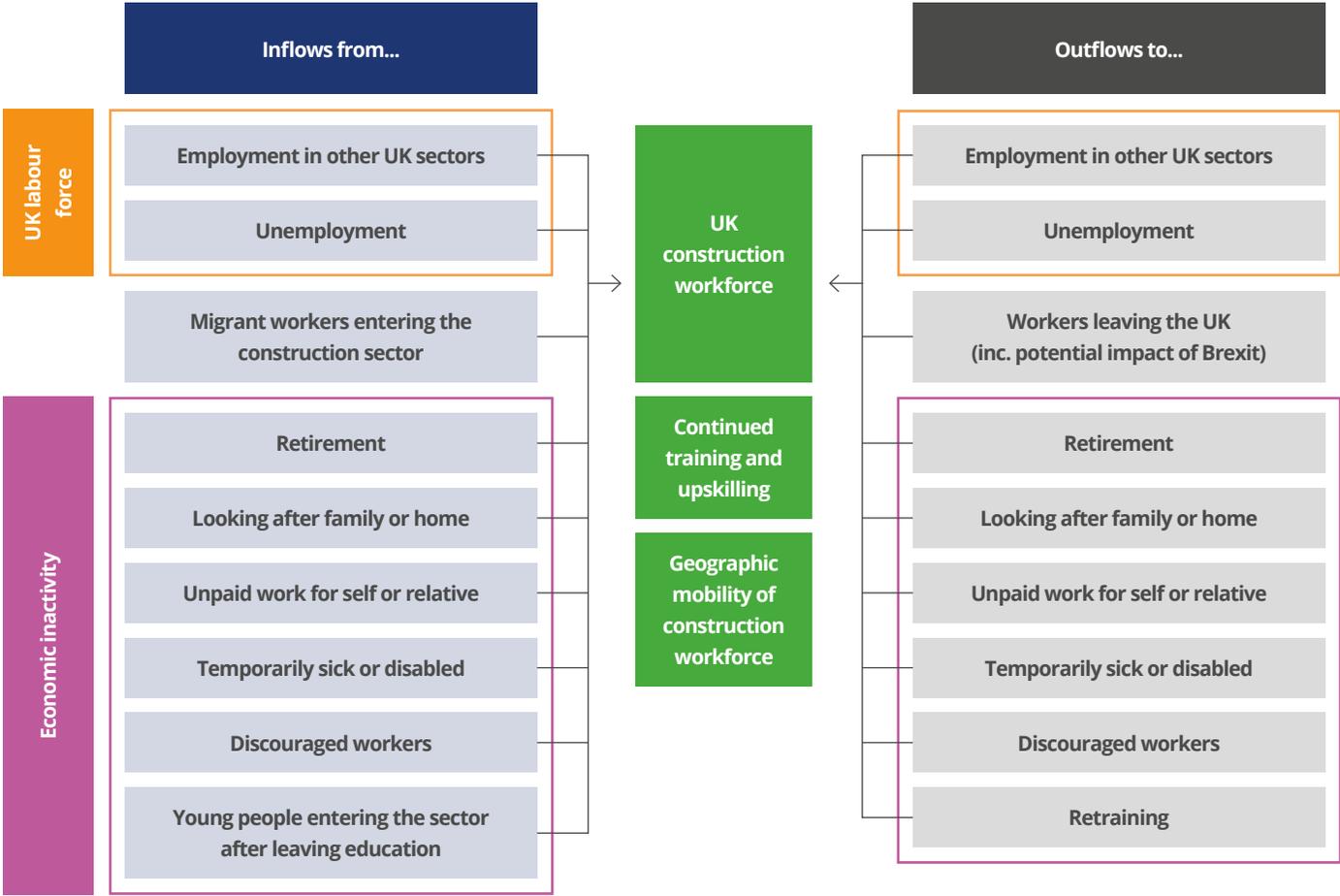
Rail engineering sector analysis continued

Forecasts of future rail engineering activity were modelled to 2040. The analysis showed the following:

- The forecast of rail engineering investment over the next 20 years fluctuates but exhibits a distinct decline from 2030 onwards, possibly due to uncertainties in funding for capital investments.
- Traction and rolling stock assembly and deployment also has a fluctuating demand profile over the next 20 years. HS2 itself exerts a major demand on this workforce. If HS2 was removed, the profile would remain relatively flat from 2025 onwards, decreasing slightly over time to reflect the decreasing demand across the industry.

Construction mismatches

The forecasts also generated a mismatch analysis that considers the requirements of the HS2 Programme as well as the wider availability of skills in the construction industry as illustrated in the diagram of inflows and outflows below.



What are the key roles where there is a skills mismatch?

Construction mismatches continued

The mismatch analysis enables the compilation of a ranked order of the severity of recruitment challenges for those occupations that may present potential mismatches. The identified occupations are expected to pose recruitment challenges, but to different extents. This analysis is based on those occupations:

- with largest mismatch between total sector supply and demand;
- where HS2 demand is a large % of total demand; and
- where demand is a large % of total HS2 demand.

The three scenarios model the impacts of changes to the macroeconomic landscape on demand. They do not consider the impact on labour supply. In comparison to the baseline:

The mild scenario results in stronger construction output, boosting labour demand and increasing the size of any labour mismatches.

The severe scenario results in weaker construction output, resulting in a reduction in demand for construction workers, and reduced recruitment pressure.

The low migration acts in the same direction as the severe scenario, but with a smaller magnitude. This generally presents itself as a small decrease in labour demand and thus mismatches.

What are the key roles where there is a skills mismatch? continued

Construction mismatches continued

Ranking	Occupation	Analysis
1	Labourers not elsewhere classified (nec)	<p>Labourers could present the most severe recruitment challenge for Phase One and Phase 2a as this occupation has the highest gross recruitment rate of all occupations. 81% of all labourers work in construction so there is little scope to recruit from other industries.</p> <p>There are opportunities for upskilling as, while there are no specific training courses directly linked to this occupation, there could be unidentified workers with relevant skills in other industries and with other qualifications that could satisfy some of this recruitment requirement.</p>
2	Scaffolders	<p>There are recruitment challenges for this occupation in Phase One and Phase 2a. However further education and apprenticeship training achievements in the Phase One and Phase 2a regions could satisfy up to 76% of the demand. There is almost no scope to recruit scaffolders from other industries as 92% of this occupation work in construction.</p>
3	Construction Trades Supervisors	<p>Further education and apprenticeship training achievements in the Phase One and Phase 2a regions could satisfy up to 90% of this occupation's recruitment requirement. There is scope to recruit construction trades supervisors from other industries, as only 48% of this occupation work in construction.</p>
4	Steel erectors / Structural fabrication	<p>There is scope to recruit for this occupation from other industries, as only 18% of steel erectors/structural fabrication work in construction. Both training achievements and forecast inflows could each satisfy 50% of this recruitment requirement. Steel erectors/structural fabrication presents some recruitment challenges, but not to the extent of the above ranked occupations.</p>

Ranking	Occupation	Analysis
5	Plant operatives	<p>Relevant training achievements could completely satisfy this recruitment requirement, so this occupation is of less concern than the above occupations. Only 28% of all plant operatives work in construction, so there is good scope to recruit for this occupation from non-construction industries. However, the adequacy of existing training depends on the type of machinery to be operated, and not every further education achievement in this area will qualify the holder to operate every type of machinery required for HS2.</p>
6	Civil engineering operatives not elsewhere classified (nec)	<p>As with plant operatives, relevant training achievements could completely satisfy the recruitment requirement for civil engineering operatives. Forecast inflows could satisfy up to 67% of this recruitment requirement and there is scope to recruit for this occupation from other industries, with only 43% of civil engineering operatives working in construction. However, a more detailed analysis of the specific skills required within the civil engineering operative role in Phase One and Phase 2a would be required to confirm whether the pipeline of training and apprenticeships will satisfy HS2's requirements, since training for this role covers qualifications in a range of subjects.</p>
7	Civil engineers	<p>UK higher education training achievements in relevant courses could completely satisfy the recruitment requirement for civil engineers in Phase One and Phase 2a. 71% of civil engineers work in construction and there is some scope to recruit for this occupation from other industries.</p>

What are the key roles where there is a skills mismatch? continued

Rail engineering mismatches

The mismatch analysis for rail was carried out using the same metrics as the construction gap analysis but considered the occupations within each of the three key asset types:

- electrification and plant;
- signalling, systems and telecommunications;
- track; and
- traction and rolling stock.

The table below shows levels of HS2 demand as a share of total rail engineering sector demand for each asset type.

Across the four key asset types HS2 will account for a significant share of overall sector demand. This is driven by some very small numbers in some occupations in the wider industry.

Asset type	HS2 demand as a share of total rail engineering sector demand
Electrification and plant	48%
Signalling, systems and telecommunications	26%
Track	27%
Traction and rolling stock	16%

Typically, technician roles would be recruited from an apprenticeship scheme or a vocational education scheme, whereas engineers and project managers would come from a university background requiring science, technology, engineering, and mathematics (STEM) qualifications. There may also be inflows of recruits from other sectors, such as highways, other civil engineering sectors, power, utilities, software or telecommunications but many will still require training and 'conversion' to rail.

There are no specific 'high-speed rail' occupations included either within the current workforce or in the analysis of future demand. There will need to be a level of upskilling and familiarisation to the high-speed environment, but this has not been modelled.

The analysis suggests that there is ample coverage in further education colleges and universities to satisfy the HS2 demand within the supply chain, as long as investment in skills and apprenticeships is made now in order to have the workforce exist when required.



The analysis suggests that there is ample coverage in further education colleges and universities to satisfy the HS2 demand within the supply chain."

What are the impacts for the West Midlands?

As outlined in the demand section on page 9, HS2 has a constant workforce demand of around 10,000 people in the West Midlands between now and 2027/28 – peaking at 11,000 in 2025/26 due to the combined workforce on Phase One and Phase 2a.

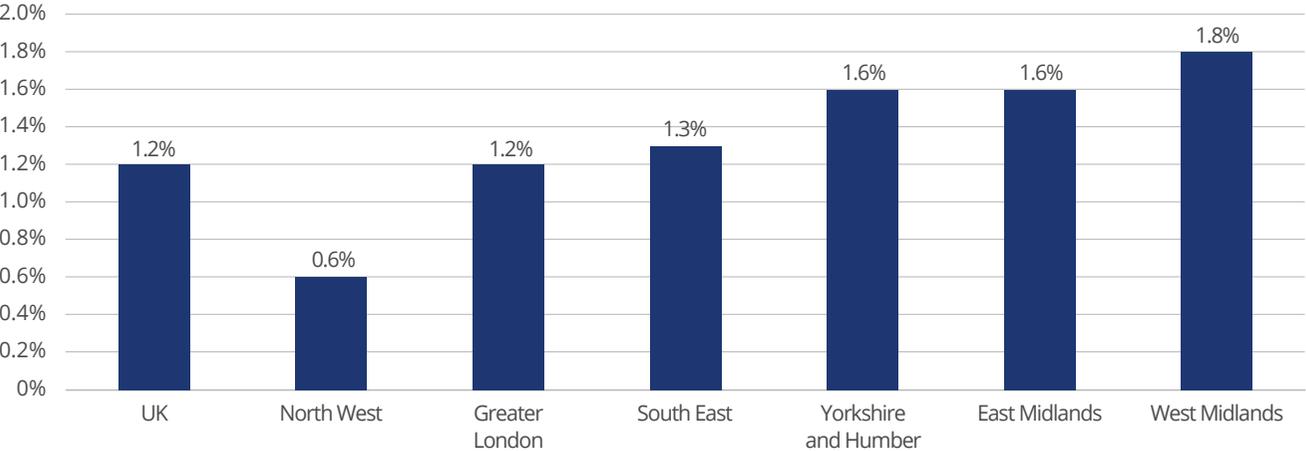
Construction employment rose in all regions between 2014 and 2019, in line with the national picture, but the degree of employment growth varied among regions. The construction sector saw the strongest growth over 2014-19, in the West Midlands at 2.6%. This is due to the predominance of mega-projects in these regions, particularly within the infrastructure and private housing sectors.

Although all regions are forecast to see positive average annual growth between 2020 and 2040, there is some regional variation as shown in Figure 4, with the West Midlands region forecast to see the highest annual average labour demand growth in the UK. This is likely to heat up the labour market in this region.

In terms of mobility, 71% of construction workers in the West Midlands work in the same region now as previously and there is a greater proportion of workers currently working in the same region of their last site compared to the level reported in 2015, which suggests that the construction workforce has become less mobile over the last few years. Four-fifths of migrant construction workers in the UK were from the EU

(excluding the UK), and they comprise 8% of the total construction workforce. Labour Force Survey (LFS) 2019 data from the Office for National Statistics show that between 2016 and 2018, there was a 28% decline in the flow of non-UK construction workers entering the UK. Brexit is likely to be a key driver behind this decline. Going forward, new UK immigration laws and the points-based system could further reduce the flow of construction workers entering the UK. However, in the West Midlands a smaller percentage of workers are from the EU, compared with London and the South East, suggesting that this will pose less of an issue.

Figure 4: Average annual employment change 2020 – 2024 for regions on the HS2 route



(Source: CSN, Experian)

What are the impacts for London and the South East?

As outlined in the demand section on page 9 – the workforces in London and the South East are at or around their peaks from 2021/22 to 2024/25, before declining towards the end of this decade. The peak for both regions is in 2022/3 and peaking at 8,900 for London and 6,300 for the South East, respectively. The peak is earlier than the West Midlands as there is not the additional Phase 2a demand in the region.

8,900

peak workforce
for **London**

6,300

peak workforce
for **South East**

Whilst construction growth in London between 2014 and 2019 was not as high as the West Midlands, it was still 1.8% in London (compared with 0.6% in the South East), reflecting the predominance of mega projects in the capital, particularly within the infrastructure and private housing sectors.

Mobility is less of an issue for London and the South East. In the South East, 38% of the workforce have travelled to a neighbouring region for their latest job. Unsurprisingly, a large volume of workers currently working in the South East cited London as their last site of work (14%). The dynamic between the South East and London is also quite pronounced in the opposite direction, with 16% of people currently operating in London citing the South East as their previous site of work. The East of England also holds a strong relationship with London and the South East, with 31% of workers currently working in the East of England citing London as their last site and 11% citing the South East as their last site. This suggests some fluidity between these three regions, which is different from most other regions of the UK.

The impacts of Brexit are likely to be felt more strongly in these regions. According to a Construction Industry Training Board (CITB) study in 2019, employers in London were significantly more likely to make use of migrant workers, as were those who work primarily as subcontractors or for the public sector. The LFS indicates that in 2019, 50% of the construction workforce in London was born outside the UK (though this is lower than the 2018 figure of 54%).

50%



of the **construction workforce** in London was **born outside the UK in 2019**

Since half of London's construction workforce was born outside the UK, recruitment could become more challenging in London and the South East regions. Combining this with CITB's recent mobility analysis, which suggests that the construction workforce has become less mobile since 2015, HS2 will need to consider the potential impact on recruitment and skill shortages.

So, having outlined the likely skills issues, what interventions are HS2 and the supply chain looking at to meet these challenges and opportunities?

Section 2

What skills and education interventions are already in place?

HS2 Ltd's commitment to the skills agenda is not new; we have had a team embedding SEE since the early days of the HS2 Programme and, as outlined in the 2018 SEE Strategy, have been pushing forward placing clear and strong requirements in major contracts, inspiring young people through educational outreach and working in partnership with key national, regional and local stakeholders for many years. This approach is to ensure that we have the people with the skills we need, but also lead a lasting skills legacy for the country.



What skills and education interventions are already in place? continued

The SEE Team works proactively to support the supply chain to deliver on the skills, employment and education objectives of the Programme and facilitate the sharing of best practice.

All HS2 contracts of a certain value, duration and type are required to deliver SEE outputs.

The use of procurement levers is key in setting expectations and driving the right behaviours to deliver outputs which will result in meaningful impacts for the communities that HS2 serves.

Working with over 35 major contractors, from main works civils joint ventures, station building contractors to companies delivering land referencing services, the SEE Team build positive working relationships to maximise the impact of the contractors' delivery of SEE activities such as apprenticeships, workless job starts and school engagement.

As well as working with individual contractors, HS2 Ltd also uses its convening power to bring contractors within the supply chain together through a joint EDI/SEE community forum. The forum meets regularly to share best practice, how to work with local and regional stakeholders and give space to raise issues.

SEE activities include:

Apprenticeships



Workless job starts



Professional status attainment



Support for Further Education



Schools Engagement



Work placements



The start of main works construction in 2020, and the Covid-19 pandemic and economic downturn have given this work new urgency. What is clear is that there is no single silver bullet that will ensure that we address the skills mismatches across a range of areas and provide opportunities for those from traditionally disadvantaged and under-represented groups to ensure we have a workforce that better represents the UK and the communities that HS2 serves.

Instead we have needed, and will continue to need, a broad range of interventions:

some **regional specific**



others **skills specific**



and others tailored to **specific under-represented groups.**

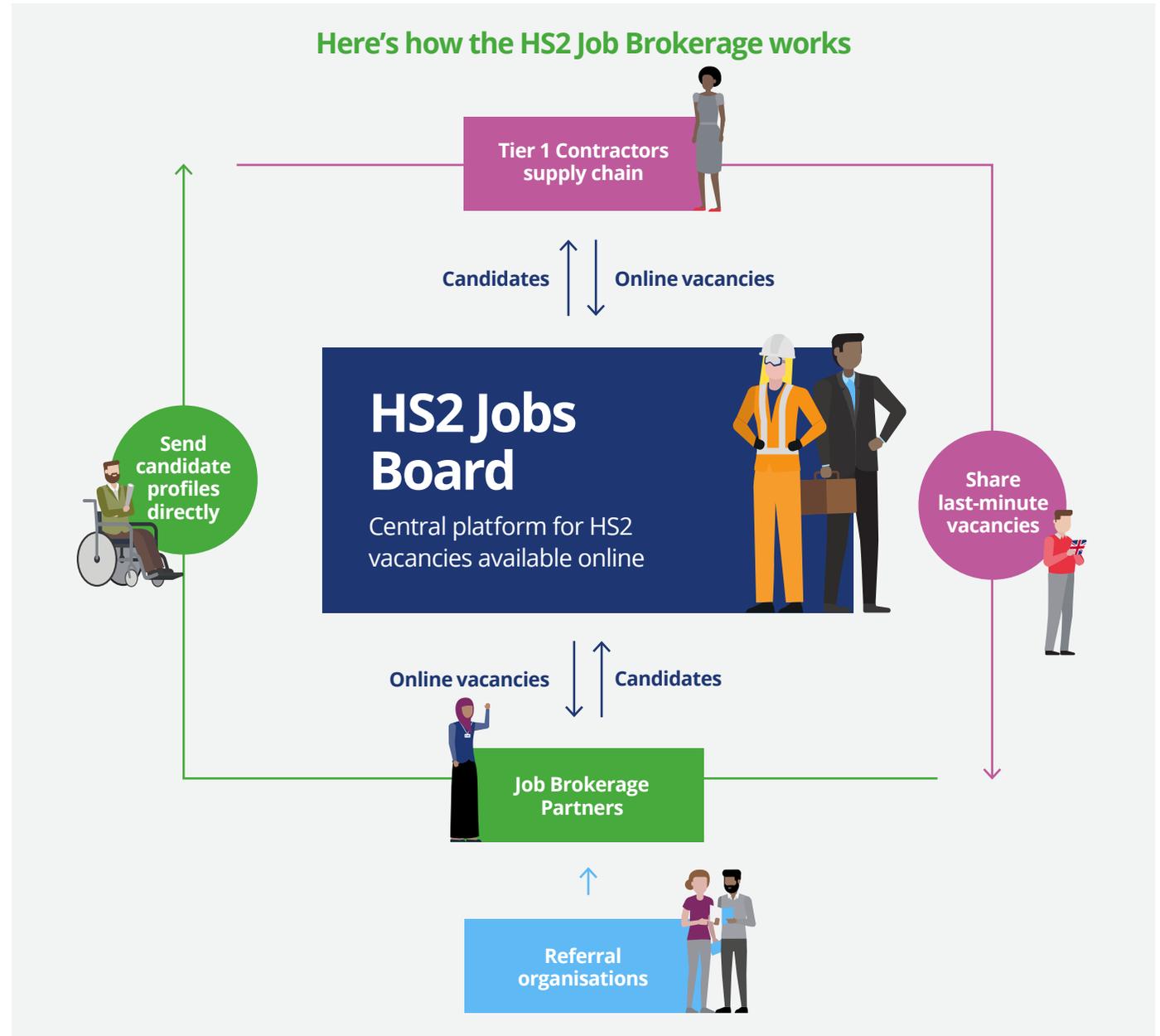


How is Job Brokerage at the heart of these interventions?

At the heart of HS2's SEE goal has been the ambition to deliver a Job Brokerage model, which showcases the vacancies on the programme and make it easier for those from under-represented and disadvantaged groups to access the job opportunities that the HS2 Programme provides.

In the current context of the Covid-19 pandemic, it is even more important that HS2 demonstrates tangibly how it is actively supporting the economic recovery of the UK – the Job Brokerage service does this. With increased unemployment, particularly in under-represented groups such as young people, those from ethnic minorities and people with disabilities, it is important to ensure that we are targeting job opportunities and making them as accessible as possible.

In January 2021, the HS2 Job Brokerage was launched and this new service rolled out to job seekers.



How is Job Brokerage at the heart of these interventions? continued

HS2 Job Brokerage service is predicated on working with organisations, called Job Brokerage Partners (JBPs). These are organisations whose purpose is to provide employment support to help people into work, particularly people from disadvantaged and under-represented groups. Job Brokerage Partners include local authorities, charities, employment support services and the Department for Work and Pensions' (DWP) network of Jobcentres. JBPs identify suitable candidates for roles posted on the HS2 Jobs Board and support individuals in applying for the vacancies. These organisations also find themselves at the forefront of economic recovery activities in their local areas. Each JBP convenes other smaller and more niche organisations to provide pathways into work through a network of 'referral organisations' that have expertise in supporting certain groups, some with protected characteristics. Examples include organisations working with refugees, tenants in social housing, people with disabilities and young people.

The HS2 Jobs Board brings together vacancies from across the HS2 supply chain. It is a searchable jobs board hosted on the HS2 Ltd website, accessible to JBPs and job seekers. The HS2 Jobs Board can be found here: hs2.org.uk/supply-chain-jobs

Brought together through several Regional Steering Groups, JBPs and contractors are designing and delivering "routes into employment" for disadvantaged groups, which will help to meet contractors' recruitment needs, including those where a skills mismatch has been identified. For example, establishing sector-based work academy programmes, working alongside Jobcentre Plus. Many of the other existing and planned interventions outlined below will be enabled and facilitated by these strong relationships between HS2 Ltd, our supply chain and regional stakeholders that the Job Brokerage enables.

1000+ jobs have been posted on the Jobs Board since its launch



HS2 Ltd has a crucial role to play in the UK's economic recovery and fightback from Covid-19. We are creating and sustaining thousands of jobs in the UK starting right now, when people need them most. Our new Job Brokerage service is an important step in simplifying the job search process, and ensuring individuals receive guidance and support so that pathways into employment on HS2 are accessible for all."



Kate Myers
Head of Skills, Employment and Education, HS2 Ltd

How are we already addressing the need for specific skills?

As outlined in the challenges and opportunities sections, there are key skills where interventions have been, and will continue, to be needed. HS2 Ltd and our contractors, working with partners, have already run a number of programmes targeting specific skills and training needs in scarce skills areas such as archaeology and plant operations which can be used as a model for future collaborative working and examples of this work are detailed below.

Pre-employment training opportunities

An early example of such an intervention was in archaeology, where our Tier 1 Enabling Works contractor LMJV, in conjunction with their sub-contractor MOLA Headland Infrastructure coordinated an innovative Archaeology Trainee Opportunity to support their recruitment needs, showcase their work to a wide audience, and enable access to all. In order to make way for the Curzon Street Station, Birmingham's new high-speed rail terminus station, archaeologists were painstakingly cataloguing and removing the remains of those interred in the Park Street burial ground and the trainee archaeologists played an important role in this. Training for the project was delivered by Birmingham Metropolitan College (BMET), using funding through the West Midlands Combined Authority's Construction Skills Gateway Pilot Project and supported by Birmingham City Council, DWP and Prospects.

An information session was held at which 40 people attended and were interviewed. 20 people were selected for a two-week pre-employment programme with BMET and progressed onto a further two-week Trainee Archaeologist Gateway Programme to gain their CSCS card, Level 1 H&S certificate and some basic knowledge of archaeology. Ten people were selected following interviews for a six-week paid trainee opportunity working with MOLA Headland Infrastructure on LMJV's Park Street site.



I didn't think I'd ever get the opportunity to explore a career in archaeology, as I don't have an academic background in the subject. Being selected to do the archaeology traineeship, and to be linked to a project as huge as HS2 is just amazing. I'm so pleased to be here."



Mick
Trainee archaeologist,
MOLA Headland

How are we already addressing the need for specific skills? continued

Outcomes after the project were as follows:

- All 10 succeeded in their training and passed the course.
- All 10 were offered further employment.
- Five remained in Birmingham working on Park Street.
- Five were offered contracts in MOLA Headland Infrastructure working on Enabling Works contract in Area South.
- All the trainees were supported by Prospects to ensure they transitioned effectively into employment, particularly the trainees moving to London.
- The trainees came from diverse backgrounds, ages, disability, and ethnicity but they were all able to access the training and have the opportunity to progress.

Another example of skill specific intervention has been the plant training offered by main works contractor EKFB.

EKFB joint venture is HS2's construction partner for the 80km section of the railway between the Chilterns and Warwickshire, including 15 viaducts, five kilometres of green tunnels, 67 overbridges and 30 million cubic metres of excavation.

Between May 2019 and March 2021, using CITB Construction Skills Fund investment, EKFB trained over 600 people to enable them to be 'employment ready' through a mix of 'entry to construction' and plant operator training courses. The accredited training programmes each lasted for one week and were delivered in partnership with local training providers, Apple Construction and Buckinghamshire College Group.

The free Plant Operator training course was accredited by the Construction Plant Competence Scheme – the industry-standard certification to prove the skills of plant operatives. The training programmes consisted of a combination of both practical and theory-based training to provide participants with the entry-level skills needed to work on a construction site.

EKFB worked with its delivery partners and supply chain to support those that successfully completed the free training programme with work placements. Many now have the skills to fill employment opportunities on the HS2 Programme or find work with other construction companies.



Major construction projects have come to the fore in Buckinghamshire and will be crucial to the county's economic and jobs growth. This free training programme will form a key element towards achieving this growth through ensuring skills needs are met and job opportunities are fulfilled."



Heather Dean

Head of Business Support and Skills,
Buckinghamshire Business First

10/10

trainees **succeeded** in their training and **passed the course**



10/10

trainees were offered **further employment**



How are we already addressing the need for specific skills? continued

Apprenticeship development

Apprenticeships also have a hugely important role to play in meeting the specific skills shortages as they offer employers the opportunity to grow their own talent while offering people from a diverse range of backgrounds the opportunity to learn as they earn. HS2 Ltd and our supply chain have proactively established or supported employer groups on a number of apprenticeship trailblazers.

Working closely with the Institute for Apprenticeships and Technical Education (IfATE), as a response to the significant requirements that a programme of the scale of the HS2 Programme places on scarce skills, HS2 established the Land Referencer (Level 4) trailblazer, convening an employer group from across the surveying and professional services sectors, with valuable input from the National College for Advanced Transport and Infrastructure.

HS2 Ltd has supported other trailblazers, such as the Construction Plant Operative (Level 2) and Corporate Responsibility and Sustainability Practitioner (Level 4). The Corporate Responsibility and Sustainability Practitioner standard was approved in May 2021 and HS2 are looking forward to welcoming our first apprentice on this standard in September 2021.

HS2 Ltd, together with Network Rail and other employers as members of the Rail Engineering Trailblazer Group, are currently in discussions about revising the structure of the Level 4 Rail Engineering Advanced Technician Standard and the Level 4 High Speed Rail and Infrastructure Technician Standard to better serve the needs of the industry through a single overarching standard at Level 4. There currently is no Level 3 Rail Engineering Standard, which was retired by the IfATE. The option to introduce a combined Level 3 Standard for National and High-Speed Rail still exists. Current discussions are focused on the structure and levels of standards required. Once this has been agreed, a sub-group comprising representatives from each rail sector, will move on to the detailed design of the standards which is expected to start in autumn 2021.



How is HS2 addressing skills challenges and creating opportunities across the UK?

HS2's supply chain opportunities stretch the length of Britain – we have suppliers in every region. There are over 2,000 UK businesses which have delivered work on HS2; over 65% of them are small and medium sized enterprises and 97% of our supply chain is UK registered. HS2 Ltd's supply chain team runs regular engagement and procurement events with businesses across the country about the opportunities to win work.

2,000+  **UK businesses** have delivered work on HS2

65%
of them are **small and medium sized enterprises**

97%
of HS2's supply chain is **UK registered**

HS2 has been working closely with local and regional stakeholders to deliver interventions for local people and communities. It is vital that we continue to work in partnership to maximise the opportunities that the programme offers.

Below are some examples of the work that has already started to address the skills challenges and provide local opportunities across the country.

Working across the UK

Companies awarded contracts with HS2 are based all over the UK. For example, slab track contractor, PORR UK, is establishing a new, purpose-built factory near Shepton Mallet in Somerset. The contract will create hundreds of jobs in collaboration with Aggregate Industries UK. Slab track units will be manufactured in the factory, believed to be the first facility of its kind in the UK. HS2 Ltd's SEE Team will work with the PORR UK team to support them to deliver their skills, employment and education outputs and maximise the economic benefits to the local area.



The Operator Skills Hub will play a vital role in ensuring local people have the opportunity to upskill in readiness for these employment opportunities on Britain's new railway."



Mark Thurston
Chief Executive Officer, HS2 Ltd

How is HS2 addressing skills challenges and creating opportunities across the UK? continued

West Midlands

A partnership between Balfour Beatty and Flannery Plant Hire launched its Operator Skills Hub near Birmingham in early 2021, a purpose-built facility offering innovative training programmes to inspire young people and upskill current plant operators in the UK.

The Hub supports a safer, more diverse, productive and digitally-enabled construction and infrastructure sector. With the construction and infrastructure industry rapidly scaling up, Operator Skills Hub delivers Construction Plant Operative apprenticeships, aiming to support 30 young people in its first year.

The facility also aims to retain skilled operators, providing 200 supplementary courses to enhance existing knowledge and set to train over 500 operators for HS2.

Key in addressing the construction and infrastructure sectors significant skills shortage, the facility uses state-of-the-art training simulators as well as the latest semi-autonomous vehicles to prepare plant operators and apprentices for the modern-day, digitally-enabled construction site.

30

The **Operator Skills Hub** aims to **support 30 young people** in its first year

500+

The facility is set to **train over 500 operators** for HS2

South East

Following the launch of the first tunnel boring machines in May 2021, HS2's construction partner Align JV began recruiting nine new apprentices to play a part in the monumental programme of work to dig the 10 mile twin bore tunnels under the Chilterns.

The Level Two tunnelling operative apprenticeships are managed by Align's Tier 2 contractor, TG Tunnelling.

All nine successful apprentices are to be based at the South Portal of the Chilterns tunnel, where HS2's 2,000 tonne tunnel boring machines begin their journey underground. TG Tunnelling and Align have worked closely with Training Providers J3M and Qualitrain to design a development programme that will enable the successful candidates to learn from, and work with, the experts who will manage the logistics and maintenance of the three and a half year-long tunnelling operation.

The apprenticeship programme will last for two years, and combines a wide range of on-the-job practical experiences, alongside a study programme. The tunnelling operative apprentice roles are designed to act as a platform to a long and successful career in construction, tunnelling and complex engineering.

Align's commitment is to create 100 apprenticeships from the 1,200 roles it expects to recruit to deliver its 21.6km section of the railway.

100

Align's commitment is to **create 100 apprenticeships** from the **1,200 roles** it expects to recruit



The tunnelling operative apprentice roles are designed to act as a platform to a long and successful career in construction, tunnelling and complex engineering."

How is HS2 addressing skills challenges and creating opportunities across the UK? continued

London

The principal focus of HS2 SEE activities in London is on the Central and West London sub-regions. Across both sub-regions, there are specific interventions, that come with HS2 investment, to help meet the workforce requirements to build HS2.

The Euston Construction Skills Centre is a partnership with Camden Council that will enable significant numbers of people in the local area, and across London, to be trained in a range of specialisms relevant to employment opportunities highlighted in the updated labour and skills forecasting data. The Euston Construction Skills Centre is due to be operational from 2022.

The Forge is a partnership with the Old Oak and Park Royal Development Corporation, supported by HS2's Business and Local Economy Fund, and offers employment and training support to Brent, Ealing, Hammersmith and Fulham residents. Additional partnership commitments from the three local authorities, the DWP and West London College are strengthening the focus on creating sustainable pathways into HS2 employment opportunities.



The Employment and Skills Hub will provide an important local lifeline to help counter the impacts of Covid-19. HS2's funding kick-starts our plans to support local businesses and get people back into work in this tough economic climate."



Liz Peace

Chair of Old Oak and Park,
Royal Development Corporation

How are we supporting specific groups?

HS2 is committed to ensuring that the programme and wider sector enhance the diversity of the workforce in the sector to tackle skills gaps and the impact of an ageing workforce. As the programme matures and recruitment is focused on areas such as engineering and construction roles, maintaining and improving gender balance specifically will be a significant challenge.

HS2 Ltd encourages our supply chain to exceed industry benchmark workforce diversity composition and to date the supply chain have been achieving the requirements. The supply chain for the HS2 Programme is currently 22% Women, 18% BAME, 5% Disabled and 2% LGBT+, which includes both Tier 1 JV and sub-contractor workforces.

We continue to develop and share EDI best practice via our EDI/SEE community forum assisting both HS2 Ltd and our supply chain to learn from each other and incorporate effective EDI practices across the programme.

In order to address skills shortages and better reflect the communities that we serve, it is vital that vacancies across the HS2 Programme appeal to the widest range of individuals and groups.

The following pages are examples of some of the partnership work that has already begun to support specific under-represented groups.

Diversity at HS2 Ltd

HS2 Ltd diversity is currently :

38%

women

21%

BAME

4%

LGBT+

35%

moderate and/or substantive workplace adjustments

This compares favourably to the infrastructure sector which is 21% women, 6-9% BAME and 3% disabled.

We have set ambitious targets for HS2 Ltd to reach 40% women and 23% BAME by the end of the 2021/22 financial year.

'Everyone Plays Their Part' campaign – inclusive recruitment at HS2 Ltd

HS2 Ltd's Resourcing Team identified the opportunity to contribute to the organisational targets around inclusivity and further enhance inclusivity in resourcing practices by working collaboratively with the Heads of HR and EDI, and with TMP (external media advisors). In addition to an accredited inclusive suite of recruitment products, technology and process, the focus was on delivering enhancements in four new areas:

- Data: new EDI data structures were designed and rolled out to directorates – monthly data snapshots of EDI profile of candidates at all stages in the recruitment process;
- internal communications campaign 'Everyone Plays Their Part' – calling on individuals to accept responsibility for growing diversity themselves. This led to the Diverse Panels intervention – engaging members from HS2 networks to participate in interviews as diverse panels;
- inclusive Recruitment e-learning made available to all targeting bias in assessment; and
- engagement sessions rolled out in directorates led by Heads of HR.

How are we supporting specific groups? continued

Women into Construction

HS2 has worked with Women into Construction (WiC) to develop work experience opportunities for young unemployed women. WiC is an independent not-for-profit organisation that promotes gender equality in construction. They provide bespoke support to women wishing to work in the construction industry and also assist contractors to recruit highly motivated, trained women, helping to reduce skills gaps and create a more gender-equal workforce.

By working together, we have sought to engage with women as an under-represented group to link them to opportunities HS2 will bring. We also aim to break down barriers and misconceptions that exist in terms of opportunities being available for women in the industry.

Utilising WiC's knowledge and experience, we have delivered successful work experience programmes both in person and, most recently virtually, adapting our model due to the restrictions around Covid-19.

As well as providing quality work experience and training, the projects have succeeded in changing attitudes. Half of the placement providers reported that they were surprised and/or impressed with the calibre of their work experience participant, expecting a far lower level of skills or abilities. This is reflected in the number of successful employment outcomes. Many of the women that have taken part are enjoying successful careers in occupations that they would not otherwise have considered.

WiC Pilot programme

16

people enrolled

Ages of participants ranged

17-54

showing that the project **supported a wide age range**

56%

of participants were from groups **other than White British ethnicity**

8

participants are known to have progressed into employment in the industry with

75%

of those offers coming from HS2 contractors (examples include Senior Project Engineer, U & A Administrator, Ecology apprenticeship and a degree apprenticeship)

2

went into further training

50%

of participants were **degree educated** with **five being educated to level 2 or below**

4

participants disclosed as **care leavers**

38%

participants disclosed **disabilities**, with some disclosing **multiple disabilities**

Women into Construction

How are we supporting specific groups? continued

BuildForce

As a result of appointing BuildForce as a route-wide military Job Brokerage Partner, HS2's Job Brokerage model makes it easier for the ex-services community to access the latest job vacancies. BuildForce is the industry's largest nationwide programme supporting service leavers to transition into long-term careers in construction and the built environment.

BuildForce inspires and enables ex-service personnel to pursue long-term careers in construction whilst supporting industry to attract, retain and grow this incredible talent pool. This industry-led organisation has been reducing skills gaps, labour shortages, and increasing diversity in the construction and infrastructure sector since 2011.

BuildForce has already enjoyed success in placing ex-military candidates with HS2's Tier 1 joint ventures, in trade roles such as Plant Operators through to management roles from Logisticians and Health and Safety Advisors. BuildForce is working with SCS Railways on work placements to open up further opportunities for the military talent pool.



We are honoured and absolutely thrilled to be the appointed military Job Brokerage Partner. Whilst BuildForce is making huge strides on HS2, both raising the profile of our ex-Services personnel and supporting them secure long-term careers, this is just the beginning. Parts of industry are still missing out on the tremendous benefits of hiring our Veterans and Service Leavers, and with the support of HS2 we are creating opportunities both for our country and for those who have served it."



Angela Forbes
Chief Executive,
BuildForce

How are we supporting specific groups? continued

Social Mobility Foundation

This year, 22 HS2 Ltd employees have registered to mentor young people on the Social Mobility Foundation's Aspiring Professional Programme. Our focus is on supporting young people who are studying the STEM subjects, helping them to reach their full potential by giving them useful insights into what a career at HS2 and in the construction and transport sector is like. Mentors support the young people with their professional development, university applications, general skills development and/or transition into their first job.

In addition to the mentoring, HS2 Ltd has provided further support for the SMF's Aspiring Professionals Programme – providing in-office work experience for a number of years. In 2020, we pivoted to provide virtual work experience for students on this programme, and will repeat this in August 2021.

**S_CIAL
MOBILITY
F_UNDATION®**



Through our partnership with HS2, hundreds of disadvantaged students have had opportunities to build their knowledge of STEM career pathways and gain relevant experience. It's wonderful to see how students are inspired by their time with HS2, and grow in confidence with the support of their mentors."



Sarah Atkinson
Chief Executive,
Social Mobility Foundation

How are we supporting specific groups? continued

Educational partnerships

There are a wide range of education engagement opportunities for schools, which can be confusing for teachers who are trying to decide which activities are most appropriate for their students. HS2 Ltd is taking a leading role in cross-sector initiatives designed to encourage a more joined-up approach so we can raise our collective impact.

- As members of the Routes into Rail board we have collaborated with other companies in the rail sector to launch a joint careers website that includes videos, case studies and a jobs board. We have also begun to work together with other rail sector companies on live events and ran a joint session for Big Bang Digital in June 2021.
- As members of Engineering UK's Business and Industry Panel we are able to share best practice and help shape the agenda. We have supported the development of the Neon website, which helps teachers to find high quality engineering outreach activities. We were able to flag the importance of employers being able to set criteria around diversity and disadvantage, so that we can continue to target engagement at schools that will benefit the most from the opportunities we can provide.

- We have also used the Engineering Brand Monitor Survey as the starting point for evaluation of our education activities, so that we can compare impact against a national benchmark.
- We also work closely with the Careers and Enterprise Company to help us to prioritise schools which are lacking employer engagement, enabling us to reach out to those who need the most support. We are a Cornerstone Employer with the Careers and Enterprise Company for the Birmingham area. We encourage HS2 colleagues to volunteer their time to support individual schools as Enterprise Advisers.



How has HS2 responded to Covid-19?

Although Covid-19 continues to pose a considerable challenge to the programme, HS2 Ltd and its supply chain continues to adapt positively. From the early stages of the pandemic, HS2 Ltd successfully kept a high proportion of its sites open and operating safely.

The Covid-19 pandemic and economic downturn has had a profound effect on the lives and livelihoods of many people and this has given the work of HS2 and our supply chain a new urgency. The Budget 2021 and the Government's Plan for Jobs, made clear their priorities to build back better, create and sustain jobs, and address skills gaps. HS2 is well-placed to support these priorities.



How has HS2 responded to Covid-19? continued

HS2 will make a major contribution to the following Government initiatives, which are particularly focused on supporting the economy to recover from the effects of Covid-19:

Kickstart Scheme – the Kickstart Scheme provides Government funding to create new jobs for 16 to 24 year olds on Universal Credit who are at risk of long-term unemployment. We will use Kickstart to create additional jobs across our supply chain; for example, Balfour Beatty Vinci, HS2's Main Works Civils Contract in the West Midlands, recently pledged to create 30 Kickstart jobs in 2021.

Apprenticeships – we will support our supply chain to take advantage of the financial incentives available to recruit apprentices, with a focus on those roles highlighted in the labour and skills forecasting data.

Sector-based Work Academy Programmes (SWAPs) – working closely with the DWP, Further Education and Adult and Community Learning partners, we will use SWAPs as a way of offering pre-employment training and work placements to create pathways into HS2 employment opportunities.

Restart Programme – we will work with the Prime Contractors to enable long-term unemployed people to benefit from HS2 employment opportunities, involving the DWP while doing so.

We have also worked with other organisations to support the Covid-19 response. 16 HS2 Ltd employees have signed up to support the pilot of a new programme being run by the charity Business in the Community (BITC) to support 10,000 job seekers most impacted by Covid-19. Called Boost, employees from the West Midlands and London act as business coaches to the jobseekers. They coach digital skills, employability skills and also share their knowledge of the local job market. The aim is to help the job seekers to stay positive and connect to the world of work by building their confidence, competence and capability to rejoin the workforce as the economy recovers.



We are delighted to have HS2 involved in our Skills Exchange programme. BITC wants to ensure the Covid-19 recovery is inclusive and no one is left behind. Skills Exchange is designed to address this by matching the skills within businesses to those who would most benefit from the support, improving their chances of success as the economy recovers."



Nicola Inge
Employment & Skills Director,
BITC

How has HS2 responded to Covid-19? continued

Covid-19 has had a serious impact on young people, with school closures affecting learning, exams and mental health. When restrictions prevented young people from visiting our offices, HS2 quickly pivoted to a virtual work experience model, to support young people as they prepared to enter a challenging jobs market.

64 students have participated in this programme, working in groups to complete work-related tasks and projects designed to broaden their career knowledge and develop essential skills for work.

Evaluation feedback has been very encouraging, with students reporting that they enjoyed the experience; it changed their perceptions of the transport infrastructure sector.

Perceptions of transport and infrastructure: February 2021 placements

Question	% pre	% post
How much do you know about what people working in transport and infrastructure do?	9%	63%
I understand how my school/college subjects, skills and career interests relate to the transport and infrastructure sector.	77%	95%
How positive or negative is your view on careers in transport and infrastructure?	55%	95%

Virtual delivery brought benefits, for example being able to include young people from the North East and North West who wouldn't have been able to travel to our offices. We were also able to cater for more students in one week, bringing opportunities for group work and to hear from senior colleagues including our CEO and Chair.

In the future we plan to offer both in-office and virtual work experience opportunities, and to develop a digital platform to widen access to more students.



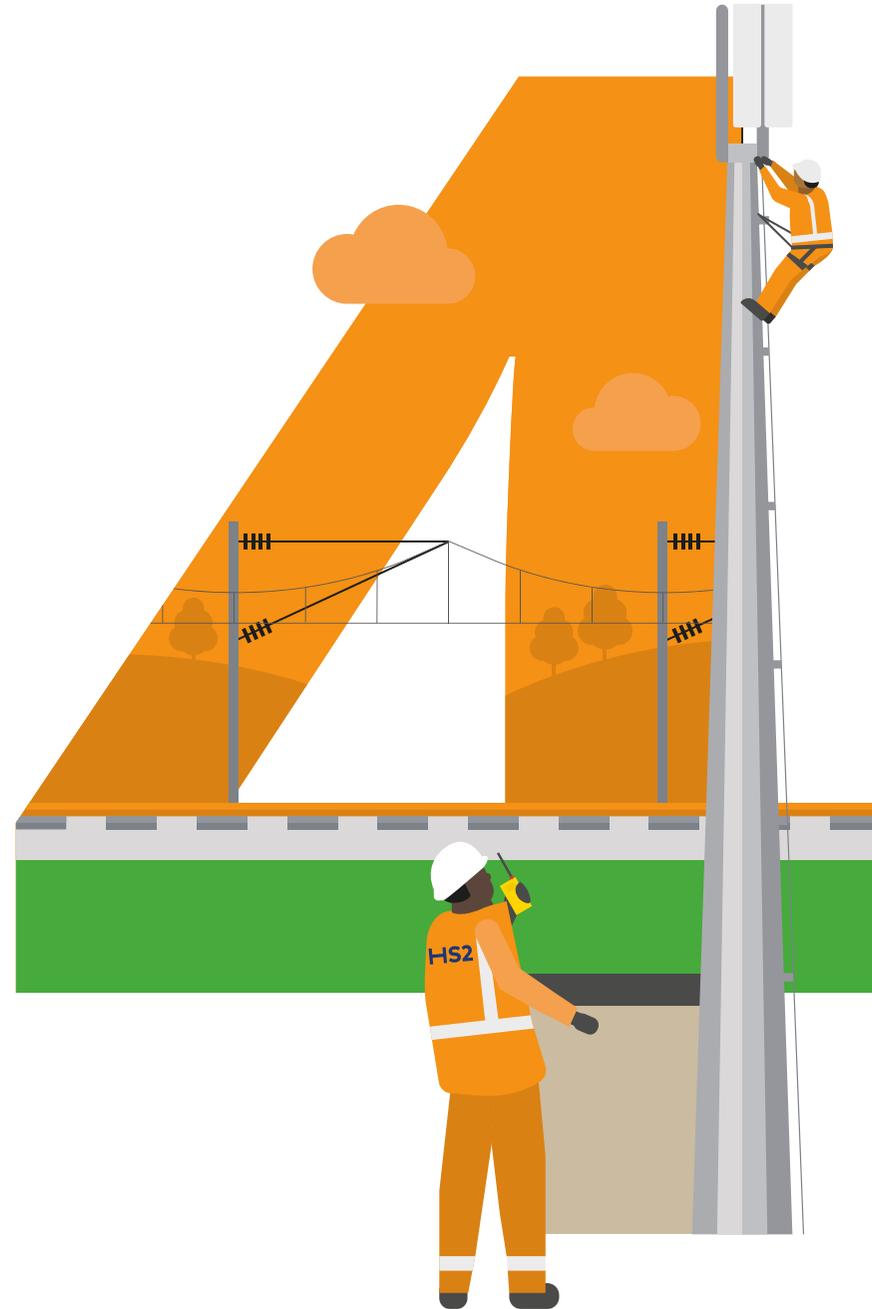
It wasn't just a work placement online, I felt like I was working with a team and the HS2 team made it feel like a family."

Virtual work experience participant

Section 4

What are HS2's future interventions?

As the programme moves ahead the skills required, labour market, and macroeconomic outlook, will continue to change, and so too will our response. In addition to the work already outlined, there are a number of areas where HS2 Ltd, our supply chain and local/regional stakeholder partners will need to focus over the coming one to two years and beyond.



Expanding Job Brokerage

The HS2 Job Brokerage service will be at the centre of the delivery of skills and employment over the coming years.

As more major contracts are awarded, the Jobs Board will continue to see new contractors integrated, resulting in more vacancies being visible on it.

The Regional Steering Groups will play a key role in delivering jobs and skills outcomes. They will:

- Use an evidence-based approach to design and deliver 'routes into employment' for disadvantaged groups, which will help to meet the contractors upcoming recruitment needs. They will interrogate the analysis contained in the main HS2 Labour and Skills Forecasting Report, together with bottom-up information from the supply chain for their geographical area and combined with local knowledge develop solutions for the skills mismatches identified.
- Work collaboratively to develop and share resources that can help to raise awareness of the HS2 Programme and the infrastructure sector and support a more diverse workforce. A central bank of information on different roles on the HS2 Programme will be developed.

- Coordinate engagement across different groups including, job seekers and those supporting job seekers to ensure that people know about the HS2 Programme and the wide range of career opportunities it presents.
- Ensure that the network of Referral Organisations is used to enable the HS2 workforce to become more representative of the communities HS2 impacts.
- Seek to join up skills and employment initiatives at a regional and local level that will support the work to address the skills mismatches and make it easier for disadvantaged and under-represented groups to access job opportunities in their localities.

A communications plan will be developed and reviewed annually to ensure maximum impact of HS2 Job Brokerage. Social media will be a significant plank of this plan.

A Regional Steering Group will also be established for the Phase 2a part of the route when relevant partners have been engaged.

Supply chain forecasting data

Quarterly skills forecasting by the Tier 1 supply chain will add to the intelligence provided in the Labour and Skills Forecasting Report.

Contractors will be required to identify on a quarterly basis where they anticipate skills mismatches to arise over the coming 6-12 months. With this intelligence, HS2 will use its convening power to bring together contractors, training providers, Job Brokerage Partners and other relevant industry and local stakeholders to identify and deliver relevant solutions that will help to address the skills mismatch.

Contractors will be required to **identify on a quarterly** basis where they anticipate **skills mismatches** to arise over the coming 6–12 months



Future labour and skills forecasts

HS2 will continue to maintain and iterate labour and skills forecasts to ensure that we have the best available intelligence on labour demand as the programme continues, and also to take account of overall labour market demand and supply, as it is affected by changes in macroeconomic environment or as a result of major reviews such as the recent Integrated Review of Security, Defence, Development and Foreign Policy and the planned revised National Infrastructure Pipeline.

Role of Innovation in the industry

To deliver a programme on the scale of HS2, we need more than ever to innovate and this includes in ways that impact the skills and jobs agenda. We need to embrace and drive advancement in the way we build the programme, being more efficient than ever, delivering to time cost and quality, delivering excellence and change in the efficiency of civil engineering programmes.

The rate of innovation in technology can be expected to ramp up significantly in coming years, giving rise to the questions whether the skills will be available in the workforce to support new approaches in data analytics, data science, new approaches to asset and traffic management, whether the capability to manage innovation is sufficient and whether the close-coupled nature of the digital railway will be understood sufficiently across the piece. The SEE team will continue to work with the Innovation team to ensure alignment on these skills issues.

HS2 is a major opportunity for British academia and UK Plc to come together and meet the challenge of delivering what is a huge investment in the country's future. The programme's scale and longevity creates the right conditions to develop solutions for HS2 and also the wider rail industry.

HS2 Ltd's agreements with bodies such as the UK Collaboratorium for Research on Infrastructure and Cities (UKCRIC) and the UK Rail Research and Innovation Network (UKRRIN) will enable HS2 Ltd to be at the forefront of innovation, and help accelerate new technologies and products from research into market applications globally, as well as bridge the skills gap that is fast approaching.

Targeted interventions on skills shortage areas

Addressing skills shortages will require close collaboration within the HS2 family and with employment and skills providers and commissioners to ensure that the right pathways are in place. The focus of this will be on the skills mismatch occupations already identified and other roles not identified by the data, but where it is known from more local intelligence that there are likely to be skills shortage challenges.

An example of this is tunnelling across Phase One of the programme, tunnel boring machines will be used to dig 64 miles of tunnels between London and the West Midlands. The labour requirements for tunnelling, while small relative to the overall labour requirements to build HS2, are not insignificant and to meet them HS2 will explore, with partners, various interventions to create pathways such as traineeships and apprenticeships.

Other occupation mismatches that have been highlighted by contractors and will be investigated further include: electrical and mechanical, consents and planning.



Funding opportunities

Adopting a partnership approach with commissioners and providers of skills and employment services will be vital in ensuring that the right provision is available to help address the challenges identified by the labour and skills forecasting data. This will also ensure that local communities and people from disadvantaged and under-represented groups can benefit from HS2 employment opportunities.

We will work with partners, particularly across the public sector, at both a national and regional level to identify suitable funding opportunities, such as from the UK Shared Prosperity Fund, that will help to meet the workforce requirements to build HS2.

We will also encourage partners to consider utilising HS2 funding, namely HS2 community and business funds, to invest in complementary activities where appropriate.

Rail System Alliance

An integral component of both Phase One and Phase 2a is the delivery of the rail systems to be designed, supplied, and installed. The first of these contracts is due to be awarded in late 2022, and there will be 10 in total. To assist with the successful delivery of the contracts, HS2 and the contractors have agreed to form and operate the Alliance. The Alliance does not materially impact the skills and capabilities required to deliver the rail systems, but may present opportunities to address some of the known challenges.

There are areas of skills challenge identified in the delivery of HS2 within Rail Systems in terms of short and long-term resource requirements related to a national shortage of Rail Engineering skills, for example, Signalling (designers and testing), Overhead Catenary System (OCS) Linesmen, data designers for control systems⁵.

A part of the formal procurement process is dialogue with prospective suppliers to understand the scope, programme, and scale of HS2 requirements. This will start from July 2021.

The Alliance itself won't help directly with skill shortages, the supply chain are already working through how they get the people they need. However, the partners may well collaborate to share skilled people where that helps to achieve the programme objectives, they will be heavily incentivised to do so.

Inspire to Hire

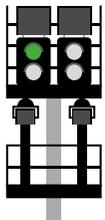
The Education Programme can be the engine that drives the diversity of our future workforce, attracting the new talent needed to fill the skills shortages identified. However, to deliver on this potential we need to develop clear pathways for young people so that good talent doesn't fall through the gaps.

The main focus of the HS2 Education Programme so far has been to inspire young people to take an interest in STEM subjects and careers. We prioritise young people from disadvantaged backgrounds and groups that are under-represented in the transport infrastructure sector, including women, those from BAME backgrounds and people with special education needs or disabilities. These activities are delivered at scale, reaching thousands of young people each year.

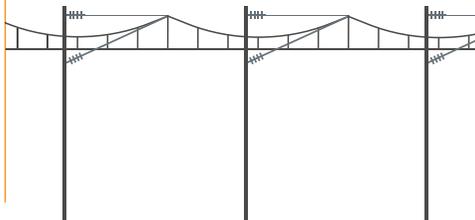
The risk is that we inspire young people who are currently in education, but we quickly lose that interest because there isn't currently an opportunity to keep potential future candidates warm and maintain their interest until they are ready to apply for roles on the HS2 Programme, such as apprenticeships.

Some areas of skills challenge identified in the delivery of HS2 within rail systems include:

Signalling (designers and testing)



Overhead Catenary System (OCS) Linesmen



Data designers for control systems



⁵ cityandguildsgroup.com/-/media/cgg-website/documents/cgg-back-on-track-report-pdf.ashx?la=en&hash=07668348451D8F75A8526EBC033870739293AB19

Inspire to Hire continued

Our Inspire to Hire framework aims to keep young people engaged and to help them to develop the skills that they would need to be successful in applications and early career roles. We envisage using a digital platform to support this, providing an opportunity for individuals to access additional learning and careers information associated with the HS2 Programme. We will then encourage these young people to apply for opportunities on the programme when they are ready, including apprenticeship, graduate- and entry-level roles.

The common thread running through the Inspire to Hire framework is Essential Skills. HS2 Ltd is a member organisation of Skills Builder and we use the Skills Builder Universal Framework when engaging with young people to help develop these essential skills. By placing skills at the centre of our education and future talent programmes and by adopting a common language when we discuss skills, we can help young people to understand the connections between different parts of our programme as they progress.

SEE approach for Phase 2b

We are having conversations with relevant stakeholders along the line of route for Phase 2b, to build skills capacity by taking best practice from Phase One and Phase 2a and adapting to the labour market of Phase 2b where we have the greatest certainty. This will ensure that a skilled workforce to meet the future demand of Phase 2b will be in place at the right time.

The scale of the HS2 Programme brings a skills challenge for us to find the workforce to deliver on time and on budget, but also brings an opportunity through training and employment opportunities to create a skills legacy in the region.

HS2 is committed to engaging with young people to promote interest in STEM subjects and careers, so that more young people are in a position to take advantage of the opportunities that HS2 and other transport infrastructure projects will create.

Working in partnership with the supply chain, our Education Programme aims to support schools to achieve their Gatsby Benchmarks, through delivery of STEM workshops, targeted at schools in areas of high disadvantage or diversity and provision of online curriculum resources that are available to all schools.



Looking forward

The next 12 months are pivotal for the HS2 Programme, and for jobs and skills interventions. As we come out of the Covid-19 pandemic, we have many challenges ahead of us as we work to support the Government's Build Back Better agenda. But with every challenge there are new opportunities.

From the Job Brokerage model to the Operator Skills Hub, many interventions are already established. Many more are on track to help meet the joint challenge of skills shortages and the opportunities to support more people, from more diverse backgrounds into lasting careers.

This is a once-in-a-generation programme – and we have an unprecedented opportunity to shape the workforce of tomorrow, for generations to come.



