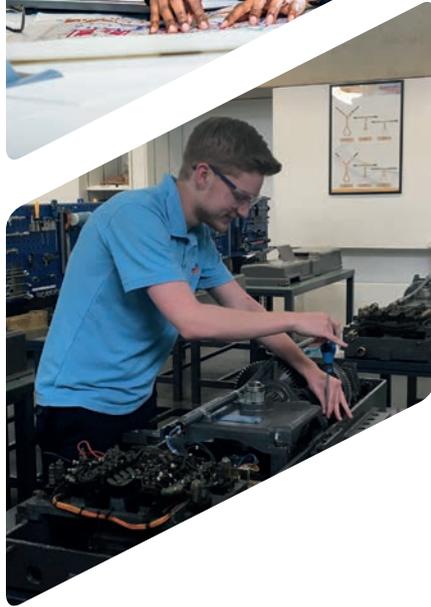
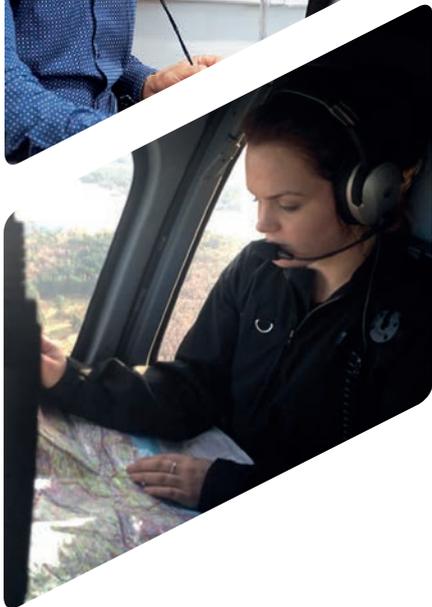


Transport Infrastructure Skills Strategy

One year on

A report by the Strategic Transport Apprenticeship Taskforce July 2017



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Foreword



The transport sector is delivering on its promise to address the skills challenges we are facing. This report sets out our work to date and the key focus going forward. We have had successes and have an ambitious future plan.

The importance of investment in critical national infrastructure has been emphasised by the government, particularly in the context of the UK leaving the EU. Many of these infrastructure projects will be transport related.

Demand for rail travel has more than doubled over the past twenty years, from 800 million journeys every year to over 1.7 billion. On our roads, the number of vehicle miles driven in the UK has risen by nine and a half times since 1950. While the road network in Britain has grown just 3% in length since 1993, it now carries 23% more traffic. The number of passengers has increased by 6 million at Heathrow and by 9 million at Gatwick since 2012. This growth demonstrates the importance for investment to continue to support the UK's growth and competition in the world market.

To sustain the transport sector it is vital that the industry invests properly in the skills required for the future. Without clear intervention, there will not be enough talented people to lead the development and delivery of the projects required.

That is why STAT is so important. Apprentices are a vital constituent of the skills required in the future and it is right that the transport sector should be leading work across government. We are making progress.

By harnessing a diversity of talent we are beginning to see a greater proportion of women pursuing careers in transport, and our challenge now is to see similar progress attracting people from the Black, Asian and Minority Ethnic communities. Although we are making a start, there is a great deal more to do to tackle under representation which, we believe, in turn will make the transport sector more productive and successful in responding to future demands.

I look forward to working with STAT and colleagues across the transport sector as we move into our second year.

A handwritten signature in blue ink, appearing to read 'Mike Brown'.

Mike Brown
Commissioner, Transport for London
and Chair of STAT

Executive Summary

The Strategic Transport Apprenticeship Taskforce

The taskforce is the voluntary, cross-industry body that has been given the responsibility for meeting stretching targets for apprenticeships, improved sector diversity and promoting transport as a career.

STAT was established in April 2016 to deliver on the ambition of the Transport Infrastructure Skills Strategy. This report sets out our response to that ambition: work undertaken over the course of our first year; what we have learnt; and how we will continue to meet some of the challenges we have encountered. Our work has shown that transport is on the front foot in responding to skills shortages, and we can clearly see opportunities right across the sector. There is even more imperative to redouble efforts as we develop our plans for productivity and growth in a post-Brexit Britain.

Membership of STAT has grown and now includes the Rail Delivery Group, the Trades Union Congress and Heathrow Airport. Maritime, ports and the road freight sectors have also been invited to take part. Board membership now includes apprentices, bringing their first-hand experience into our work.

Meeting the demand for skilled people

Road freight could generate up to 15,000 apprenticeships next year alone; there are currently 1,900 'cadets' (junior officers) in training in maritime, and the proposed expansion of Heathrow Airport has the potential to create 180,000 jobs and 10,000 apprenticeships across the country.

We are seeing some encouraging numbers coming through the roads and rail delivery bodies, where procurement has been a lever to drive investment in skills. During this first year, some 2,000 apprenticeships were created through direct levers. Our modeling shows our need is in the range of 27,000-35,000 apprenticeships to 2022.

Skills requirements were introduced into all relevant Invitations to Tender in April 2016, including in rail franchising. We are expecting significant increases as contracts move to award. The Apprenticeship Levy, introduced in April of this year, will drive investment further.

We have improved our understanding of the skills we need in the future by commissioning the development of the most detailed skills forecasting tool that the transport industry has ever had. The model shows that we need higher level skills, including in emerging disciplines such as cyber security and digital signalling. We will also require a consistent pipeline of workers at operative level, including construction and service staff. We can see where skills are needed, in terms of both geography and discipline.

Our work shows that in the coming years in the roads and rail sectors, we will require a trajectory reaching 5,000 to 8,000 apprentices per year. There is even more imperative to redouble efforts as we develop our plans for productivity and growth in a post-Brexit Britain.

On workforce diversity, we are making progress towards our ambition. 12% of women technical and engineering apprenticeship starts in the supply chain were women, and at NVQ levels 6 and 7, this figure rose to 39%.

However, there is much more to do to reach our ambition. Through the taskforce, members from aviation, maritime, rail and roads have established a common purpose and basis for collaboration, sharing, benchmarking and mutual encouragement to achieve industry leading diversity outcomes. Our work this year has revealed that a large number of employers are still not reporting BAME data. This is clearly a problem and we will develop a plan to address it.

Whilst higher level skills drive productivity, they also bring costs for training providers and for employers. Work has underlined the challenges that the supply chain faces investing in long term skills. In the coming year, we want to work more closely with the supply chain to identify potential solutions, which will feed into wider work to drive productivity and growth.

Developing the right quality skills

It is in the interests of employers, training providers and apprentices, that a high quality of delivery is provided. STAT believes that there should be a focus on the total apprenticeship experience. This is why we have entered a powerful collaboration with Investors in People to define what quality looks like in the apprenticeship sector.

Our members are developing, or have successfully delivered, a large number of high quality apprenticeship standards.

STAT also recognises that with the focus on higher level apprenticeships comes the risk that we inadvertently create a system that is not truly inclusive. We will consider how to design programmes which continue to encourage social mobility, including among new entrants as well as for upskilling the existing workforce, and in geographical areas where opportunities are limited.

Securing our future skills

There has also been substantial investment in transport centres of excellence. STAT members have made better use of their training assets, forming a training alliance involving the core publicly funded infrastructure trainers.

Two independent studies were commissioned to identify where the opportunities and challenges are for transport to collaborate more effectively with the higher and further education sectors and provide a more mainstream route into the industry. STAT will consider the findings of these reports alongside DfT Ministers and industry experts. Providing better careers information about the transport sector is an area where STAT could provide real value in the coming year.

Engaging with younger children to promote the breadth of opportunity that careers in transport offer, can widen the pool of people who would consider working in our sector. We are seeing a welcome increase in the number of transport professionals who have volunteered their time for schools outreach.

Over the coming year, STAT will continue to support collaboration with outreach providers, and will develop and roll out a methodology to more effectively target the populations that we wish to attract to our sector.

We will also ensure that the transport sector supports the Year of Engineering in 2018 to showcase the forward looking careers in transport and the routes into them.

Next steps

In the year to come, we will continue to focus on making sure that our apprenticeships reflect our diversity as a country and that apprenticeships continue to make an important contribution to social mobility. We will continue to drive the delivery of apprenticeships through the supply chain, working with employers and government to address challenges and develop solutions to deliver our ambition.

The Strategic Transport Apprenticeship Taskforce

The Strategic Transport Apprenticeship Taskforce (STAT) was established in April 2016 as the primary delivery vehicle for the Transport Infrastructure Skills Strategy. Now one year on, as we prepare for a post-Brexit Britain, there is even more imperative to invest in skills. Our collaboration is gaining increasing momentum as membership expands to become more representative of the industry as a whole, and provides a voice to apprentices in our industry as part of this work. Over the coming year, under the chairmanship of Mike Brown, STAT will continue to work to ensure that it drives up provision and diversity of apprenticeships across the sector.

Transport skills

- 1 Transport is fundamental to everyone's lives. It drives our economy, connects our communities, unlocks new homes, and links us with jobs and essential services. The government is putting record investment into transport infrastructure with schemes like High Speed 2 and the Elizabeth Line, as well as major investment in our road infrastructure and streets for walking, cycling and public transport.
- 2 The Transport Infrastructure Skills Strategy was published in January 2016 as a response to the risks to our investment programme of skills shortages. These challenges are compounded by an ageing workforce, a lack of diversity and the challenge of attracting talent, all of which are key factors in the stagnating productivity of the transport sector.
- 3 The strategy set stretching ambitions for the creation of new apprenticeships; tackling the transport sector's poor record on diversity, and recognised the need to collaborate on promoting transport as a career to young people, parents and teachers. The Chief Executive Officers (CEOs) of Network Rail, Highways England, Crossrail, High Speed 2 Ltd. (HS2 Ltd.), Transport for London (TfL) and the Permanent Secretary of the Department for Transport (DfT) all committed to delivering it. The strategy can be found at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/495900/transport-infrastructure-strategy-building-sustainable-skills.pdf

The case for continued investment in skills

- 4 The government's Industrial Strategy encourages businesses to invest for the long term, and developing a sustainable workforce is a critical part of the plan for post-Brexit Britain. Employers may no longer have such easy access to labour from Europe to fill specific shortages, so the imperative to work together to create the conditions where successful businesses can emerge and grow is now even more pressing.
- 5 Fundamental to this strategy for productivity and growth is the creation and expansion of the skilled workforce we need to deliver our economic infrastructure. Far reaching reforms to technical and vocational education have been designed to develop this capability. These will take time to bed in. Employers need to work closely with education establishments to make sure that our sector is in a position to make the most of the opportunity the reforms offer as quickly as possible.

Introducing the Strategic Transport Apprenticeship Taskforce

- 6 STAT was established in April 2016 as a voluntary collaboration of transport employers. The Chair is appointed by the Secretary of State for Transport, and ministers are kept informed of progress.
- 7 The taskforce is currently chaired by Mike Brown, Commissioner of Transport for London, and previously by Simon Kirby (formerly Chief Executive Officer of HS2 Ltd).
- 8 Membership of STAT includes the Rail Delivery Group (RDG), representing train operators, the Trades Union Congress (TUC), representing employees, and Heathrow Airport and the National Skills Academy for Rail (NSAR). We have recently invited

participation from maritime, ports, road freight and logistics sectors. Most importantly, we have expanded our membership to include apprentices themselves, to bring their first-hand experience to influence our work and agenda.

- 9 Membership is by invitation of the Chair, and is as shown on following spread.
- 10 STAT is supported by a working group, predominantly of skills and employment leads from the above organisations as well as procurement leads from the Supply Chain Skills Network.



Mike Brown
Chair
Commissioner,
Transport for London



Kevin Rowan
**Head of
Organisation
and Services**
Trades Union
Congress



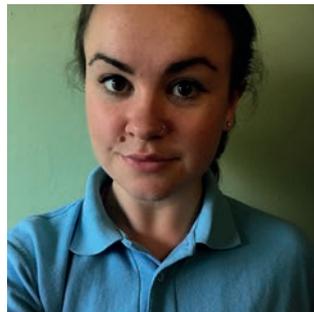
Russell Wallis
Change Director
Major Projects,
Highways England



Callum Brown
**Senior apprentice
Civil Engineer**
Highways England



Rob McIntosh
**Route Managing
Director**
Network Rail



Nichola Wright
**Signalling
Technician and
recent apprentice**
Network Rail



Richard Mould
**Procurement
Operations**
HS2 Ltd



George Clark
**Director of
Engineering**
Transport for London



Valerie Todd
Talent and
Resources Director
Crossrail



Katie Kelleher
Crane Operator
& apprentice
Crossrail



Paul Plummer
Chief Executive
Rail Delivery Group



Becky Ivers
People Director
Expansion,
Heathrow Airport



Neil Robertson
CEO
National Skills
Academy for Rail



Beverley Bell
Senior Traffic
Commissioner
2012-2017



Catherine De Marco,
Deputy Director
Infrastructure Skills
DfT



Heidi Catlin
Policy Advisor
and apprentice
DfT

Meeting the demand for skilled people



1 Understanding the scale of need for skilled people

We commissioned NSAR to produce the most detailed skills forecasting tool the sector has ever had. We now have a comprehensive picture of our workforce needs: what skills we need, where they are required and over what time horizon across the roads and rail sectors.

The model shows that in the coming years we will require a trajectory reaching between 5,000 and 8,000 apprentices starting per year to deliver our ambitious pipeline of investment. Of critical importance will be building workforce capability in new and emerging disciplines including cyber security, digital signalling and traffic management. New apprenticeships will be key to replacing members of the workforce that are nearing retirement – our modelling suggests that more than 50,000 rail workers will reach the age of 65 in the next 10 years.

STAT is using the model to develop its work programme – including developing trailblazer standards as well as supporting educational institutions deliver the capability required to meet future sector needs.

- 1.1 NSAR's Skills Intelligence Model (SIM) is informed by the largest survey of workforce supply and demand that has ever been completed in the surface transport sector. The model draws data from a variety of sources, including bespoke industry surveys and the rail Sentinel system, to analyse the current workforce and model future need.
- 1.2 NSAR has made investment assumptions based on publicly available information, and has assumed that where information is not yet available for future investment periods, funding will remain constant. Assumptions will be updated as and when funding for future investment periods are agreed and published. Further outputs, as well as a full description of the modelling assumptions, will be published in the Skills Forecasting Baseline Study report.
- 1.3 Our work has shown both the scale of the task and highlighted important changes in our skills requirements.

Supply

- 1.4 Our model estimates that the current sector workforce comprises 220,000 people in rail and 48,000 people in road. The model includes delivery bodies such as Network Rail, TfL, HS2 Ltd, train operating companies, Highways England, county councils, unitary authorities, metropolitan districts and also the transport supply chain.

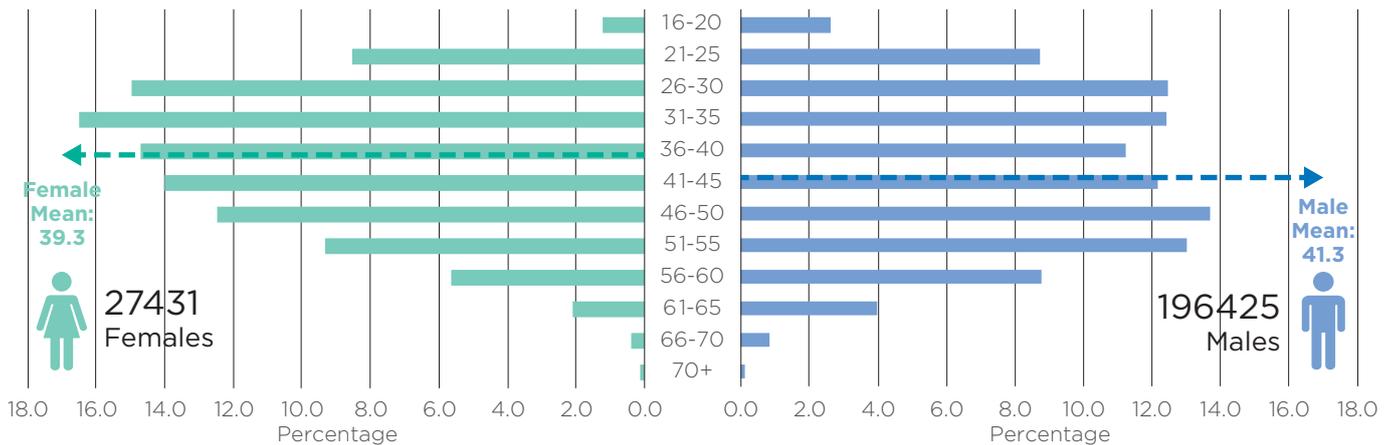
Meeting the demand for skilled people

1.5 In the roads sector, half of the workforce is in investment projects (infrastructure design and construction), with the remainder in maintenance. We have not been able to model the operations workforce in roads as part of this exercise. In rail, 43% is in investment projects, 17% in maintenance and the remainder in operations and business management.

1.6 Workforce characteristics of the rail sector¹

1.7 The gender balance of the rail sector has been steadily improving, albeit against a poor historic baseline. In the four years to 2017, the percentage of women in the rail workforce increased from 8% to 11%, and the proportion of women in rail engineering doubled to 8%.

1.8 The chart below sets out the numbers and age profile of men and women in the rail workforce.



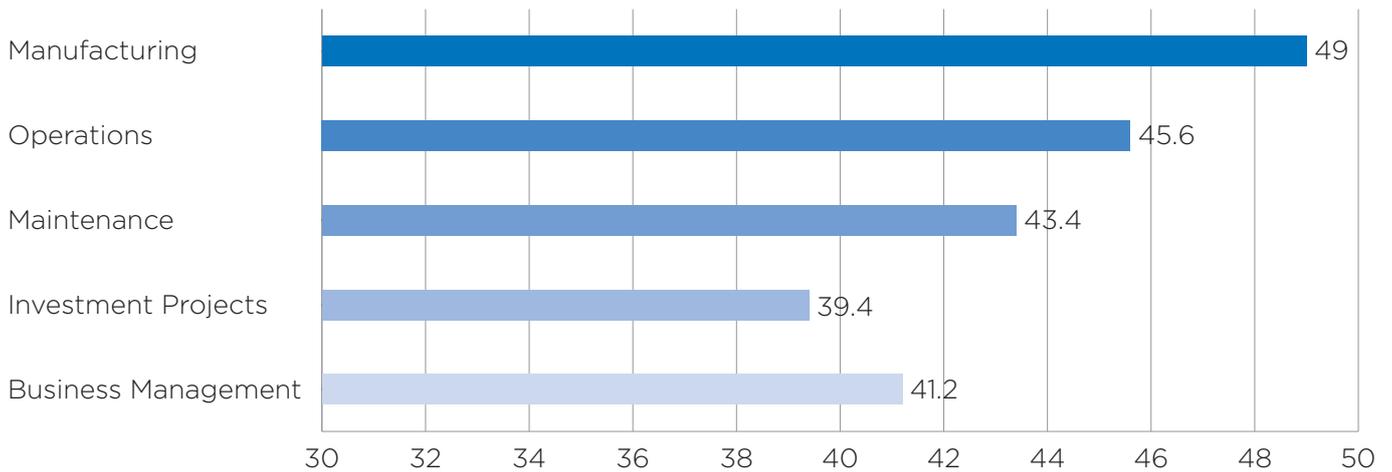
¹ Workforce characteristics are not currently available for roads. See “next steps”

1.9 The age profile of the rail sector is fairly similar to the national workforce, with the median employee age in rail at 42 years. The demographic profile however varies markedly by discipline.

1.10 It is important that there is a sufficient pipeline of appropriately skilled workers to replace those that are expected to retire over the next decade. Our modelling suggests that during the period to 2028, 50,000 rail workers will reach the age of 65.

1.11 This research identifies critical skill areas and regions where skill shortages are likely to be most acute.

Average ages for workforce



Demand

- 1.12 To deliver the pipeline of investment in rail and road, we will require additional skilled people to design, build, maintain and operate our infrastructure. This includes increasing our capability in a number of emerging disciplines including cyber security, autonomous control systems and intelligent infrastructure.
- 1.13 New skill sets will be required to take advantage of new construction processes, including greater use of 3D printing, as well as a shift towards modular, off-site fabrication in infrastructure projects.
- Intelligent infrastructure is currently being delivered, including digital railway signalling and ‘smart motorways’.
 - As an example of specific skills gaps that have been identified in the rail sector, findings from industry stakeholder engagement suggest that there is a shortage of data scientists within rail. DfT is testing this assumption with industry and will work together to explore options to address this skills gap.
- 1.14 The case studies following, set out how our organisations are responding to these emerging disciplines.
- 1.15 These emerging disciplines may impact on the skills required by a wide range of railway staff. As an example, train drivers will increasingly need to interact with digital systems including in-cab signalling and driver advisory systems. This will have implications for the design of future apprenticeships and upskilling programmes.

Digital Railway – Department for Transport/Network Rail

DfT is working closely with Network Rail, along with other industry and training providers to explore how best to ensure the sector has the skills required to deliver the Digital Railway. This includes maximising the opportunity the Digital Railway presents to create high-value jobs, apprenticeships and skills growth, contributing to the building of world-leading capability within the UK.

DfT and Network Rail are considering how procurement processes can

embed requirements around skills and apprenticeships in line with the recommendations set out in the Transport Infrastructure Skills Strategy.

Implementation of Digital Railway requires skills development. DfT is considering how preparations for introducing digital technologies – including training for staff – can be ensured within future franchises. Work is underway within the Digital Railway Programme, working closely with industry, to prepare a People Strategy that includes training, engagement, attraction and retention.

Cyber security apprenticeships – Department for Digital, Culture, Media and Sport case study

The Department for Digital, Culture, Media and Sport started a cyber security apprenticeships initiative in 2016, as part of the National Cyber Security Programme. This was in recognition of the need to rapidly increase the number of skilled cyber security professionals, particularly for critical national infrastructure sectors.

We formed an industry working group with our priority sectors – transportation and energy. The group helped to define which cyber security apprenticeship standards would be relevant as well as requirements for sector-specific training. Members of the working group including Transport for London, Network Rail and Horiba-MIRA, all promoted the programme and the newly available level 4 (Higher) Cyber Security Apprenticeship Standards.

The package of support offered to participating employers includes recruitment and assessment of apprentices, funding for training costs outside of existing arrangements and a retention premium. The first two cohorts in London and the North, of nineteen apprentices, are starting their programmes now. The department is currently working to secure commitments with more transport organisations to start in autumn 2017 and beyond.

The Department for Digital, Culture, Media and Sport's initial efforts have shown signs of success: the recruitment campaign was open for less than three weeks and attracted 1,247 applications. Following online strengths-based assessments and video interviews, applicants were matched to employers. The employers then made final selections through interview or further assessment, supported by the recruitment provider if desired. Initial feedback has shown that the employers were impressed with the quality of candidates and, as the apprentices begin work and training, the working group will closely monitor the success of the programme.

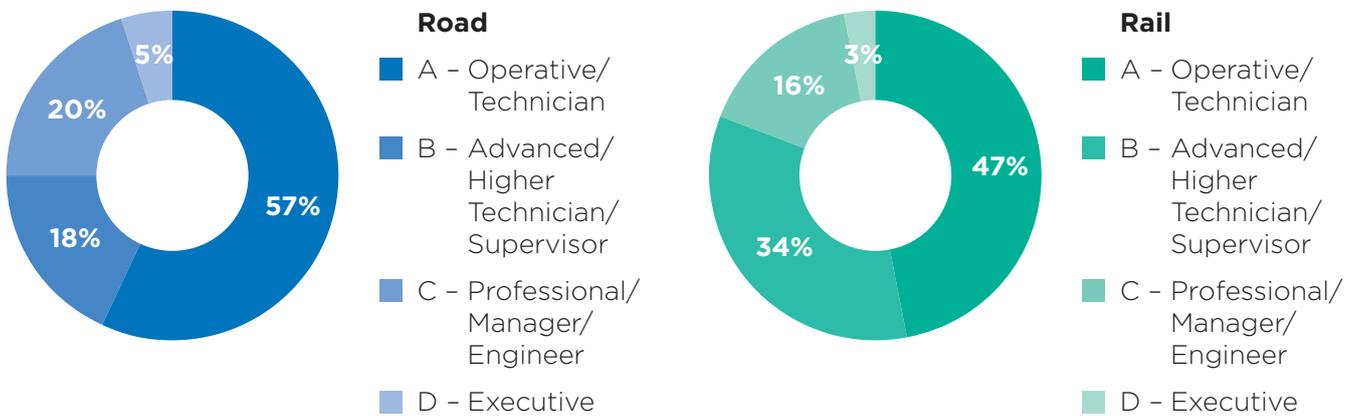
Meeting the demand for skilled people

1.16 The following charts show the split of skill levels in road and rail, which we have modelled over a five year planning horizon to 2022².

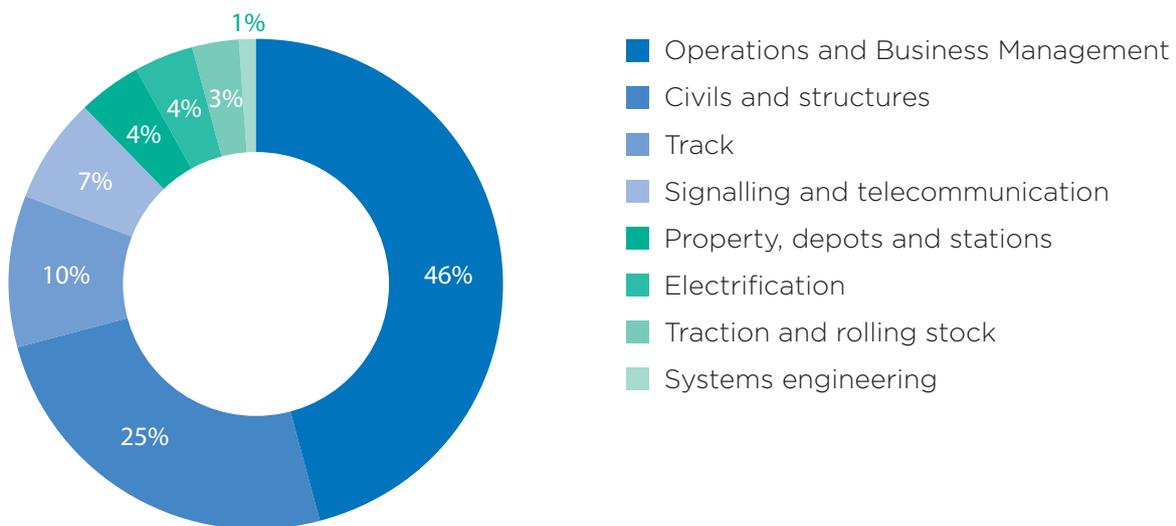
1.17 Our modelling shows that within rail, the proportion of higher and advanced technician level employees required will increase from 23% of the workforce in 2017 to 34%.

1.18 Within the road sector, the requirement at operative level (levels 1 and 2) remains fairly constant, at approximately 56% of the total workforce.

2022 Forecasted skill levels – Road and Rail



Future Workforce split by Asset type – Road to Rail to 2021/22



2 Ultimately, it will make sense to plan to 2024 for rail and 2025 for roads as these are the end of the next investment periods. But we will need to wait for funding level to be agreed in order for us to be able to set this out with confidence.

- 1.19 Within rail, driven largely by the demographic profile of the sector, our analysis has shown that 2020 and 2021 are forecast to be the years with the highest overall skills shortage, and the West Midlands is the region of highest need.
- 1.20 At the peak, an additional 7,150 people will be required in signalling nationally, 10,000 in track and 3,750 in electrification. Apprenticeships, as a means to attract new entrants as well as upskilling our existing workforce, will help meet this need.
- 1.21 Skills required in the roads sector include steel fixing, pipe laying and excavation, as well as civil engineers in the highways, drainage and structural engineering disciplines. Apprenticeships present real opportunities to grow our skills base.
- 1.22 As our businesses grow and develop new ways of working with the supply chain, we will also need to develop our in house skills and capability in relation to programme management, risk managers, data analysts, and Building Information Modelling (BIM)/ visualisation specialists.



Regional implications

- 1.23 London and the South East will continue to generate demand for the greatest numbers of skilled workers, however there is also significant demand across the UK.
- 1.24 Investment in London and the South East has the potential to support job creation elsewhere. For example, approximately 62% of Crossrail contracts have been awarded to businesses outside London. It is estimated that Crossrail construction, including the supply chain, is supporting 55,000 full-time equivalent roles across the UK.
- 1.25 We estimate that the supply chain outside London and the South East will, by 2021/22, benefit from investment in the region by approximately 18,000 to 25,000 full time equivalent roles per annum.
- 1.26 Through the use of new manufacturing methods such as off-site construction, investment in London and the South East has the potential to drive job creation elsewhere.
- 1.27 The proposed expansion of Heathrow Airport plans to use off-site construction extensively, including pre-fabrication of whole modules of buildings, and creating a network of four 'logistics hubs' across the country. WPI Economics³ has estimated that c. 60% of the procurement spend will be outside London, creating approximately 108,000 jobs outside London and the South East.
- 1.28 Research by Construction Industry Training Board (CITB) shows that 42% of construction industry employers with over 100 staff expect to use off-site methods within five years⁴.

3 <http://www.wpieconomics.com/WPI-Economics-Value-of-Off-Site-Construction-April-17.pdf>

4 https://www.citb.co.uk/documents/research/offsite_construction/offsite_construction_full_report_20170410.pdf

Case study: Heathrow Airport's use of off-site construction in large-scale infrastructure projects

Off-site construction has been used on large infrastructure projects before, including components of Crossrail being manufactured in the West Midlands. Off-site construction methods have also been used to assist with the construction of Terminal 2 and Terminal 5 at Heathrow. In both cases, to expedite construction and join local supply chains with the national project, components were constructed off-site before being shipped semi-finished or pre-fabricated to the construction site.

For Terminal 5 this included Mechanical and Electrical (M&E) modules that were assembled in areas including the West Midlands, Kent, and Renfrew in Scotland, before being transported by road to Heathrow. Other components included floor slabs for car parks from Scotland, drywall construction from West Sussex, and joinery and fit-out of toilets from

Northern Ireland. These were not just small elements of the overall construction; they included the structural steelwork for Terminal 2, which was constructed in Lancashire and Yorkshire and also the roof cassettes used in Terminal 5.

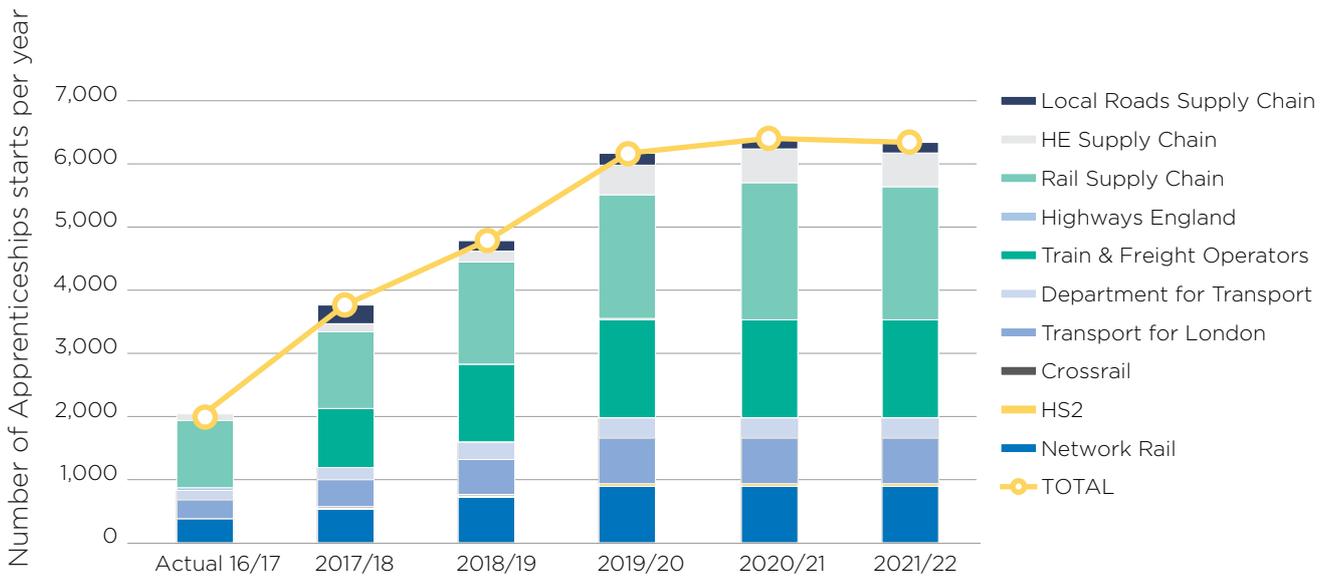
In the case of both Terminals, this off-site assembly was facilitated through the Colnbrook Logistics Centre which acted to coordinate and consolidate materials, as well as for coordinating efficient delivery of bulk materials. Whilst it is difficult to aggregate the overall savings in terms of time, or the collective safety benefits, they clearly exist. For example, it is estimated that the offsite construction of 14 prefabricated risers for Terminal 5 saved approximately four months per riser compared to conventional construction. Overall, the use of offsite construction made it substantially easier to build both Terminal 2 and Terminal 5 at a quicker pace and with less disruption than traditional methods would allow, and that it also resulted in the work for these projects being spread across the country.



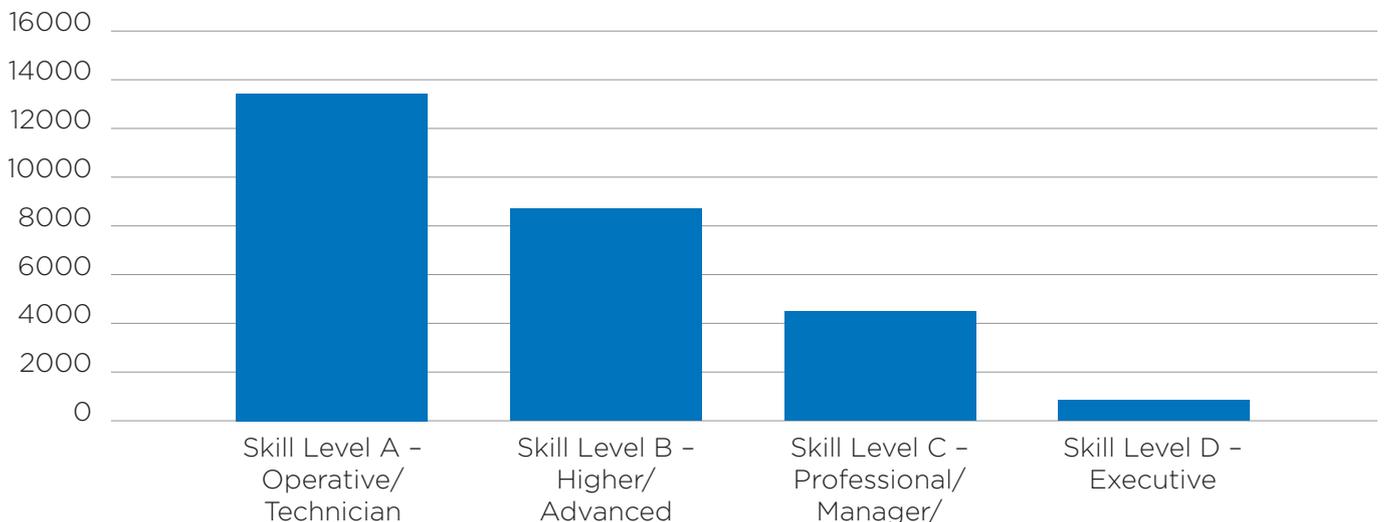
Picture: Precast concrete beams for multi-storey car park ramp.
Source: Heathrow. Content source: <http://www.wpieconomics.com/WPI-Economics-Value-of-Off-Site-Construction-April-17.pdf>

Apprenticeships

1.29 A trajectory reaching 5,000 and 8,000 apprentices are required per year in road and rail, corresponding to 27,000 to 35,000 apprentices during the years to 2022. We estimate that approximately half this number will be new joiners and half existing workforce being upskilled. The charts below show the lower end of this range.



1.30 Approximately half of the apprenticeship places will be required at ‘operative’ level – this includes construction workers, service staff and road maintenance technicians. The remaining half will required at the higher skills levels, (levels 4-7) including rail engineering and rail systems technicians, including apprentices at Master’s degree level (referred to as ‘executive’ in the chart below).



Case Study: Network Rail

“I am a Signalling Technician working for Network Rail. I have recently completed my advanced apprenticeship scheme with the company, which has allowed me to pursue this job and begin my career.

Whilst I was at school, I distinctly remember being told that university was the only possible option for me, and hearing shocked remarks whenever I mentioned the possibility of an apprenticeship. Though I always had a passion for learning, I could never envisage myself following the university path, and so this led me to look further into the world of apprenticeships and what they can offer me. I made the decision to apply for and accept my offer of a place on the scheme in May 2014 and I have never looked back, regardless of incredulous reactions from my peers.

The scheme involved a nine month residency at a training centre in the south of England, which allows me to develop my independence, ready for my new job position, as well as ten crucial qualifications that would help me through my career. The next two years were spent working and training at a depot near to me, allowing me to learn my craft out on the track, and occasionally returning to the training centre to earn further competencies, all whilst still earning a wage.

As well as learning my trade, the scheme has given me other amazing opportunities. I have been able to visit my old school and talk to the students about the merits of apprenticeships, and those specifically within the transport sector. I have also been lucky enough to take part in several projects, one of which being STAT. This has allowed me to travel the country for meetings, and meet a wide variety of people which has enriched my career.

I sing the praises of apprenticeships to everyone I meet, as it has given me opportunities beyond what I could have imagined and the chance of an incredible career.”



Nichola Wright

Signalling Technician and recent apprentice
Network Rail

Case Study: Great Western Railway apprenticeship programme

Our current apprenticeship programme began in 2011 and so far, 61 apprentices have successfully completed an 18-month apprenticeship with the opportunity to gain an NVQ, BTEC or Duke of Edinburgh Gold Award.

The apprenticeship programme encompasses all strands of our business from operations, to engineering and management, and as well as the opportunity to gain a qualification, it also involves on the job training and mentoring for senior colleagues.

For Great Western Railway (GWR), recruiting and training a skilled and innovative workforce is important. Especially as we draw closer to major upgrades of our trains and track thanks to the electrification of the network and new trains as part of the Intercity Express Programme.

In March 2017, GWR brought together former and current apprentices to run an entire train station for the first time. Eleven members of staff in different roles staffed Bristol Parkway station, helping to ensure trains departed the station and providing information to customers.

“The Operations and Aspire apprenticeships I have completed have been a brilliant way for me to gain knowledge and experience of the industry while developing myself as a person as well.

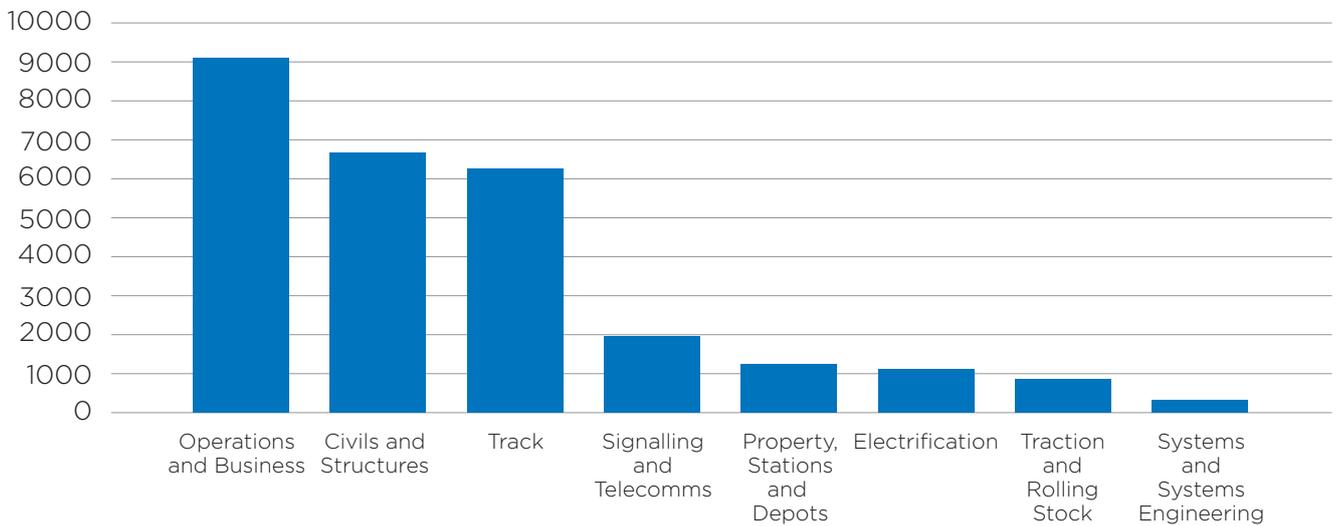
I have been able to earn a good wage, gain numerous qualifications and gain invaluable life experience while being involved in the apprenticeship schemes. I would recommend an apprenticeship to anyone who is willing to work hard.”

Josh Haskins

Former Operations Apprentice
GWR Customer Host, and Aspire Apprentice.

- 1.31 Apprentices will be required across a range of disciplines and asset types. While a large number of apprentices are expected to sit within operations and business management functions, the most critical skill sets required are in transport-specific disciplines including: signalling, electrification, and civil and structural engineering.

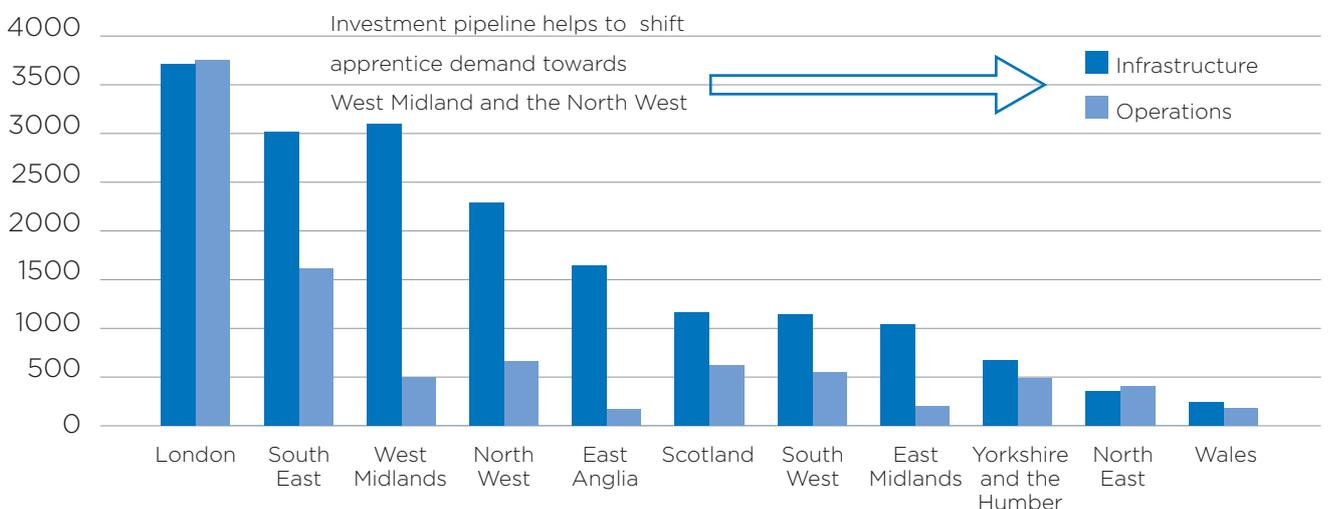
Total number of apprentices required by asset type to 2021/2022



1.32 We anticipate that just over one-third of the overall demand for apprentices will be in London and the South East. Demand will increase in the North West and West Midlands, particularly during the construction of HS2. Major projects will generate opportunities for apprenticeships on a regional and national basis.

1.33 This steady shift can be demonstrated by the proportion of the investment project workforce in the West Midlands and the North West increasing to 37% in 2021/22 – up from 30% in 2017/18.

Total number of apprentices required in infrastructure and operations by region to 2021/2022



Non-UK EU nationals in the transport workforce

- 1.34 The ONS Labour Force Survey⁵ states that, nationally, reliance on non-UK EU workers in transport and construction is 8% and 9% respectively. Additionally, NSAR estimates that in some regions, up to 20% of the railway workforce are from non-UK EU countries.
- 1.35 Highways England initial estimates also suggest that over 20% of their workforce are of non-UK EU origin.
- 1.36 There is significant reliance on non-UK EU workers in specific rail disciplines (for example in electrical engineering), among service staff working for train operators, and particularly in infrastructure construction. Research projects conducted by NSAR and corroborated by CITB⁶ also suggests that non-UK EU workers may comprise up to half of the workforce at skill level 2 in London and the South East. Our planning going forward will need to take account of these dimensions.

The scale of need – key points are:

- 1.37 Investment levels are assumed to remain consistent for the foreseeable future, leading to a required workforce in excess of 250,000. There is a significant shift away from London and the South East (55% in 2017 to 45% in 2022) towards the West Midlands and the North West over the next decade. This will be at least partially driven by the development of HS2.
- 1.38 In 2022, two-thirds of the workforce across rail and road will be employed in investment projects (design and construction) and maintenance.
- 1.39 In rail, our modelling suggests that more than 50,000 workers will reach the age of 65 in the next 15 years. Workforce demographics vary significantly between work areas, from an average age of 39 in investment projects to 49 years in manufacturing.
- 1.40 This is set to drive demand in key disciplines such as signalling, electrification, track, traction and rolling stock, which could be ideally positioned to take advantage of the opportunities that the apprenticeship agenda offers. Increased capability will also be required in technology disciplines including: data analytics, software engineering, systems engineering and programming.

5 <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/internationalmigration/articles/migrationandthelabourmarketuk/2016#what-industry-and-occupations-did-non-uk-nationals-work-in>

6 [http://www.citb.co.uk/global/research/citb%20migration%20research%20exec%20summary%20june%202017%20%20single%20pages%20\(2\).pdf](http://www.citb.co.uk/global/research/citb%20migration%20research%20exec%20summary%20june%202017%20%20single%20pages%20(2).pdf)

1.41 The gender balance in rail has been steadily improving, although there is significant progress to be made in most disciplines. The demographic profile of the sector shows that female rail employees are, on average, two years younger than men.

1.42 There could be as many as 50,000 non-UK EU workers in lower skilled sector roles, predominantly in London and the South East. Our future planning will need to take account of this dimension.

Next steps

1.43 STAT will work with NSAR to update the Skills Intelligence Model on a regular basis to identify key skills shortages and prioritise areas of focus. This is likely to include:

- Deep dive into priority regions and disciplines;
- Additional survey work to inform inputs on workforce characteristics for roads and more broadly across the industry to inform our knowledge of sector diversity;
- Broadening the model to cover additional modes of transport.

1.44 STAT will use the model to influence the development of its future work programme as well as to:

- Inform educational institutions to deliver the capability required to meet future sector needs;
- Set out for industry the workforce demands driven by our investment programmes going forward.

2 Driving investment in skills

There is huge opportunity right across the transport sector to invest in skills. In addition to the needs of roads and rail modelled in the previous chapter, the road freight sector could generate up to 15,000 apprenticeships next year alone, and there are currently 1,900 “cadets” (junior officers) in training in maritime. The proposed expansion of Heathrow Airport also has the potential to create 180,000 jobs and 10,000 apprentices across the country.

This chapter sets out our work so far: creating apprenticeships in the STAT organisations; driving investment through the supply chain through procurement; and identifying best practice and sharing learning across the sector, where there are strong synergies.

We set to work quickly following the publication of the Strategy and the skills requirements have now been introduced into all relevant Invitations to Tender (ITTs) issued since April 2016, including in supply chain contracting and in rail franchising. This is of course a significant change and will take some time to bed in. With key levers such as the apprenticeship levy coming into force at the end of 2016/17, we are now seeing firms; in this first year we created some 2,000 apprenticeships through our direct levers alone. Continued investment in infrastructure and strong demand in enabling sectors such as freight is continuing to drive the imperative to invest in skills.

Of course there are challenges. Long term investment requires long term thinking and confidence. We may need to do things differently – communicate more effectively; drive greater collaboration, visibility of the pipeline of work; and willingness to share risk, in order to truly enable a business culture that can support the development of the skills we need.

Creating apprenticeship opportunities through procurement processes

- 2.1 This first year we have built a solid foundation for success. Procurement specialists across DfT and our roads and rail delivery bodies formed the Supply Chain Skills Network to help put the right processes in place to deliver the skills requirements described below.
- 2.2 It was important that we put clear, deliverable skills requirements into contracts as soon as possible. Using experience from Crossrail and TfL, we developed a set of generic model tender documents, suitable for use on a range of different contracts.
- 2.3 We collected our first data on the number of apprenticeships established through procurement in July 2016. Further data was collected on a quarterly basis.

- 2.4 In August 2016 we interviewed employers to help us understand the barriers and challenges experienced by our supply chains in employing apprentices.
- 2.5 We also worked on forecasting the opportunity from our direct contracting activity – drilling down into our pipeline of future projects to understand where the biggest potential lies. This is important work as it provides an early indication of whether predicted outcomes are being delivered.



Case Study: Apprenticeships learning legacy report

Apprenticeships were at the heart of Crossrail's Skills and Employment Strategy, published in 2009. In the Strategy, Crossrail committed to a target of creating 400 apprenticeships over the lifetime of the project. As a precondition of contracting, Crossrail established numerical Strategic Labour Needs and Training (SLNT) targets for each contract. These were based on the value of each contract and required the delivery of one SLNT 'output' for every £3 million of contract value. A minimum of half of all 'outputs' calculated using this metric had to be either local job starts or apprenticeships.

Using the SLNT targets as a starting point, Crossrail has worked closely with its Tier 1 contractors and their supply chains to maximise the employment of apprentices. Crossrail passed its 400 target in January

2015, and by March 2017 the cumulative number of apprentices working on the project had exceeded 650.

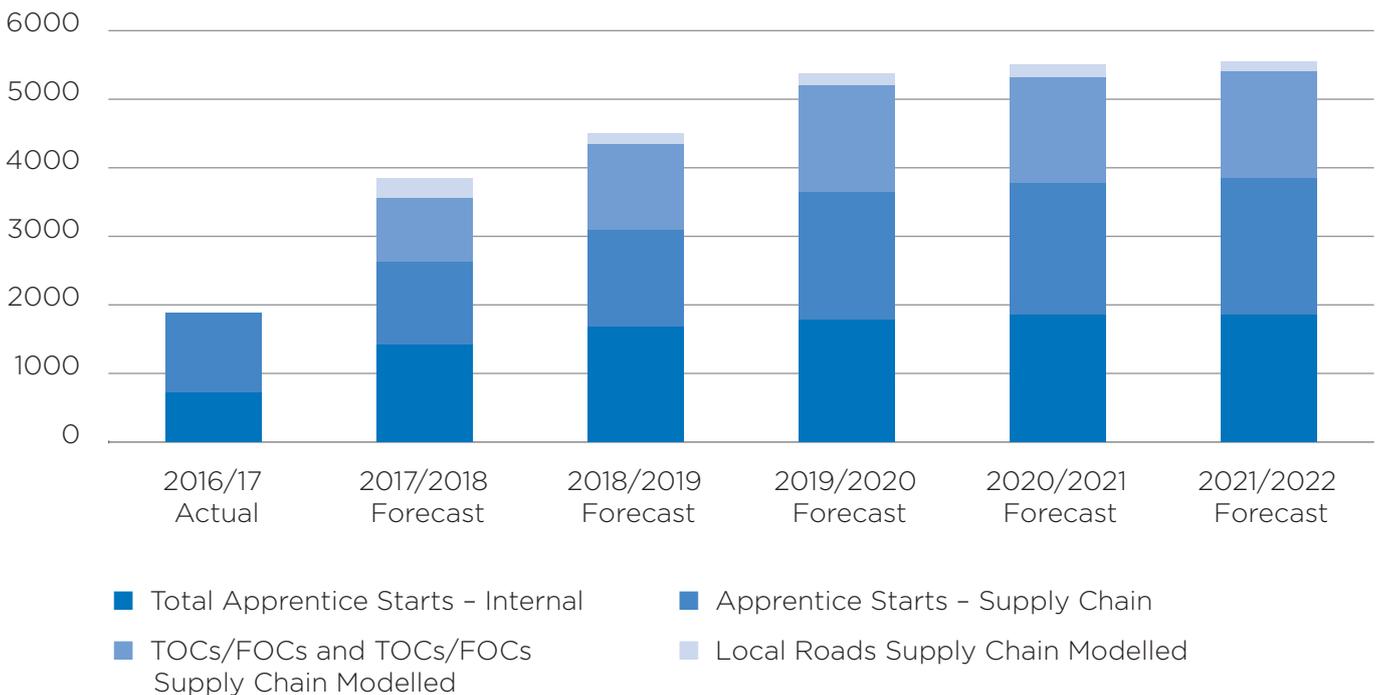
As part of a longer-term contribution, in 2016 Crossrail published a report on apprenticeships on its Learning Legacy website (<http://learninglegacy.crossrail.co.uk/documents/apprenticeships/>). As well as outlining how Crossrail went about developing and implementing its own apprenticeship programme, this report also sets out a series of lessons learned and recommendations for other projects and clients to consider. The recommendations include support for other client sectors adopting joined-up approaches to supply chain skills development similar to the Transport Infrastructure Skills Strategy, and a call for all UK construction industry stakeholders to take responsibility for tackling the broader, structural obstacles to investment in construction skills.

Reporting outcomes

2.6 The first contracts to contain the new targets for apprenticeships are commencing now. The charts below show actual starts for 16/17 in i) the supply chain; and ii) directly employed by the DfT, HS2 Ltd, Network Rail, Crossrail (16/17 only), Highways England and TfL, and train operating companies (TOCs) where franchises are awarded over the period.⁷

- 2.7 Both supply chain and direct employee apprenticeships will increase in 17/18 as a result of the recent implementation of the apprenticeship levy and the public sector 2.3% English workforce apprenticeship headcount target (implemented in the Civil Service in April 2016, and from April 2017 in public sector bodies).
- 2.8 Achievement of forecast starts will depend on apprenticeships standards being in place.

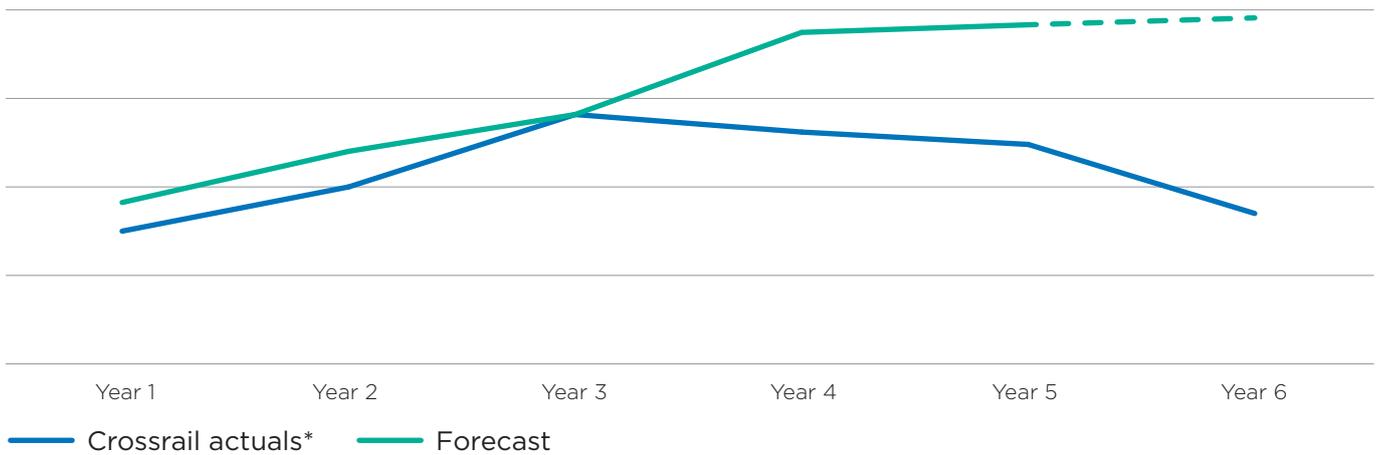
Actual and forecast apprentice starts across the roads and rail sector 2016-2022



⁷ For consistency with data presented in the previous section, modelled data is presented for TOCs and FOCs existing contracts and supply chain, as well as local roads. These are organisations where STAT does not currently have reporting arrangements

2.9 The forecast is for a significant increase in the number of apprenticeships over the next three years. This is consistent with experience from the Crossrail apprenticeship scheme. The diagram below shows the trajectory of the Crossrail numbers, compared to our forecasted figures until 2022.

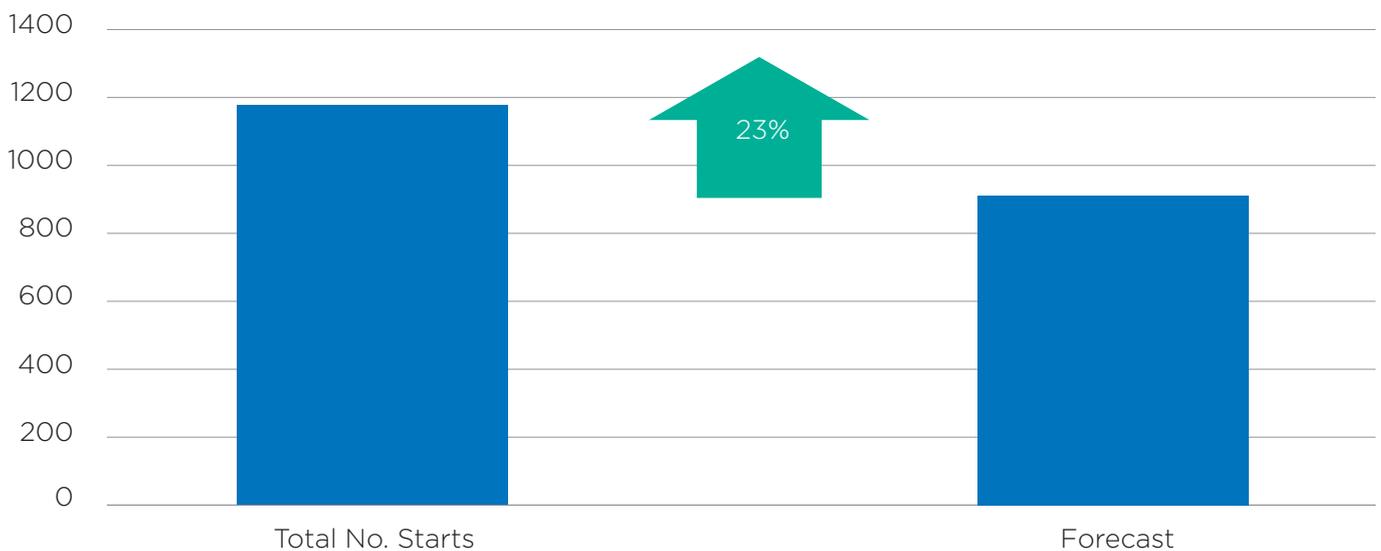
Crossrail actuals v current TISS forecasts



*Note: The purpose of this chart is to compare the shape of the curves; actual numbers are not of the same order of magnitude.

Actual numbers compared to 2016/17 forecast

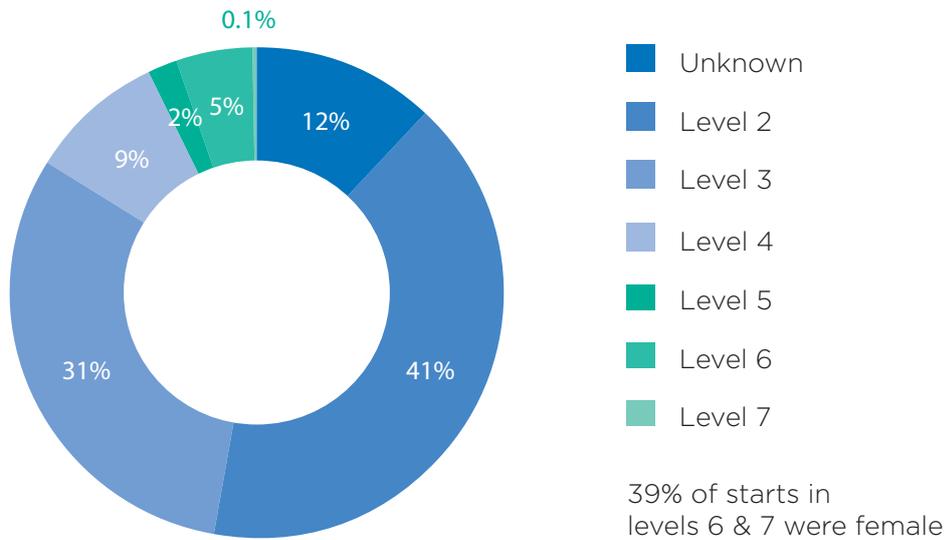
2.10 The figure below shows that even though this is a first year of reporting, we were still able to achieve a 23% increase on forecasted supply chain apprenticeship starts.



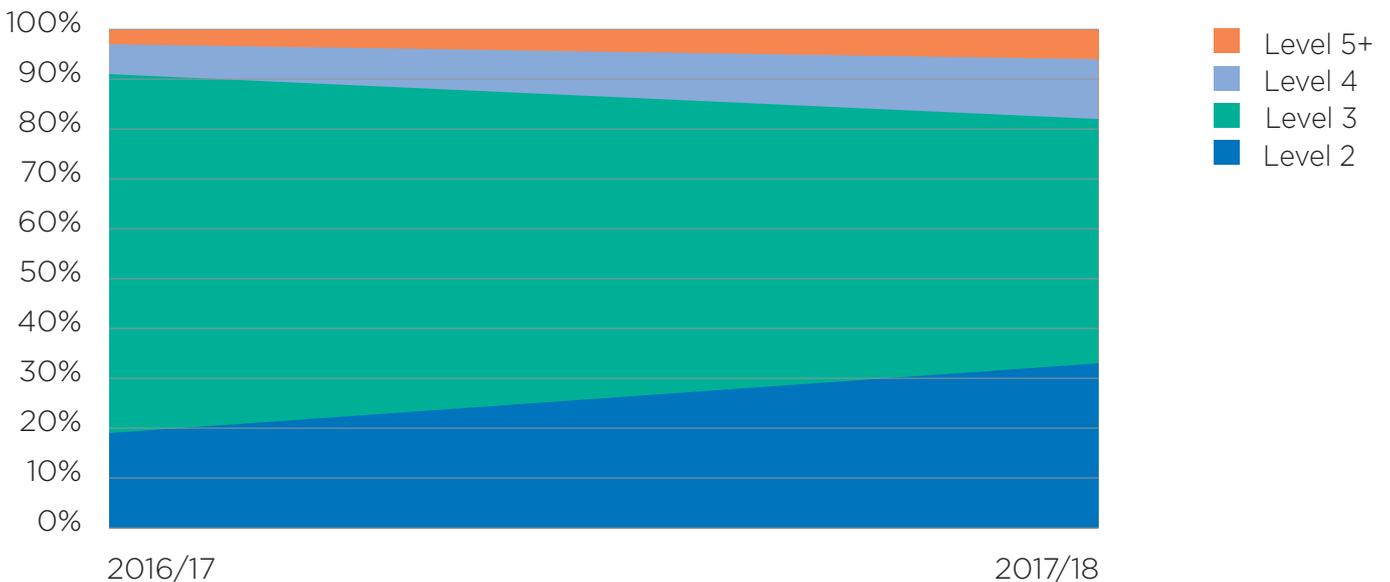
Meeting the demand for skilled people

2.11 The chart below shows apprenticeship starts in our supply chain by NVQ level. This is yet to show the higher levels as growth areas; however these are reflected in those apprentices directly employed by our organisations, as shown in the following figure. Over the coming year, STAT will be working to improve failure to declare against NVQ level as this is fundamentally important to our ability to measure our success in delivering against our need.

2.12 We are encouraged by the fact that 39% of starts at the highest NVQ levels are female.



2.13 Internal apprentice starts from 16/17 to 17/18 demonstrate a growth in levels 4 and 5 across our organisations, as well as level 2.



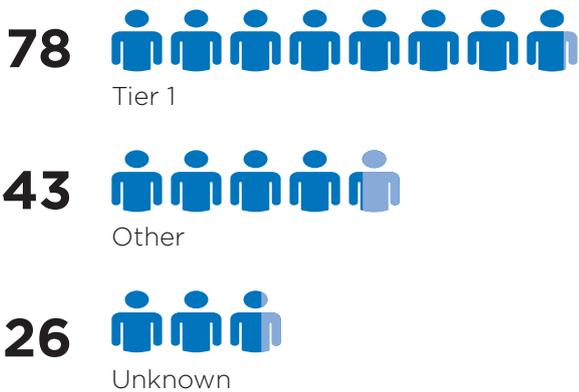
Disciplines

- 2.14 Reflecting the requirements set out in the previous section, 35% of the supply chain apprenticeships were in rail engineering (track maintenance, electrification, signalling) or in rail operations roles (including signal operations, control rooms and driving). 12% are in civil engineering and seven per cent in construction.
- 2.15 Among our direct employees, 50% of the technical starts are in rail engineering, typically level 3 advanced technician roles, with a small number (c.9%) in quantity surveying and chartered surveying.

Supply chain reach

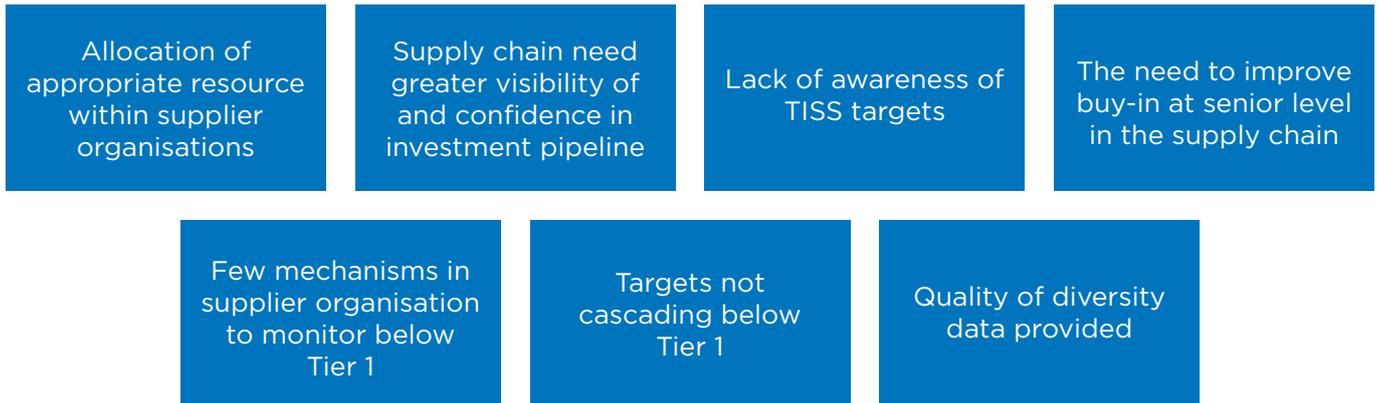
- 2.16 Reporting remains mostly at tier 1. This suggests under-reporting given that 50-75% of the workforce are generally at tiers 2 and 3. We will address potential under-reporting in the supply chain given our expectation that skills requirements cascade to sub-contractors.

Supplier Tier Split



Reporting summary

We have made an encouraging start in our first year. But our work has underlined the challenges the supply chain faces in investing longer term in skills. The issues we have identified from our own research and analysis include:



2.17 It is already clear that the way in which the Department for Transport and roads and rail delivery bodies procure and manage contracts has a significant influence on the supply chain’s ability and willingness to invest in skills and apprenticeships. For example, the average planning horizon for a tier 2 contractor can be as low as 11 months whereas the return on investment for an apprentice is usually around three years.

2.18 This is an area we clearly need to look at in more detail, including engaging with supply chain partners to ensure we understand the full range of issues. We also recognise that strong contract management is key to driving results and ensuring planning and reporting regimes are in place. We will continue to work with our contract managers to ensure they are fully equipped to undertake this role.

Skills and Apprenticeships within Rail Franchises

The DfT and train operators are agreeing a range of ambitious targets for apprenticeships in franchise agreements to support delivery of the Transport Infrastructure Skills Strategy:

- Train operators will set out the steps that they will take to increase the number of women and BAME candidates applying for roles;
- All new franchise agreements include stretching targets on the number of new apprentices hired each year; and,
- A skills and leadership strategy will be developed for each franchise, detailing the operator's approach to upskilling their workforce and leadership development.

The new South Western franchise, which will start in August 2017, includes significant commitments around skills and apprenticeships. The commitments that have been agreed include:

- At least 100 new apprenticeships will be offered by the train operator each year;
- At least 50 employees each year will be given the opportunity to gain management qualifications; and,
- The train operator will participate in The Prince's Trust's "Get into" and "Achieve" programmes, which provide work experience for young people who are not in work, education or training.

Train operators, through the RDG, are also working together with STAT and DfT to develop plans to create apprenticeships within existing franchises and within their supply chains. The plans to increase the number of apprenticeships created by train operators and the wider supply chain are being developed into a strategic workforce plan for rail operators that will take into consideration commitments made by train operators during the existing franchise and targets for specific skills shortage priorities.

Many train operators already have existing apprenticeship programmes. For example, the award winning apprenticeship programme by Great Western, who put apprenticeships at the very centre of their future recruitment plans and as mission critical to business success.

Case Study: HS2 Ltd and TUC framework agreement

Last year HS2 Ltd and the TUC agreed a framework to maximise the economic and labour benefits of the UK's new north-south high speed rail line. The agreement demonstrates a commitment from HS2 Ltd to work together with the trade union movement to lead a safe, diverse and inclusive workforce with a strong voice.

The TUC and unions support the case for HS2, recognising it as a crucial investment in the country's economy that at the peak of construction will create a 25,000-strong newly skilled workforce and up to 2,000 apprenticeships. Both HS2 Ltd and the TUC believe that a relationship between them will allow for useful strategic discussion on matters concerning employment, development, diversity and inclusion, and issues affecting those working for the suppliers of HS2 Ltd, to

deliver high standards in working practices and skills development.

An 'initial framework agreement' sets out how the partners will discuss these issues and it also provides a platform for future work package agreements to be agreed directly between the relevant contractors and unions with support from HS2 Ltd and the TUC.

As part of the agreement, HS2 Ltd and the TUC have committed to a series of shared values including:

- The importance of respect at work
- A commitment to equality, diversity and inclusion
- A commitment to exemplary health, safety and wellbeing
- A commitment to legacy, maximising economic and social regeneration

Opportunities for the wider transport industry

Freight

Rail freight

- 2.19 The emerging trends in rail freight commodities and markets, together with changing customer demands, present both a challenge and an opportunity for rail freight. To develop existing and new business, the industry recognises the need to maintain and enhance its skills base.
- 2.20 The rail freight operators support skills development by providing young people with structured development and employment opportunities.
- 2.21 For example, Freightliner is in the process of aligning their existing Engineering Apprenticeship Scheme to the new Trailblazer Apprenticeship standard and is planning to recruit further new apprentices onto the new standard this year.

"I learn something new every day. I now have the confidence to work alone or in a team and I get the chance to share my input in any job we undertake. In my opinion, there is no better way of learning engineering than being able to watch and do it with your hands."

James Kindon

Apprentice Electrical & Mechanical Locomotive Maintenance Technician at Freightliner.

Road freight

- 2.22 The road freight sector has developed a Large Goods Vehicle (LGV) Driver apprenticeship as part of the new Trailblazer Apprenticeship standards which attract funding from the apprenticeship levy. The qualification will help to provide a solution to the ongoing LGV driver shortage with funding being made available to smaller employers who are not required to pay the levy (with a total pay bill of under £3m). The key will be for the industry to ensure take up.
- 2.23 The government has reviewed the funding available and the maximum amount available for the LGV standard has been set at £5,000 with 90% of the cost of training being paid by the government with eligible employers co-investing the remaining 10%. The removal of the age cap on funding support for apprenticeships has been positive for the freight sector as this will allow the freight industry to attract older workers which better fits the age requirements for the LGV driving licence.
- 2.24 The road freight sector has set a target for 15,000 LGV apprenticeships in the first year (2017-18) but believes that it could exceed that figure as the number of training providers for the Trailblazer standard increases.

Case study: Road to Logistics Overview



The road transport and logistics industry is facing a massive driver shortage – currently standing at 45,000. Road to Logistics is actively addressing this issue while, at the same time, supporting those

in society who may need a helping hand on to the employment ladder.

Launched in 2016, Road to Logistics is a not-for-profit organisation and is the result of a close collaboration between Richard Burnett, Chief Executive of the Road Haulage Association and Bob Harbey, Executive Director of Microlise.

Road to Logistics is a national training programme to encourage new talent into the transport and logistics industry from all parts of society. The objective is to support any individual seeking employment, in particular those who are long term unemployed, disabled, reformed offenders or veterans, creating greater diversity and improving gender balance.

In addition, the programme will enable employers to reduce the cost of recruiting new talent into their organisations and in turn will help address the increasing skills shortage.

John's background

In 2016 John, a father of two, who had never been able to secure full-time employment since leaving school, contacted us at Road to Logistics to see if we could help him get into the transport sector. Before we met, he had already taken the decision that a job as a HGV

driver would be an ideal career choice. The most important thing for him was to get a job and establish a career so that he could look after his family. John was obviously committed to achieving his goal and we saw him as someone with a lot of potential.

The Challenge

On his first attempt John failed his HGV test. He wasn't the first and he certainly won't be the last. But it hit him hard and Road to Logistics provided him with the mentoring and support he needed to "get back on the horse".

With Road to Logistics support and John's perseverance, he passed all the exams and driving tests he needed to become a full-time professional HGV driver.

How Road to Logistics helped

John started work with Brit European doing general work around the yard. Here, he learnt a lot from the drivers; about the profession, how to load vehicles safely, daily vehicle checks and of course the all-important details such as salary and the expectations of the job. John was the first to complete the Road to Logistics training programme. Working with Brit European he got his Class 1 HGV licence in September 2016 and is now employed as a full-time driver.

The Outcome

The path wasn't simple, but Road to Logistics supported him throughout and he is now a full-time member of the Brit European driving team; recently completing his first delivery of JCB diggers. John now spends a lot of time on the road and is well on the way to becoming an experienced HGV driver.

Aviation

2.25 The air transport sector provides the UK with an estimated 120,000 people.⁸ Many of these roles, such as air traffic control, are highly skilled and lead to international careers.

2.26 The Government is developing a strategy for UK aviation. This will include measures to improve the skills of the workforce. There will be a wide consultation, both with industry and with consumers, in advance of an Aviation Strategy White Paper in 2018.

Heathrow

2.27 The Apprenticeship Levy has provided the impetus for industry to work together to bring more roles into the required standards framework to qualify for funding. The Aviation Industry Skills Board is developing apprenticeship standards while Heathrow Airport is part of a Trailblazer group for two apprenticeship routes:

- Aviation Ground Operations
- Aviation Security and Customer Services

Case study: Careers not just jobs



Barjinder Grewal
Director of IT Programme Delivery

How did you get into Heathrow?

“My Heathrow story started in 1993 when I joined as a Security Officer in Terminal 1, post University. Since then I have continued to change roles every 18-24 months developing myself and gaining experience in different parts of the Heathrow business. This ranged from working in the Retail team as a Performance Analyst before I moved

into the IT Department where I worked delivering projects for different parts of our business from Shared Service departments to Operational teams. This journey saw me take on larger and more complex roles whilst also having the opportunity to gain further education in the form of an MSc in Information Systems (specialising in strategic programme management). All of this ultimately led me to my current role as Director of IT Programme Delivery, working as part of the CIO’s Leadership team.”

What’s special to you about Heathrow?

“Heathrow is a global brand that most people recognise instantly. At its heart our business is about creating experiences and memories. It seems simple to some; however, in practice, it can be complex to do this consistently day in day out, 365 days a year. It is this unique challenge which inspires and challenges me both professionally and personally.”

8 According to ONS BRES data: An estimated 505,000 people were employed by the aviation sector in 2015. Of these around 230,000 were directly employed in the sector with 120,000 in air transport and 110,000 in aerospace. A further 270,000 are estimated to be employed indirectly with 160,000 of these in air transport and 110,000 in aerospace.

Careers not just jobs: continued

What does your job involve?

“My role involves leading a team that works closely with colleagues across the operation to identify, shape and deliver transformational change enabled by technology. All parts of the passenger experience have some form of technology.

This eventually requires a ‘refresh’ or total change as part of our continued investment plans. Projects I’ve worked on range from a complete overhaul of our IT network that is at the heart of all our systems across the airport; to refreshing our Airport Operating systems that our passengers interact with; and the digitalisation of airport operations in the Airport Operations Centre (APOC). I am also fortunate to be able to work with colleagues looking at the future strategy and how technology may shape this. An example is looking at how autonomous vehicles (driverless) can become a reality as part of expansion... so quite a varied and challenging role.”

Why are you passionate about Diversity and Inclusion?

“There are two main reasons from my perspective. Firstly, to be inclusive to all regardless of background, diversity, orientation and experiences is the right thing to do. It enriches all those who work in this way and creates a better society, not only for us but the next generation. Secondly, from a company perspective: given the nature of our business, and to realise our ambitions, we need to attract, develop and retain the best people from a diverse and inclusive workforce; and create a culture for us all to be successful.”

Do you have a role model at Heathrow?

“Not really. I tend to observe and learn from all those around me irrespective of role or hierarchy.”

Who influenced your career journey at Heathrow?

“Without naming names... I consider myself blessed, I have been fortunate to work for great leaders and alongside colleagues who have supported, challenged and provided opportunities to enable me to be the best version of myself... and continue to do so.”

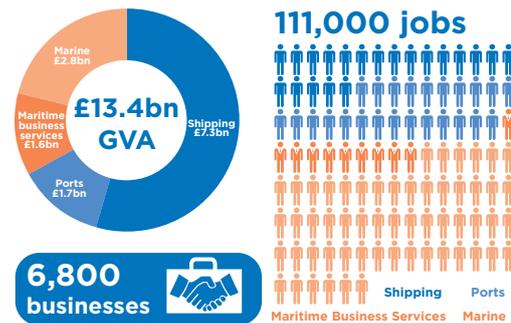
2.28 The proposed expansion of Heathrow Airport could create up to 180,000 jobs and 10,000 apprenticeships across the country. The Airport has set up a Skills Taskforce, chaired by Lord Blunkett, which will help shape Heathrow’s future education, employment and skills strategy.

2.29 Heathrow’s Employment and Skills Academy set up in 2004 supports local residents to access employment opportunities at the airport. The Academy provides pre-employment training, job opportunities and progression support, and apprenticeships. Apprenticeships are currently offered at level 2-5 in a range of disciplines including retail, hospitality, business administration, management, construction, aviation and logistics. Level 6 and 7 are being planned for delivery in 2018.

2.30 Heathrow Airport’s Engineering Apprenticeship Programme provides the opportunity to become an electrical, mechanical or electronic engineer over a 4 year period, with almost all apprentices gaining employment.

Maritime

2.31 The maritime sector contributes over £13bn Gross Value Added (GVA)⁹ to the UK economy, supporting at least 111,000 jobs¹⁰ and over 6,800 businesses¹¹.



2.32 Ships carry 95% of the UK trade and with international trade projected to grow strongly; seaborne trade is expected to double by 2030¹².

2.33 The UK is ideally positioned to exploit these conditions, however, the recent UK Seafarers Projections report commissioned by the DfT and published in January 2017 concluded that the UK’s shipping industry requirements for deck and engine officers and ratings could be greater than the available supply over the next decade.

2.34 The UK’s maritime industry and government are working together to promote the career opportunities available within the sector. The 2015 Maritime Growth Study report recommended the sector should ‘identify and prioritise the key skills issues’ and develop a ‘skills strategy’.

9 DfT estimates based on ONS, Oxford Economics and British Marine Federation data. Details of the approach used are set out in Annex A of the 2015 Maritime Growth Study Report, with figures updated to reflect the most recent data available.

10 Ibid

11 Ibid

12 Global Marine Trends 2030, Lloyds Register

2.35 As the maritime sector is international and unique in the way it operates, there are some special characteristics that are not easily aligned with the apprenticeship framework. Despite the challenges, there is a range of apprenticeships available in England that cover a wide range of occupations including ratings, marine and maritime engineering, port operations, marine pilot, inland waterways, workboats and marina and boatyard operatives.

2.36 The industry is improving its existing apprenticeships for port operations and for port plant and equipment, to meet the trailblazer criteria. The content of

these apprenticeships will be applicable to the majority of UK ports as well as being flexible enough to offer a range of occupational areas including classic cargo, containers, and passengers. The employer-led sector group is also creating two new trailblazer apprenticeships: marine operations and marine pilotage.

2.37 This existing programme of apprenticeships will be extended to include more roles in the maritime sector. This will be taken forward by government and industry, working together in delivering the Maritime Growth Study recommendations.

Case study-Maritime Operations Apprenticeship

Keeta Rowlands is one of the first people to complete the 4-year Marine Operations Apprenticeship designed by Associated British Ports (ABP). She now works in Southampton as a Multi-Purpose Marine Operative with a principal role in Vessel Traffic Services (VTS) operating the radar and ensuring that ships make their way safely into the port. Because her training was broad-based, Keeta is also coxswain on the patrol and pilot launches when she's not in the VTS tower.

Keeta always loved the sea and her career began with summer jobs in a marina. She started her apprenticeship with ABP in 2012, and learnt a wide range of practical skills from mooring ships to basic ship handling, with a nine-month spell in a nautical college to learn the theory side of the industry.

She says of her role:

“I have always enjoyed the variety of the sector and the different roles and paths within it. Every day is different for me whether it is trying to communicate through language barriers, or organising ships through gaps in huge yacht races, it's difficult to find two days the same.

The maritime industry is not spoken about enough. It isn't just driving ships, there are so many roles, opportunities and challenges.”



Regional and Local Transport Structures

2.38 West Yorkshire Combined Authority (WYCA) is integral to the Leeds City Region Economic Plan. Within its plans for the city region there are four strategic priorities:

- Growing Business
- Skilled People, Better Jobs
- Clean Energy and Environmental Resilience
- Infrastructure for Growth

- Associated with the Transpeninne Upgrade Project, Network Rail is working with WYCA to promote apprenticeships and skills development in the region. Partnerships such as this broaden the reach of STAT into regional authorities and can potentially reach across the transport sectors of rail and bus.

2.39 DfT has encouraged the uptake of apprenticeships at the local and regional level where it does not have direct levers such as procurement. This includes communications on grant funding; competitive bidding processes such as the Local Sustainable Transport Fund and the Local Roads Maintenance Fund; and lately through the £690 million National Productivity Fund for the local road network.

Transport for the North – Transport Skills Project

Transport for the North (TfN) has undertaken a broad review of the transport skills available across the North to understand future skills requirements and potential skills gaps through to 2050.

The review will help TfN drive forward the delivery of England’s first pan-Northern Strategic Transport Plan, which has the potential to create close to a million new jobs and £97 billion of added value in the Northern economy. The success of the Strategic Transport Plan in delivering transformational change will depend on the transport skills that underpin it.

TfN, with support by KPMG, facilitated the review with input from its stakeholder base, including Northern

Combined Authorities, Local Enterprise Partnerships, educational institutions and the national delivery agencies such as Highway England, Network Rail and HS2. Stakeholders engaged positively in desktop research, a skills survey and a number of consultation events were held across the Northern region in May 2017. The results of the review will be fed into a report, due to be published in August 2017.

The research has deepened TfN’s intelligence around the skills work already undertaken by stakeholders and TfN will compliment this work to meet the needs of the region. TfN’s vision is to speak as one voice for the North to achieve a thriving North of England, where modern transport connections drive economic growth and supports an excellent quality of life.

Case Study: Midlands Highway Alliance Skills Community

Membership of the alliance currently consists of 21 local authority members, based across the East and West Midlands and the East of England regions, and Highways England. The approach the Midlands Highway Alliance (MHA) takes to skills development reduces duplication and supports integrated working.

MHA Skills Community workstream provides unique and bespoke learning, training and development for its partners. The principle of continuing improvement is implicit in the evaluation and planning for skills development. Skills development activities that the MHA provide, enables Alliance partners to use the competencies framework, website and processes to undertake related work; and there is

an effective method to engage with all the supply chain. Using the same competencies, systems, learning and development opportunities is a great benefit and of shared interest for this sector. The MHA Learning Management System provides the opportunities for Alliance members to be part of a mixed economy, providing venues, training and access to online resources.

The MHA continues to work with infrastructure organisations to promote upskilling, re-skilling and conversion so that the workforce is agile with transferable skills. MHA Skills Community development is sustainable, scalable and transferable.



Next steps

2.40 STAT will carry out a programme of formal engagement with its shared supply chain at all tiers, aimed at identifying challenges and proposing steps which could improve the capacity and capability of the supply chain to invest in skills. These could include:

- Business planning – encouraging a proactive and forward-looking approach to taking on apprenticeships;
- Helping suppliers to identify the right candidates and provide appropriate training;
- Ensuring a supportive environment for apprentices in our supply chain in order to improve retention rates;

- Cascading targets to the lower tiers of the supply chain; and
- Creating more diverse outcomes – for example helping suppliers target candidates from different backgrounds.

2.41 DfT will continue to seek opportunities to promote the uptake of apprenticeships among regional and local structures, such as through bidding competitions.

2.42 STAT will continue to drive collaboration on the skills agenda across the transport and logistics sector.

3 Greater workforce diversity and inclusion

We are making progress on diversity, but there is more to do to reach the ambition for women to represent 20% technical and engineering apprenticeship starts, and for a 20% increase in the number of BAME candidates undertaking apprenticeships.

In the supply chain, 85% total apprenticeship starts are in technical and engineering disciplines, and of these, only 12% are women. Among our directly employed apprentices, 48% of starts are in technical and engineering apprenticeships and only 9% are women.

People from BAME backgrounds represent 15% of supply chain starts, but 26% of the supply chain workforce are not reporting. In our own organisations BAME people represent 13% of starts but 13% are not reporting.

We will continue to work to improve diversity across the transport sector; supporting the Major Projects Association and the Infrastructure Projects Association in developing its framework for engaging and monitoring diversity, equality and social inclusion through the supply chain; and working with the Department for Education (DfE) in improving the diversity of apprentices particularly in STEM and Digital apprenticeships.

The case for tackling diversity and social inclusion

- 3.1 The business case for investing in diverse workforces is conclusive. The benefits of diverse workforces include:
- Efficiency savings through improved staff retention
 - A wider pool of talent available to the industry from under-represented groups
 - A more diverse supply chain with better support for small business
 - Improved on-site working relationships based on respect for everyone's differences.

Our context

- 3.2 It is over a year since the Transport Infrastructure Skills Strategy highlighted the challenge that a lack of diversity is creating for the transport sector, particularly in regards to women at all levels, who in aggregate, make up around 11 per cent of the rail sector and 8 per cent of women in rail engineering. In roads, Highways England data has reported that women make up 33.7 per cent of the workforce in Highways England, 17.5 per cent in their contractors and 24.6 per cent in their consultants.
- 3.3 Considering other labour markets elsewhere in the world, for example, Sweden, Norway, and other sectors within the UK economy, such as health care and law, it is clear that a central feature is a well understood basis for removing barriers to employing, developing and retaining a diverse workforce.

- 3.4 As a sector we are ambitious to build systems, processes, and approaches supported by world class engagement that removes any barriers to achieving our 2020 ambition. The aim is to transform the way we invest in recruitment and selection and the development of talent within our workforces. We are convinced that we can achieve this change within our exiting funding models.
- 3.5 The stakes are high and a collaborative effort across the sector is needed. Through STAT, members from aviation, maritime, rail and roads, have established a 'common purpose' and basis for collaboration, sharing, benchmarking and mutual encouragement to achieve 'world class' diversity outcomes.

Our ambition

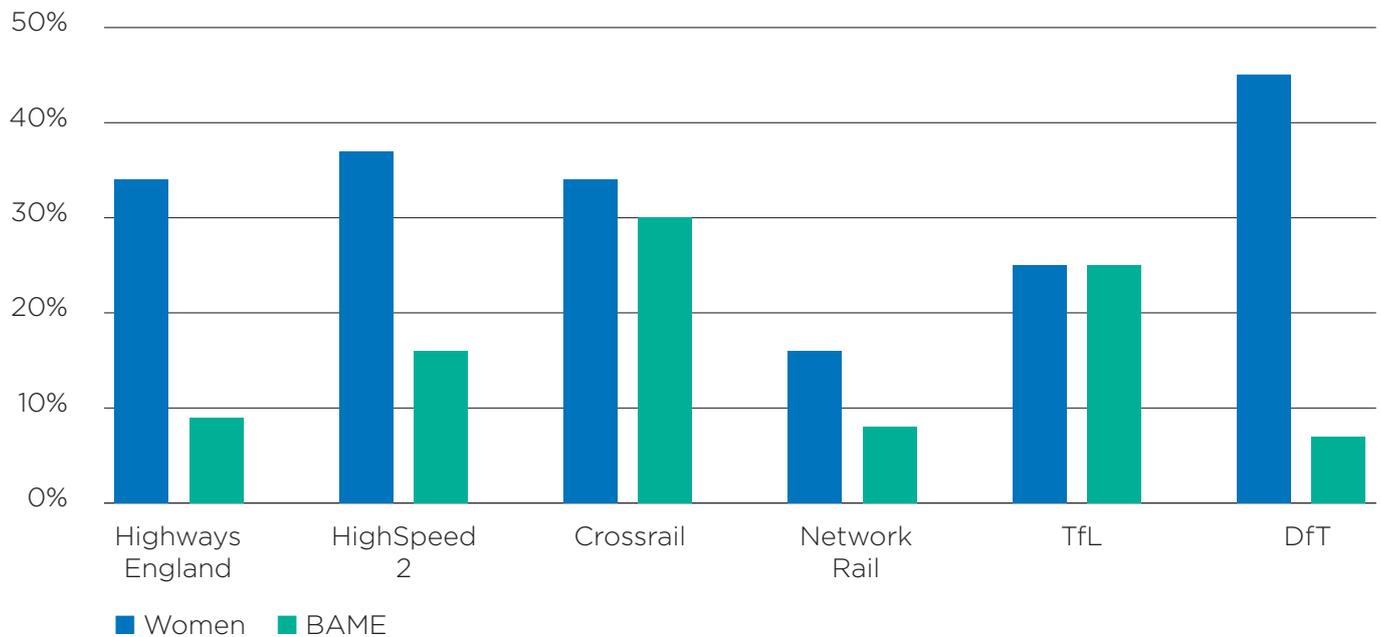
- 3.6 Our aim is to attract and retain a diverse workforce, notably to:
- Increase representation of women and people from black, Asian, and Minority Ethnic (BAME) groups in transport;
 - Ensure women represent 20% of new entrants to technical and engineering apprenticeships by 2020;
 - Achieve parity in gender diversity with the working population by 2030;
 - Increase by 20% the number of people from BAME backgrounds undertaking apprenticeships by 2020.

Our progress: how are we doing?

What was our starting point?

- 3.7 It is useful to understand the starting point of each of the road and rail STAT member organisations to provide a baseline to consider how diversity performance changes between years.
- 3.8 As part of this exercise, we have considered the proportion of women and BAME representation in each STAT organisation for the 2016/17 year.
- 3.9 The proportion of women who are directly employed by STAT member organisations, was relatively uniform across the sector, with all but two STAT member organisations reporting that at least one third of their directly employed workforce were women in 2016/17. The DfT reported that nearly half of their workforce is women (45%), exceeding the median of 34% for STAT member organisations.
- 3.10 The median of BAME people directly employed by STAT member organisations was 12%, lower than the median of 34% for women.

Workforce Diversity - Directly Employed



2016/17 Apprenticeship outputs and deliverables

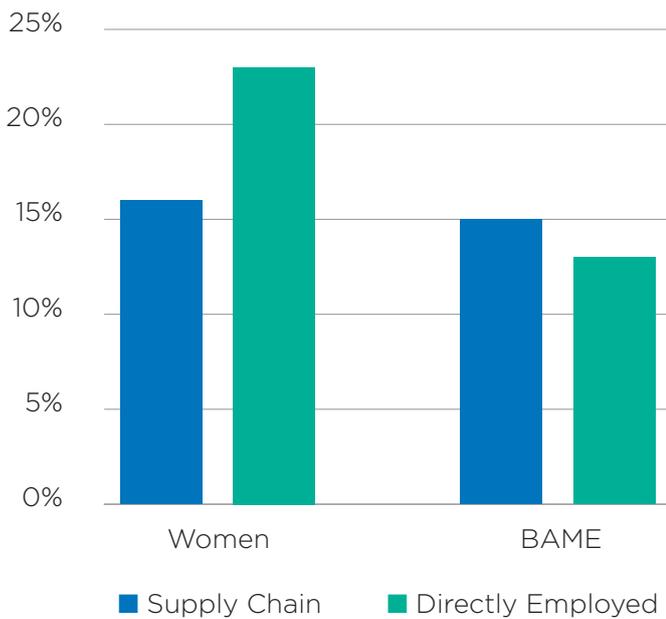
- 3.11 Over the course of 2016/17, STAT members and their supply chains delivered 1,946 apprentices.
- 3.12 More than half of the apprentices (1,162) were delivered by the supply chain at tiers 1 and below, with the remaining 784 apprenticeship starts being delivered directly by roads and rail delivery body STAT members.
- 3.13 48% of the total apprenticeship starts in the supply chain and 85% of apprenticeship starts for those directly employed were in technical and engineering apprenticeships.

Diversity of apprenticeship starts - gender

- 3.14 STAT members and their supply chain have been working to improve gender diversity through initiatives which are aimed to reach out and attract more women to consider careers in the sector.
- 3.15 Of the overall deliverable of 1,946 apprenticeship starts, approximately 19% of these starts were women. In terms of the split between the supply chain and those which were directly employed, women accounted for 16% of the starts in the supply chain and 23% in STAT members respectively.
- 3.16 The TISS set a target of women representing 20% of technical and engineering starts by 2020. In respect of the 2016/17 year, women accounted for 9% of the of the technical and engineering apprenticeship starts, among those directly employed, and 12% in the supply chain.

3.17 Whilst the overall proportion of women and the proportion of women taking technical and engineering apprenticeships currently fall short of the TISS target, these early numbers are encouraging and shows that as a sector we are moving in the right direction. The challenge for STAT, as well as STAT member organisations and their supply chains is to build on these achievements and maintain this momentum over the medium term.

Workforce Diversity

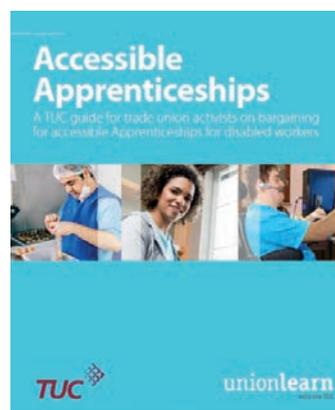


Diversity of apprenticeship starts - BAME

3.18 Across STAT members’ supply chain, 15% of apprentice starts identified as being from a BAME background, and 13% among those directly employed identified as being directly employed. The proportion of BAME workers, however, differs according to the geographical location of the client and the supply chain. In regions such as London and the South East, client organisations and supply chains which are based or worked in these areas, generally report a higher level on BAME diversity measures reflective the local demographic.

Disability

3.19 The TUC has developed a guide to ‘Accessible Apprenticeships’, recognising that disabled people may be impacted by environmental, societal or attitudinal barriers. The guide sets out information, guidance and advice on improving access to apprenticeships and employment more generally that employers and unions should note. Consequently, and with the full support of the TUC, STAT supports and recommends employers adopt the TUC’s ‘Accessible Apprenticeships’ guide (available at www.unionlearn.org.uk/publications).



Reliability of data and interpretation of diversity indicators

3.20 The transport sector is both large and complex, with many constituent organisations delivering their objectives in partnership with lengthy and complex supply chains. Consequently, over the past year a significant challenge has been establishing the systems and processes needed to gather pan-transport diversity data to evidence the progress made towards achieving the targets, particularly from the supply chain. This is a priority for us and although we have made good progress to improve the overall quality of data collected, there is more to do.

3.21 STAT will continue to work with employers and their supply chains to improve our data gathering in order to better understanding the opportunities, challenges and achievement in relation to diversity and social inclusion.

Gender diversity – a plan for the future

3.22 Good progress is being made in creating the conditions for women to want to join the transport sector. A network of organisations (see contributing organisations in special thanks at the end of this document) that are women-led, or with a remit to promote gender diversity or otherwise support the sector, met in January.



3.23 This STAT gender diversity leadership group debated the issue. A number of themes emerged, including; the need for a review of the current approaches to recruitment and promotion that appears to disadvantage women; creating more inclusive organisational cultures that encourages women's entry and career progression in organisations; and greater collaboration between organisation to share learning and access to development opportunities.

3.24 The top three recommendations of the group are set out below:

Mentoring and coaching: A joined up approach to mentoring and coaching programme opportunities for women building on, for example, the Women into Rail Mentoring Programme. This would enable more women to feel in control of pursuing careers in transport and develop future female leaders in transport.

Tacking unconscious bias: It is a fact that organisations with more diverse workforces outperform others. It is also a fact that everyone has unconscious bias. The transport sector needs to understand and tackle unconscious bias.

100 Years of Women in Transport: Transport for London (TfL) and its industry partners used the centenary of the First World War to celebrate the significant role that women have played in transport over the past 100 years. It was also used as an opportunity to focus on the diversity of the current transport workforce and identify opportunities to enhance it. 100YOWIT created a strong brand, a symbol of progress and ambition for gender diversity across the sector. Building on its success, STAT, with TfL, should use this brand as a pan-transport promotional platform to encourage more women to consider careers in transport.

Case Study: The Women in Rail (WR) Mentoring Programme is a cross-industry scheme developed to help women and young professionals working in the UK railway industry receive advice and support from senior industry professionals to help further their career and realise their full potential.

The WR Mentoring Programme has been running for the past three years and has received glowing feedback from both mentors and mentees, with 200 matched pairs in 2017 alone.

“The WR Mentoring Programme aims to show people both within and outside of the rail industry that our sector is willing to support both women and young professionals to grow in their roles and pursue their development plans. The more rail professionals participate in cross-industry programmes, the more it will showcase our sector as a close-knit community committed to fostering its talent, making it a truly attractive career option for young generations.”

Adeline Ginn, Women in Rail founder

How do we ensure our decision making is fair and free of bias?

“We all have moments when unconscious bias may adversely affect our decision-making. Working under stress is just one example of when our field of vision can narrow. Unconscious bias training raises awareness of how this might be impacting your business.

We believe that fair decision-making – like any skill – takes practice. Only then can we sustain it beyond the training room, and embed it into our everyday behaviours. Coaching is one way in which leaders and decision-makers can explore the impact of unconscious bias at first-hand. Peer learning and reflection can help to identify triggers of unconscious bias.

Any leaders serious about tackling diversity in their organisation must equip themselves with the practical tools to overcome unconscious bias in their day-to-day work, particularly in key areas such as recruitment and selection.”

Jane Farrell, Chief Executive,
The EW Group Chief Executive,
Equality Works

Research: Our Industry's Workforce Today

While the proportion of women employed in the transport sector has increased significantly over the past 100 years, much remains to be done to achieve parity of employment between women and men and break down barriers to progression.

Today women make up 47 per cent of the UK workforce and 44 per cent of London's workforce. Yet women remain underrepresented in our industry, where they make up only 18 per cent of transport workers. In London, only one of the train operating companies is led by a woman, while none of the main bus operating companies are led by a woman.

100 YOWIT is an opportunity to refocus attention on the core element of our industry, our people, and also to develop the infrastructure required to ensure that the activity underlying this diversity campaign is maintained so that it becomes business as usual and embedded.”

Kirsten Bodley, CEO Women's
Engineering Society

Gender diversity leadership group



Further steps to improve diversity

Technical education reforms and diversity

- 3.25** DfE is charged with implementing Lord Sainsbury’s recommendations on technical education reforms (2016). The reforms, which support young people and adult secure skilled employment through improved technical education, has at its heart the need to drive greater social inclusion and social mobility.
- 3.26** The review highlighted the need to encourage more women to take up technical and engineering apprenticeship. Schools and colleges should embed into career education and guidance details of the new 15 technical education routes, so that young women, in particular, understand the range of different occupations available and how to reach them.
- 3.27** STAT has been invited to work with DfE as part of a cross-industry working group which brings together industry leaders to consider technical education reforms from a gender inclusivity perspective and to establish how this ambition for more women in technical and engineering apprenticeships can be achieved.

- 3.28** The inaugural meeting of the working group was in June 2017. STAT will report on progress made both nationally and in relation to the impact on the transport sector specifically in its next annual report.

Procurement, supply chain and diversity

- 3.29** STAT is working with the Major Projects Association, the Infrastructure Client Group, the Infrastructure Projects Authority, the Civil Engineering Contractors association and client organisations in the transport sector to establish a common set of equality, diversity and social inclusion requirements at Invitation to Tender (ITT) and Pre-qualification questionnaire (PQQ) stages of the procurement process.
- 3.30** Clarity and consistency on these requirements will be welcomed by the supply chain. It will provide a basis for identifying good performers and providing support for those companies that may require it. It will also enable client organisations to compare diversity outcomes and to be better placed to share and learn from best practice.

Action on recruitment

3.31 DfT has worked with the Harvard Business School to improve the attractiveness of two technical roles where women make up around 10% of the staff. The study concluded that the attractiveness of these roles could be improved with five low-cost solutions:

- Re-wording job advertisements to include more gender neutral language;
- Showing the number of people who have started the job application to encourage more people to see it through;
- Creating role models by sharing the stories of real women in those roles, to encourage potential applicants to see themselves in the job;
- Show pictures of female employees on the website, so potential employees can envisage themselves working there;
- Make a woman the contact person in the advertisement.

3.32 DfT is implementing these changes as part of a wider gender equality campaign and has also introduced 'name blind' shortlisting.

3.33 In 2017, DfT was, for the first time, recognised as among The Times Top 50 employers for women.

3.34 Similarly HS2 has piloted 'blind auditioning' which is a process which removes the need for CVs or applications. The key skills are extracted from the job description and turned into a technical skills assessment relevant to the role and with input from the line manager. Applicants are scored against the assessment anonymously and those passing the technical requirements

are invited to interview. The pilot for six accounts payable roles saw the shortlisting of women increase from 17% to 47% and from 14% to 50% for BAME applicants, with a hiring ratio of 50% women and 50% BAME.

3.35 Highways England has been working closely with its supply chain to undertake a review of its own and its supply chains recruitment practice and to assess whether recruitment practice could be more effective in attracting a more diverse workforce. The work involved a series of workshops and an in-depth review of a cross section of Highways England's supply chain – benchmarking against best practice sectors. The aim of the review is to identify what actions need to be taken to ensure recruitment practice supports engagement of a truly diverse workforce.

Next steps

3.36 The next steps are for the STAT diversity leadership group to further promote:

- Mentoring and coaching
- Tackling unconscious bias; and
- Action to build on the success of 100 Years of Women in Transport.

3.37 We will continue to support the Major Projects Association and the Infrastructure Projects Association framework for supporting, engaging and monitoring equality, diversity and inclusion through the supply chain.

3.38 We will continue to work with DfE to improve the diversity of apprenticeships, particularly in STEM and digital apprenticeships.

Developing the right quality skills



4 What does quality look like?

With a focus on driving numbers comes the risk that apprenticeships are delivered at the expense of quality. Our modelling has emphasised the need for higher level skills, and whilst these will help us to drive productivity, they will be more costly to deliver. It is therefore essential that a high quality of delivery is maintained.

STAT believes that there should be a focus not only on standards and assessment plans, but in the total apprenticeship experience, including in the working environment. This is why we are working with Investors in People to define what quality looks like in the apprenticeship sector, with the ultimate aim of developing a quality mark for apprentice employers.

STAT also recognises that with the focus on higher level apprenticeships comes the risk that we inadvertently create a system that is not truly inclusive. Over the coming year STAT will consider how to design programmes which continue to encourage social mobility, including among new entrants as well as for upskilling the existing workforce, and particularly in geographical areas where opportunities are limited.

Higher level skills

- 4.1 Our modelling shows a need for 10 per cent more higher skilled people by 2024. Higher level apprenticeship standards will enable employers to both upskill existing employees and train new entrants.
- 4.2 The higher standards will be more costly for employers, and will require a commitment to investing in people. The quality of training – provision, standard, and working environment – needs to be high to ensure a positive return on investment. This chapter sets out a number of ways in which STAT and its members are working to ensure quality in apprenticeship delivery.

Case Study: Network Rail: Improving the quality of Network Rail's level 3 Rail Engineering Apprenticeships

In anticipation of Government moves to increase the number of apprentices, Network Rail's board took the decision to review the delivery arrangements for the company's level 3 Rail Engineering Apprenticeship. After recognising significant challenges in facilitating the necessary changes at the existing delivery location at Gosport (Hampshire), the board announced that the residential element of the Network Rail level 3 Rail Engineering Apprenticeship would transition to Westwood in the Midlands.

The transition to Westwood saw a number of improvements:

- Retender of the delivery body for the classroom based elements of the programme awarded to Babcock Training, who established a 40-strong team based at Westwood to deliver classroom instruction and pastoral support to apprentices. As well as hiring field-based Apprentice Development Facilitators to support apprentices and line managers at the point of transition from Westwood to field-based training locations and during the first 6 months in depot/onsite
- Revised curriculum for the first year to come in line with a new national apprenticeship standard, resulting in the residential element of the scheme being reduced from 44 weeks to 20 weeks
- Five classrooms converted to teach mechanical and electrical engineering principles and technical drawing as well as upgraded connectivity to allow completion of work assignments through an online portal using personal tablet devices, issued to all apprentices at induction
- Upgraded bedroom accommodation, significant development to the leisure facilities and onsite laundry facilities were installed to supplement the existing housekeeping provision
- Staff terms and conditions renegotiated with Trade Unions to reflect the requirement for weekend working.

The programme is now delivered in world-class, company-owned residential training facilities. It is anticipated that this will attract a broader and more diverse applicant base in future years. Utilisation of both classroom and bedroom accommodation at Westwood has increased dramatically, and apprentice learning has been seamlessly integrated into existing training activity, encouraging mixing and role-modelling with more senior staff. The reduction in classroom contact time to deliver first-year content means that apprentices are available to commence their practical depot-based technical/vocational training after just 20 weeks. This will enable Network Rail to be the first major UK engineering employer (outside the Armed Forces) to move to an 'always-on' apprentice attraction campaign with two recruitment points, in March and September each year.



Exploring the characteristics of a quality apprentice employer

- 4.3 All sectors should offer high quality apprenticeships. STAT supports the work of the newly created Institute for Apprenticeships (IfA). The IfA's core functions include developing and maintaining quality criteria for the approval of apprenticeship standards and assessment plans; and having a role in quality assuring the delivery of apprentice end point assessments. These were where employer groups have been unable to propose one of the other three external quality assurance models (employer-led, Ofqual, professional-body led) and have named the IfA in their assessment plan.
- 4.4 STAT believes there should be a focus, not only on standards and assessment plans, but in the total apprenticeship experience. That is why we have entered a powerful collaboration with Investors in People to define what quality looks like in the apprenticeship sector, with the ultimate aim of developing a quality mark for apprentice employers.
- 4.5 The aim of the work is to: develop and provide a framework and process for accrediting apprentice employers; measure and benchmark the quality of apprentice employers against a clear and published set of criteria; promote a better understanding of quality working practices and ensure that the mark is accessible and inclusive for employers of all sizes.

Summary of the research - Investors in People (IIP)



- 4.6 The research provides the basis for an innovative, robust and measurable standard for apprentice employers.
- 4.7 IIP first set out to identify why and how apprenticeships are delivered, considering employers' motivations for taking on apprentices and how these ultimately reflect on the quality of placements offered. Part of this research included a poll of 160 employers; 39% non-apprentice employers and 61% apprentice employers. The highlights of the research are:
- Perceptions of apprenticeships:
 - 62% of employers agree or strongly agree that apprenticeships are a career route designed for young people;
 - 50% of employers agree or strongly agree that apprenticeships are a way of providing hands on, practical training to existing employees;
 - 77% of employers pay above the minimum wage.
 - 95% of employers have an equality and diversity policy in place for recruitment practices.
 - 47% of employers would consider becoming accredited against an apprentice employer quality framework to help them attract and retain the best apprentice candidates.

- The highest motivations for recruiting apprentices are:
 - Developing talent and future business leaders (60%);
 - Providing local young people with better career opportunities (58%);
 - Fulfilling their organisation's social mission (27%);
- Only 9% mentioned the Apprenticeship Levy as a motivation for recruiting apprentices.
- The biggest hurdles when recruiting apprentices include the following:
 - Not being able to attract quality candidates (44%);
 - Applicants not having the right employability skills (44%);
 - Competition from other employers for the best apprentices (29%).
- The reasons non-apprentice employers don't recruit apprentices:
 - Lack of staff capacity to mentor and support an apprentice (26%);
 - Industry / sector not suited to apprenticeships (22%).

4.8 The responses are encouraging, but also identify poor perceptions and lack of knowledge about apprenticeships among employers.

Quality apprentice employers

4.9 IIP identified the following as the key features of a quality apprentice employer. These employers:

- Have an ongoing commitment to apprentices' training and development.
- Have a diverse approach towards apprenticeships, from recruitment through to payment policies.
- Provide consistent and dedicated support for apprentices.
- Have clear progression routes in place for their apprentices at the start, and are transparent about them.
- Have a good and/or well established working relationship with their training provider, where constructive communication and troubleshooting can take place throughout the apprenticeship.
- Are strongly motivated to take on apprentices for the benefit of both company and apprentice growth.

The next phase of this project would aim to test these definitions of quality through a wide stakeholder consultation process to ensure that any resulting quality mark criteria and approach are robust, clear and effective in measuring the quality of an apprentice's working environment.

Case Study: Virgin Trains Drivers Apprenticeships

Three young people in the North West have become apprentice train drivers after Virgin Trains, The ASLEF trade union and training provider TQ Training launched a brand new high-quality programme in February this year.

The pioneering programme was put together by a small working group last autumn, under the joint leadership of Virgin Trains' Operations Project & Competence Manager Sam Edwards and ASLEF's Union Learning Fund (ULF) Project Coordinator Shirley Handsley. "Once the operations side became involved, the process moved from conversations into a real programme, which demonstrates the importance of operations leading on a programme like this," says Shirley.

With a short timeframe to design the programme, Sam and Shirley met once a fortnight to exchange ideas, talking in between times to the key people in the operations side of the business and the industrial arm of the union to ensure everyone was happy with all the key components they were planning to include. "There was a lot to do in a very short space of time but everybody involved had a real passion to get this up and running," Sam says.

Apprentice recruitment was a rigorous six-stage process, conducted for the company by the Occupational Psychology Centre (OPC), which whittled down the initial 1,250 applicants to a final shortlist of 30. "The whole process was beyond difficult, as it should be for a safety-critical role like a train driver," Sam recalls. "By the time OPC had got their shortlist of 30, we had the best applicants to choose from."

The three successful young people (two male, one female) started their 52-week

programme in February 2017. While they are based in different Virgin Trains depots (Preston, Manchester and Liverpool), they come together in Crewe once a week to cover the NVQ component of the programme, when they can also work on their functional skills.

While the trio are earning £15,000 this year, their salary will more than double at the end of their Apprenticeships, when they are guaranteed entry into the driver training programme, which will take between two-and-a-half and three years.

While the programme is in its early stages, both sides are very happy with how it is shaping up so far. "Virgin Trains has set the benchmark with this programme and I hope that others within the industry follow," Shirley says.

Sam believes his effective working partnership with Shirley has paid dividends for the Driver Apprenticeship programme and beyond. "Shirley has been accommodating to me, I've been accommodating to her and, to be honest, it's strengthened the relationship not just between us as individuals but also between the company and the trade union," he says.

Shirley is equally proud of what they have achieved. "We've both learned from each other: it's been an absolute pleasure to work together. This shows that together we can do something that's really worthwhile: from an employer and a trade union point of view, it shows that partnerships can actually make good things happen," she says.



Social mobility

4.10 With the focus on higher level apprenticeships comes the risk that we inadvertently create a system which is not truly inclusive. Apprenticeships have previously been an essential tool for social mobility, and we want to make sure that we amplify the ability for an apprentice to start work at a junior level and to finish their career in the boardroom.

4.11 STAT will consider how to design apprenticeship programmes which encourage social mobility, including exploring how to make more use of pre-apprenticeship programmes, traineeships and work experience to give candidates a 'step up' to the new higher level apprenticeships. We will also look at how we might target more hard pressed communities.

4.12 Additional support for apprentices can include English and Maths tuition, or help in building confidence, for example.

4.13 On average, people will live longer, work for longer, and will often no longer follow one single career. Apprenticeships are no longer solely for new entrants, but can offer a high quality vehicle for retraining and mid-life career conversion. During 2017 STAT intends to collaborate with Business in the Community to explore opportunities for older workers to upskill or retrain in our sector.

Next steps

STAT will:

- Promote the benefits of the Investors in People quality mark for apprentice employers;
- Continue to seek opportunities to promote the uptake of apprenticeships for new entrants as well as upskilling the existing workforce. This includes:
 - driving social mobility by providing support to apprentices in areas where opportunities are limited;
 - supporting apprenticeships among older members of the workforce such as returners and career changers.

5 The strong and positive industry response to the quality imperative

This section sets out a number of strong and positive initiatives being led by the transport and logistics industry to improve the quality of apprenticeships. The move from apprenticeship frameworks to the new trailblazer standards has presented the opportunity to work collaboratively to create a new generation of standards that incorporate the knowledge, skills and behaviours required for specific occupations and disciplines set out in previous sections. Of course driving the numbers we need will require the relevant standards to be in place as quickly as possible. In this section we set out some early successes, standards under development, and those which still need to be developed.

Sectors have also seized the nettle and developed their own skills plans which offer bespoke support on standards development, training, attraction and quality assurance. Over the coming year, STAT will continue to support sector skills initiatives, such as the Rail Sector Skills Plan and the Highways England Skills Plan as set out here, as well as to monitor delivery of standards, and encourage collaboration where we find gaps.

Development of trailblazer standards

- 5.1 The move from apprenticeship frameworks to the new trailblazer standards is intended to help develop the talent we need, and to set out the clear career progression opportunities employees seek. This change has provided an opportunity for the industry to work collaboratively to create a new generation of standards that incorporate the knowledge, skills and behaviours required for specific occupations.
- 5.2 STAT members are collaborating on a range of new trailblazer standards, and there have been a number of early successes. Building on the needs set out in Chapter 1 these include: the level 3 and 4 railway engineering technician and advanced technician; the high speed rail advanced technician; the quantity surveying standard at level 6, as well as the Maritime and Coastguard Agency trailblazer level 3 Maritime Operations Officer.
- 5.3 The level 3 Maritime Operations Officer is the first single employer standard development for DfT, where up to 30 new maritime operations officers each year will complete and apprenticeships as part of a review of cohort recruitment opportunities.

- 5.4 The Large Goods Vehicle Driver level 2 standard was recently approved, and presents a significant opportunity for the road freight industry to address workforce shortages.
- 5.5 The level 6 Cyber security and Digital/Tech solution standards are also in development as a response to the future skills needs.
- 5.6 Delivering the skills requirements set out in chapter 2 requires the relevant standards to be in place as quickly as possible. This will require the newly established Institute for Apprentices (IfA) to be able to act quickly, and employers responding effectively.
- 5.7 STAT will continue to support the development of high quality Trailblazer standards. The skills levels associated with each standard will also be kept under review. For example, train drivers will increasingly be expected to work with digital signalling and train control technology which may warrant the relevant standard having a higher NVQ level than currently.
- 5.8 The proposed National Train Driver Academy will train the next generation of drivers. It will be a partnership of existing TOC driver training facilities and trainers, working together to common standards, and will allow TOCs and FOCs to utilise the apprenticeship levy for new trainees. The Academy will also deliver professional development pathways within the apprenticeship framework at Level 4 and above for existing qualified drivers. The Driver Academy is an ambitious RDG member led and union supported programme aimed at delivering high level apprenticeships for Drivers and prioritises investment in skills development of our workforce.
- 5.9 The table below sets out the trailblazer standards involving STAT members approved and in development as at June 2017. This list demonstrates how quickly the industry has come together to address skills challenges.
- 5.10 STAT will continue to monitor the delivery of standards, and encourage collaboration where we find gaps. For example, in the highways sector where the plant ops and general ops standards require development, and in the rail sector where there are shortages in disciplines such as data scientists.

Standards in development

Level 7

Risk & Safety Management (Chair - Risktec)
 Project Management (Chair - Sellafield)
 Rail & Rail Systems Engineering (Chair - Network Rail)

Level 6

Risk Management (Chair - Risktec)
 Project Management (Chair - Sellafield)
 Rail & Rail Systems Engineering (Chair - Network Rail)
 Civil Engineering (Chair - Sheila Hoile Associates)
 Cyber Security (Chair - The Tech Partnership)
 Digital / Tech Solutions Degree (Chair - The Tech Partnership)

Level 5

Project Management (Chair - Sellafield)
 Rail & Rail Systems Engineering (Chair - Network Rail)
 Ecologist (Highways England)
 Marine Pilot (Maritime)

Level 4

Passenger Transport - Service Operations Manager (Chair - First Group)
 Construction (Chair - Balfour Beatty)
 Ecologist (Highways England)
 Port Marine Operations Officer (Maritime)

Level 3

Health & Safety (Chair - Costain)
 Temporary Traffic Management (Highways England)
 Composites Technician (Maritime)
 Marine engineer (Maritime)
 Maritime defence electrical fitter (Maritime)
 Maritime defence fabricator (Maritime)
 Maritime defence mechanical fitter (Maritime)
 Maritime defence pipeworker (Maritime)
 Maritime Operations Officer (Maritime)
 Officer Of the Watch on Merchant Vessels (Maritime)

Developing the right quality skills

Level 2

Passenger Transport - Driver (Chair - First Group)
Passenger Transport - Service Operations Team Member (Chair - First Group)
Passenger Transport - Network Operations (Chair - Crossrail 1)
Passenger Transport - Infrastructure Operations (Chair - Crossrail 1)
Tunnelling Operative (Chair - TunnelSkills)
Temporary Traffic Management - (Highways England)
Form Worker (Highways England)
Construction and Civil Engineering Ground Worker (Highways England)
Aviation Security (Heathrow Airport)
Customer Services (Heathrow Airport)
Able Seafarer - Engine Room (Maritime)
Marina and Boatyard Operative (Maritime)
Maritime Caterer (Maritime)
Port Operations (Maritime)

Level to be Determined

Public Policy Officer (Chair - CS Learning)
Boatmaster (Maritime)
Port Agent (Maritime)
Workboat Operative (Maritime)

New standards approved for delivery

Level 6

Quantity Surveying (Chair - Gardiner & Theobald)

Level 4

Rail Engineering Advanced Technician (Chair - NSAR)
Associate Project Manager (Chair - Sellafeld)
High Speed Rail and Infrastructure (HSRI) Advanced Technician (Chair - HS2)
Project Controls Technician (Chair - Costain)
Public Sector Commercial Professional (Chair - Crown Commercial Service)

Level 3

Rail Engineering Technician (Chair - Network Rail)
Transport Planning Technician Engineer (Chair - Atkins)
Railway Engineering Design Technician (Chair - Sheila Hoile Associates)
Surveying Technician (Chair - Gardiner & Theobald)
Maritime Operations Officer (Chair - Maritime & Coastguard Agency)
Boatbuilder (Maritime)

Level 2

Rail Engineering Operative (Chair - Network Rail)
Highways and Maintenance Skilled Ops (Highways England)
Carpentry & Joinery (Highways England)
Structural Steelwork Fabricator (Highways England)
Scaffolder (Highways England)
Aviation Ground Operations (Heathrow Airport)
Able Seafarer - Deck (Maritime)

Case Study: Development of Suite of Rail Engineering Standards – led by Network Rail

The primary aim was to both future proof the industry’s need for railway skills in a way that match the needs of the digital enabled future and, through securing recognition of the advanced nature of railway engineering, secure a fair level of funding.

In parallel, the work set out to enable an upskilling of the existing workforce in all disciplines including engineering and operations through the creation of a suite of railway standards accessible by all employees, at all grades, at all stages of their career.

The first priority was to modernise existing capabilities and then begin the work stage by stage to secure areas currently not covered by frameworks, as well as examining opportunities to reskill people from other industrial sectors. Network Rail chaired the Rail Engineering Trailblazer Group.

The work has included:

Development of railway engineering trailblazer standards at levels 2, 3 and 4 including pioneering our approach to delivering effective end point assessment plans.

Getting approval for the expression of interest for levels 5, 6 and 7, in particular achieving recognition for the distinct differences at each grade to enable formal progression.

Developing a level 2 rail operations standard and end point assessment plan with a view to delivering apprenticeships from mid-2017, creating c. 200 signaller apprentices per annum.

Working with colleges and universities to create a federation that will allow for

core delivery against trailblazer higher/degree apprenticeship standards, along with specialisms in key areas (for example: mechatronics, cyber etc.). This will allow more local delivery, reducing cost to employers.

Working with Skills Development, Scotland, who are now funding a scoping exercise, to evaluate opportunities to recruit former oil & gas workers to reskill and ‘convert’ into rail, particularly at degree level in engineering.

Developing a Passenger Transport level 3 ‘Traffic Management’ Standard.

Identifying other areas of industry need, e.g. analysts, cyber security, rail risk & safety management etc.

Standards work has progressed sufficiently well for the level 3 Rail Engineering Standard to be delivered from September 2016 across a number of employers. End point assessment plans have been developed; and work is progressing with Professional Engineering Institutes to agree the extent of their involvement at the independent stage.

Level 2 qualifications for Rail Engineering have been produced; these along with Level 4 qualifications will be released during spring/summer 2017 respectively.

The Level 5, 6 and 7 standards have been drafted; it is hoped these along with their end point assessment plans will be available autumn 2017 for training providers to develop programmes ready for later in 2018.

This has been a significant effort and we now have the correct platform for working with government to maximise levy opportunities, to meet skills shortages and for organisations to deliver a more consistent approach.

Rail Sector Skills Delivery Plan

5.11 Following publication of the Transport Infrastructure Skills Strategy, the rail industry launched its own skills delivery plan which includes:

- Standards and qualifications
- Promotion, attraction and diversity
- Recruitment and retention
- Curriculum
- Skills intelligence
- Quality assurance
- Leadership and productivity.

5.12 The goal of the plan is to ensure that rail has the right people in the right place at the right time. The National Skills Academy for Rail (NSAR) is leading on behalf of the rail industry, working with employers and the wider industry to ensure that this is delivered and that the objectives are achieved. STAT supports the plan and a number of members are directly involved.

5.13 The plan has a visionary but grounded approach, which aligns well with the industrial strategy, infrastructure investment and the Department for Transport's policies, for example regarding encouraging the take-up of new technologies in transport.

5.14 The plan's leadership and support comes from the industry itself. So, while there is clearly strong influence from government and the infrastructure clients, the supply chain support it as well. Their contribution is evident in every part of the plan. Their belief in the importance of training is as strong as that of their clients.

Highways England Skills Plan

5.15 The goal of the Highways England Skills Plan is to respond to the increase in investment within Highways England over the coming years, as well as structurally improve the skills development environment within the sector.

5.16 It focuses on the following areas;

- Skills and workforce intelligence
- Promotion, attraction and diversity
- Recruitment and retention
- Training and assurance
- Productivity and innovation.

5.17 The plan seeks to propose an integrated suite of improvements and interventions that will require a significant collaborative approach at the sector, client and supply chain level.

5.18 The foundation for these improvements is the development of an intelligent forecasting and resourcing model, extensive engagement with the sector and supply chain and an industry working together to embrace strategic change and improvements in skills development.

5.19 It is planned that improvements will include both tactical and strategic solutions that should deliver speedy and longer term sustainable change to improve the structure of the sector.

Case Study: Highways England careers fair

There is a shortage of skilled construction workers in the UK and resource is expected to become even tighter in the future. This could put the delivery of future programmes at risk and is a concern to many suppliers.

To address this challenge, we joined forces across the plant construction industry to remove obstacles and define common goals, these are to;

- Attract new people into this fast growing industry
- Provide the best possible service to our customers and deliver best value through the supply chain
- Help drive better productivity
- Create an open community for plant construction suppliers.
- Our active members represent all supply chain tiers, including hirers and manufacturers.
- Collaborate by working as ‘one peer group’ to promote the plant construction industry and solve common problems for example:
 - Encouraging the development of the new apprentice trailblazing standards
 - Encouraging school leavers and the general population to consider a career in plant construction
 - Encouraging suppliers to recruit and train new people
 - Set up and support the delivery of a trailblazer apprentice scheme, now led by the Construction Plant

Association undertaken over two construction plant experience days in Manchester and Cambridge.

These career events have been designed to attract and encourage new people into apprenticeships and careers in plant construction. The most recent event had over 850 in attendance over 2 days. There were over 6 companies with actual jobs available with up to 75 apprenticeships.

“Over 100 people attended the Manchester event, the Cambridge Event was much bigger and I think all the partners in the venture was somewhat overwhelmed. There were 850 in attendance over two days. There were 6 simulator and lots of machines to have a go on outside. It was a great success and we are planning more.”

Paul Whitehead, Supply Chain Manager – Earthworks, Highways England



NSAR – helping employers with the Apprenticeship Levy

- 5.20 Not all employers feel in a position to take on apprentices immediately, either through level of know-how, or because they may lack resources to attract the right candidates, and carry out the recruitment processes. That is why, through NSAR, the rail industry has established a service that helps large and small employers to take on apprentices. The service includes offering advice, skills intelligence, brokerage and quality assurance. In addition, tools such as the levy planner and NSAR Connect (see below) have been developed to offer further support.
- 5.21 For example, a major operations group using the service have conducted a thorough board level review of their training and levy plan. This will help them bid for franchises, save money, and most importantly, transform their workforce.

NSAR Connect

- 5.22 This is a useful tool available to employers which matches talented individuals from over-subscribed recruitment schemes with those organisations with vacancies. The service started in March 2017 and has already gained a growing database of quality candidates.
- 5.23 To grow capacity in the market, NSAR is launching a network of training providers. As a first step toward a full advice service for skills, this network will give candidates and employers the chance to access training of the highest quality. Training provider's quality scores are available to allow more informed choices. NSAR expects to add candidate feedback in the next stages of development.

More robust Quality Assurance through NSAR

- 5.24 The Rail Training Accreditation Scheme has enabled a step-change in the quality of training provided by NSAR for Network rail, TfL and British Transport Police. NSAR has established an industry quality panel that reviews the of quality of training provision.
- 5.25 In addition, NSAR implemented a new Quality Assurance Framework on behalf of the industry during 2016. The new framework includes compliance, education and process reviews.
- 5.26 As a result, training provider engagement with NSAR is at record high and poor providers are having their assurance removed for varying periods of time, ensuring that skills and competencies in the industry are continually monitored and improved.
- 5.27 This has been a significant commitment from the Network Rail and NSAR quality teams. The response from training providers has been positive. NSAR is confident that the railway is a safer place, and a better place to learn, as a result.

Next steps

STAT will continue to:

- Monitor delivery of standards, and encourage collaboration where we find gaps;
- Support sector skills initiatives such as the Rail Sector Skills Plan and the Highways England Skills Plan.

Case Study: TfL Pre-Employment and Work Placement Programmes

TfL’s Supplier Skills Team has partnered with key suppliers and several charities and employability groups to establish programmes providing a clear route into apprenticeships for underrepresented or disadvantaged groups through pre-employment training and work experience placements. Each programme is fully externally funded, with the employability organisations providing active support to the candidates before, during and after the programme, significantly reducing drop-out rates. Further programmes are in scope, but programmes that are currently underway include:

Peabody Trust

Peabody Trust and TfL’s Supplier Skills Team are collaborating to deliver a pre-apprenticeship programme, hosted at BSix College in Hackney, to help 16-25 year olds from across London into apprenticeships in transport and engineering.

A pilot programme is running in 2017, working with young people from a BAME background and those from economically disadvantaged areas. Three of TfL’s key suppliers are supporting the programme: Stagecoach, KeolisAmey Docklands, and Ferrovial Agroman Laing O’Rourke (FLO), the joint venture building the Northern Line Extension. Over the six week programme the young people gained a Level 2 qualification in Progression. They will be undertaking work placements in July 2017.

Gingerbread and Women into Construction



A pre-employment training programme funded by JobCentrePlus to create more opportunities for women to move into roles in the transport and infrastructure sector. Sixteen women are taking part in the pilot programme, which is being run in partnership with Gingerbread, a charity which works with single parents, and Women into Construction. Three of TfL’s key suppliers are participating in pilot programme: Siemens, Arriva Rail and Arup. The training was held in May 2017, with work placements taking place in May and June. To date several direct employment offers have already been made as a result of successful work placements.

Securing our future skills



6 Higher and further education, and transport centres of excellence

As the Transport Infrastructure Skills Strategy set out, there are a number of high profile investments from the transport sector in training institutions, including the National College for High Speed Rail which will open its doors in September this year.

This year has seen progress in strengthening collaboration and improved provision, through a Training Alliance, which makes best use of capacity owned by infrastructure delivery bodies and supply chain, and strengthening of industry relationships with University Technical Colleges (UTCs).

Looking ahead, if transport is to become more of a mainstream choice for those considering their options as part of further and higher education, greater support needs to be in place from both the further and higher education sectors.

Two independent studies were commissioned to identify areas where the transport, FE and HE sectors could collaborate more effectively. STAT will consider the findings of these reports alongside DfT Ministers and industry experts. Providing better careers information about the transport sector to young people and adults, particularly to encourage those from lower socio-economic groups, to engage in skills, upskilling and re-skilling on a lifelong basis is an area where STAT could provide real value in the coming year.

Driving collaboration with higher and further education providers

- 6.1 The transport sector has worked to improve bespoke provision and address skills shortages and technical expertise through the creation of new institutions to address specific, often project related needs. As we set out in the Transport Infrastructure Skills Strategy last year, these include the Tunnelling and Underground Academy (TUCA) in Ilford, which has been able to demonstrate high value for money and the College for High Speed Rail.
- 6.2 TUCA has been central to Crossrail's skills and employment legacy to the industry and to London. In July 2010, Crossrail published its Skills and Employment Strategy, which set out how Crossrail would address the challenges and opportunities on the project whilst delivering four key aims; maintaining safety; inspiring future talent; supporting local labour and revitalising the skills base.
- 6.3 Between 2011 and 2016, over 16,000 units of training have been undertaken. Of the 16,000 units delivered, nearly 80% completed a workforce development course. By the end of 2018/19, it is estimated that TUCA will have generated £49m of Gross Value Added benefits against an initial investment of £12m, which amounts to a 2.3:1 return on investment.



6.4 The National College for High Speed Rail is the largest of five new national employer-led colleges being created by government to help students develop world class skills.



National College for High Speed Rail – Doncaster

6.5 Built on state-of-the-art campuses in Birmingham and Doncaster, the college is dedicated to providing the higher level training required to create HS2 and work on future high speed rail projects, in what will be a major growth industry in the UK and abroad in the coming years.

6.6 It will offer cutting-edge technical and professional courses to learners that are starting a career in rail infrastructure, looking to switch careers or are part of the current workforce.

6.7 It will produce a new, diverse generation of high-tech engineers and technicians, and teach them the wider skills they need as rail professionals, such as problem solving, commercial awareness and the ability to lead and motivate.

6.8 As well as the two campuses in Birmingham and Doncaster, the college will be linked with other universities and training providers. Full-time and part-time courses will combine classroom teaching and virtual learning. Students will also spend around one-third of their time in the workplace, putting their learning into practice.

6.9 Extensive consultation has taken place with a wide range of employers to support the college in developing a curriculum that addresses skills needs. The college will offer higher apprenticeships and Higher National Certificate (HNC) equivalents, starting at level 4 (post A-level). Shorter courses will also be available, as will continuous professional development units in a variety of disciplines.

6.10 Working in partnership with the college, a group of more than 30 employers have formed an Apprenticeship Trailblazer group to develop a new High Speed Rail and Infrastructure Higher Technician apprenticeship, which will be delivered at the college.



National College for High Speed Rail – Birmingham

6.11 There are other strong examples of collaboration between the sectors. Within the further education system, different parts of the transport sector have supported University Technical Colleges (UTCs).

6.12 UTCs are academies that were established out of the Academies Act in 2010 and the first opened in 2011. UTCs are state funded institutions, independent of local authorities. They were set up for 14 to 19 year olds to strengthen technical education pathways and enable specialisation in technical areas pertinent to key industry sectors, such as engineering and digital technologies. UTCs work with employers, nationally and locally, and higher education institutions, to design and deliver a curriculum that integrates academic study with practical learning, through technical projects and work experience, and by so doing aims to provide individuals with more relevant skills employers need.

6.13 The transport sector has worked with UTCs in a range of ways – sponsorship, work experience, volunteering, as well as help with curriculum design and delivery. The current support of the transport industry demonstrates that they can have potential in enhancing pathways for young people in future but current concerns over funding, and the nature and levels of enrolment means that their progress does need to be carefully monitored and managed to see whether this potential can be realised in practice.



An artist's impression of the Sir Simon Milton Westminster University Technical College which will open in September 2017

NETWORK RAIL: Supporting STEM Education for 14-19 year-olds

Network Rail has recognised the opportunity to build the reputation of the rail industry as a career for bright young people with an engineering and technical bias through UTCs. Creating a work-ready pool of skilled young people at 16+ and 18+ helps recruit more skilled technicians, apprentice engineers and maintenance team leaders.

Engaging young people as they make decisions about their future study and career decisions can enhance the quality and diversity of the workforce. Mock interviews, assessment centre practice and work experience placements have been provided to ensure that female applicants are well positioned to enter the industry through the Network Rail Apprenticeship Scheme. Given these benefits, Network Rail has invested resource in supporting UTCs, working in three distinct ways:

The Sir Simon Milton UTC

Network Rail created and leads the Employer Alliance (which includes Alstom, BT Fleet, Colas Rail, Land Securities, Sir Robert McAlpine, Transport for London and Crossrail), supporting the Sir Simon Milton UTC which is due to open in London Victoria later this year.

A Memorandum of Understanding regulates joint activities of the group. Members agreed a project plan and matrix of commitments that detail the scope and extent of support, notably providing business challenges, classroom support, work experience placements, site visits, use of training centres, supply of equipment and materials, access to rail industry expertise, and promotional materials., as well as providing members of the Trust Board and Project Steering Group.

Practical help to drive recruitment to the UTC is also being offered.

Route-based UTC engagement

Close working with UTCs in a number of different routes has helped address route-specific recruitment, particularly in engineering technician roles.

Support often comprises Network Rail providing business challenges, curriculum design, developing a resource library of learning materials, mentoring, arranging visits to major stations, depots and training centres, supplying technical equipment, holding apprenticeship information days, providing PR and marketing materials. Network Rail central staff work with Route-based colleagues to enable engagement with local UTCs around the country. Railway land was provided for UTC Swindon to be built.

Network Rail has a longstanding partnership with UTC Reading, the only UTC to have been awarded an outstanding rating by Ofsted. The first rail engineering apprentice to come from a UTC joined Network Rail from UTC Reading in September 2016.

Influencing the national UTC agenda

Network Rail provided project management support through a six-week secondment to the Baker Dearing Trust (BDT) to help establish the UTC National Employer Group, consisting of Jaguar Landrover, The Royal Navy, Network Rail, National Grid, Taylor Wimpey, BAE Systems and LockheedMartin.

This has led to a written Terms of Reference, governance structure, established standards, metrics and reporting structures and Network Rail continue to provide advice on future sustainability.

Highways England: school career events and local opportunities

The vision of the Highways England ‘National Skills Academy for Construction’ (NSAFC) is to ‘raise awareness of employment opportunities and deliver high quality, tailored training’ on site: A part of this strategy is to prepare local people for meaningful employment and raise the skill of construction workers throughout the supply chain. Highways England ‘NSAFC’ projects are working closely with local training providers and other stakeholders to maximise opportunities for people who live nearby and realise local benefits. To date 9 Highways England major projects, totaling over £1bn, have been granted NSAFC Status. Each NSAFC project produces an Employment and Skills Plan (ESP) with KPI’s based around Industry Promotion, Employment & Training.

There are 3 KPIs aimed at the creation of local awareness and opportunities:

1. Construction Careers Information, Advice & Guidance (CCIAG) Events.

This target consists of holding events focused on improving the image of the sector, increasing awareness of the opportunities available within the industry, what it is like to work in construction and how to get into the sector. The key target groups for delivery of this outcome are 14-19 year olds, school students, persons currently not in education, employment or training, school leavers, college students, undergraduates and influencers. To date circa 950 events have been held across England.

2. Job Created for Apprentices

This target focuses on the creation of new and sustainable job opportunities on the NSAFC project for new entrants into the sector.

3. Work Placements

This KPI relates to work experience attendance on NSAFC Projects for students from schools, colleges and Universities, and for persons who are not enrolled in a course of education/study. Participants undertake a work-experience placement for a minimum of 5 working days.

The Result

All KPI targets for training, apprentices, graduates and work experience have been either met or exceeded and it has been possible to promote the industry to the future workforce. In addition, a lasting legacy has been created where local people have either gained meaningful employment or have had exposure to the many opportunities in the construction industry.

The Training Alliance

- 6.14 A Training Alliance of core publicly funded infrastructure trainers - Network Rail, the National College for High Speed Rail (NCHSR), TfL, NTAR (National Training Academy for Rail) and Alstom - has been established to strengthen and provide greater access to quality training provision within the industry.
- 6.15 The alliance will ensure specialisms are covered, share resources and facilities and collaborate with the supply chain. A web-enabled system for booked high quality training facilities and providers, with continual review through customer feedback and quality assurance has been developed and being used by NTAR. It will synchronise with competency systems in companies.
- 6.16 It paves the way for collaboration between member organisations, generating savings in investment in equipment and trained staff and an immediate broadening of the curriculum that can be offered. Network Rail are helping their contractors with technical training. NTAR is working with Alstom to support their curriculum, as they prepare to launch their new facility. NCHSR and NTAR are also planning a partnership. We expect these partnerships to develop and eventually include private providers and employers.
- 6.17 NSAR is in the final stages of bringing together a network of transport focused training centres and further education colleges. These are illustrated in the map overleaf. This is a group of quality assured colleges and providers and assessors who will implement new standards, ensure coverage and who have access to market intelligence and training in the new apprenticeship standards. Employers benefit from being given access to a network of quality assured providers, and can also obtain advisory help in choosing a training provider.
- 6.18 It is anticipated that more regions in the UK will benefit from the network as it is rolled out over even more areas of the country, and local partnerships naturally emerge. Research has shown that candidates tend to travel up to 30 miles for a level 3 course. Expanding provision locally will support SMEs.
- 6.19 This network will also be encouraged to offer more level 4 and level 5 courses as staff upskill. Completion of full time higher education courses such as Higher National Certificate/Diploma (HNC/D) means that candidates can quickly and more easily complete a higher level apprenticeship. NCHSR plan to launch an HNC type programme this year and refresh existing Higher National Diploma (HND) qualifications.
- 6.20 Taken together, the Training Alliance and network provide a solid foundation for supply chain skills to be optimised and supported. Further developments in student and employer feedback are being planned so learners' and employers' experiences will be transparent.

Gearing up to deliver the future skills the transport industry needs

- 6.21 Recent reforms supporting technical education will ultimately provide more quality pathways into careers in transport, helping us to build on industry alliances already developed. This should help to increase provision in line with industry needs as set out in chapter 1, but brings with it significant challenges. These have been explored in the independent reports commissioned to identify the ways in which the transport sector can work with the higher and further education sectors to provide a more mainstream route into the industry.

The further education sector

- 6.22 A detailed assessment of the further education sector has been developed by STAT member Valerie Todd and the The Works Foundation.
- 6.23 The report, to be published shortly, provides an assessment of how reforms to technical education, as set out in the Sainsburys Review¹³ and the Post-16 Skills Plan¹⁴ enables and challenges our ambition to drive the uptake of apprenticeships in transport. The report offers thoughts, insight and recommendations from a transport industry perspective, which we hope will support the improvements to Post-16 education that are needed.

The higher education sector

- 6.24 Within higher education, the focus on degree apprenticeships is relatively recent. They have been introduced to help address relative low UK productivity and levels of investment in training by employers. Their increase and rollout is – as with apprenticeships and technical training in the further education sector – taking place against an evolving policy landscape.

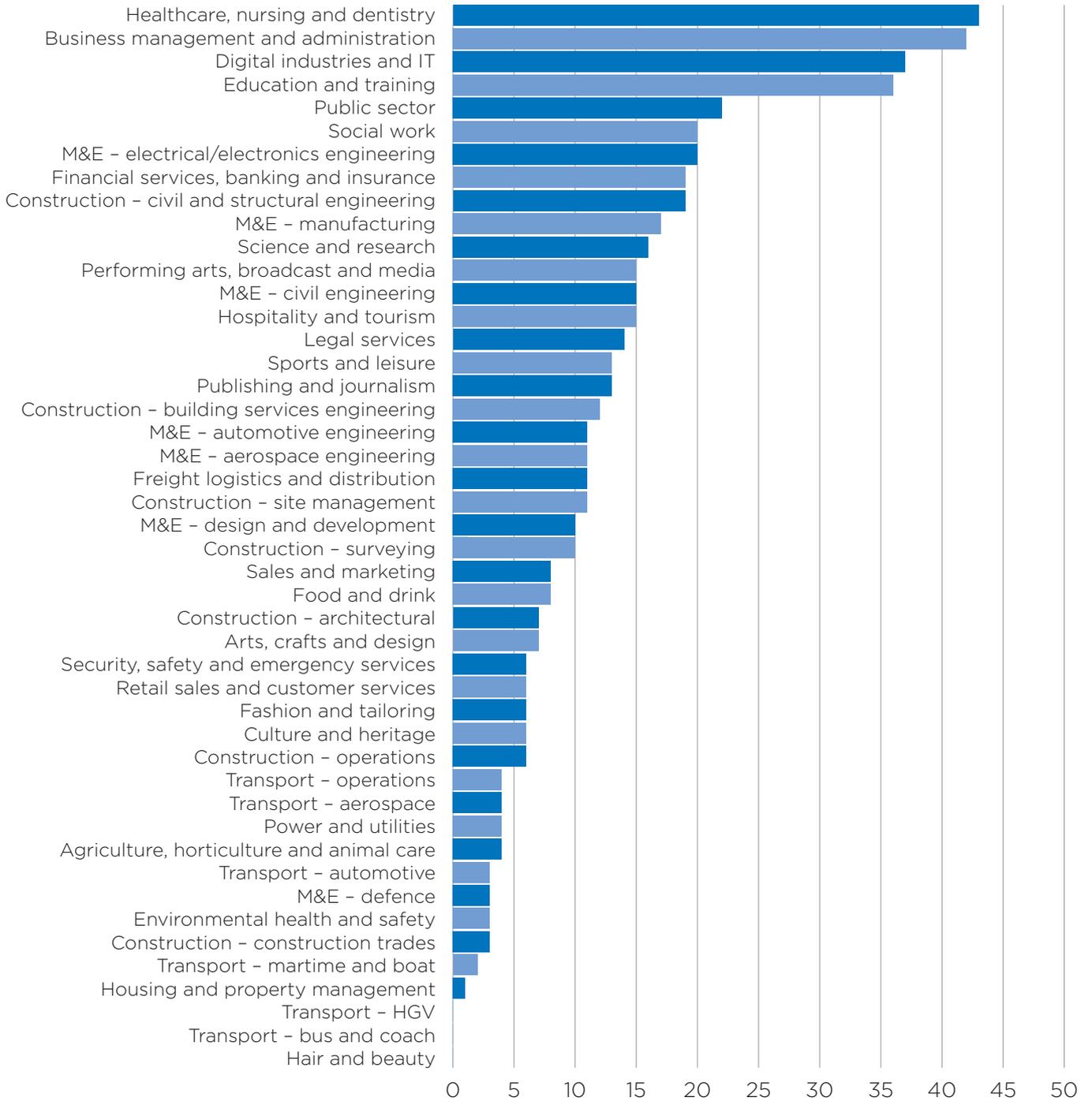
- 6.25 A detailed assessment of the higher education sector by Dr Deirdre Hughes OBE in association with Universities UK identified opportunities and challenges in areas which affect the higher education sectors’ ability to deliver the future skills the transport industry needs. The report will be published shortly.
- 6.26 There is much to be optimistic about in terms of the higher education’s sector ability to support degree apprenticeships, given its heritage of providing co-designed, part-time work based learning which has been quality assured.
- 6.27 The Universities UK survey (2017) of its members shows that significant growth is expected over the coming next few years, albeit from a relatively small base.
- 6.28 The graphic below indicates universities currently expressing interest in the development of future standards across employment sectors. Universities will be providing degree apprenticeships across almost all of the IPTE (2016) recommended 15 T-routes and approved standards.¹⁵ It will be necessary for those in the transport industry and HE bodies to jointly map degree apprenticeships in line with new and emerging ‘T’ level qualifications, working closely with the Institute for Apprenticeships (IfA).

13 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536046/Report_of_the_Independent_Panel_on_Technical_Education.pdf),

14 (<https://www.gov.uk/government/publications/post-16-skills-plan-and-independent-report-on-technical-education>)

15 IPTE (2016) Report of the Independent Panel on Technical Education, London, April 2016

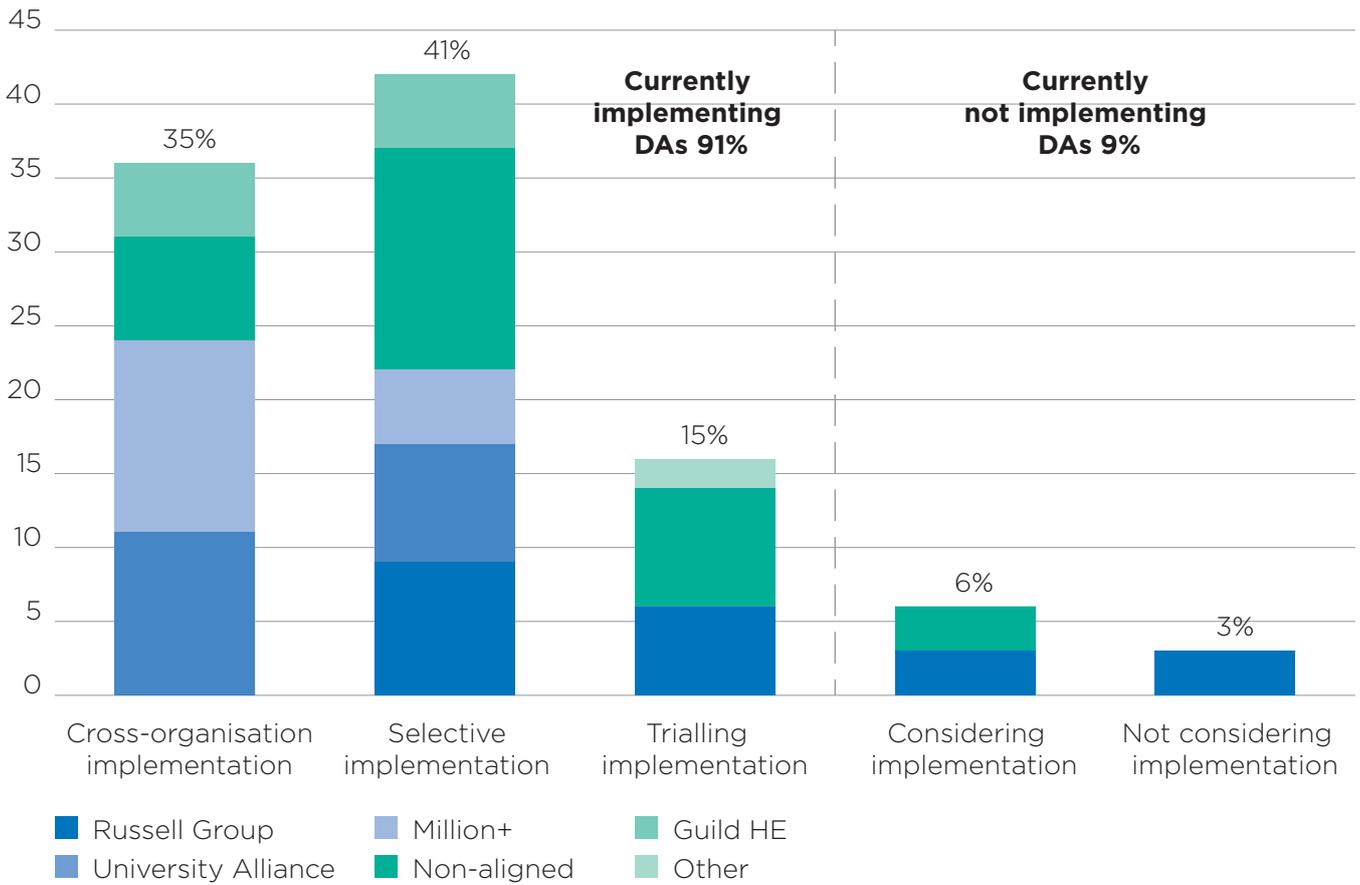
Universities UK Survey of Degree Apprenticeships – development of future standards



6.29 Current growth is being driven by chartered manager, digital and technology and engineer-related degree apprenticeships.

6.30 There is a broad spread of engagement across different types of Higher Education providers:

Universities UK Survey of Degree Apprenticeships - University Strategies



Responses from 66 institutions. England only.

- 6.31 Overall, more than 7,500 apprenticeship starts are expected to be recruited between 2015-16 and 2017-18, spread across 17 standards.
- 6.32 The report identifies a number of ways for all parties to work collaboratively to address challenges and strengthen provision for the transport sector.
- 6.33 Opportunities have been identified for the transport industry to work with programmes, policy and projects that are already serving higher education which can be considered with DfT, Ministers and industry experts alongside the recommendations for this report.
- 6.34 As a minimum, industry growth expectations with actions need to be clearly articulated to stimulate demand within and across the sector and to make better use of individual's talents and skills. This should in turn inspire a supply-side response, with high quality, higher-level skills development providing the future skilled workforce the transport industry needs.
- 6.35 Both this paper and the FE paper discussed above are set to highlight the importance of improved careers information about transport. This is an area where STAT could add real value over the coming year.

Next steps

- 6.36 STAT will continue to support the effective implementation of the Training Alliance and the wider training provider network, and of the inclusion of additional partners.
- 6.37 Alongside DfT Ministers and industry experts, STAT will consider and act on the findings and recommendations of the FE and HE reports. Both research papers highlighted the importance of providing better careers information about the transport sector.

7 Promoting transport and logistics to young people in schools

Research shows that children are making choices from primary school age, consciously or subconsciously, about the appropriateness of certain careers. This underlines the importance of engaging with children from a very young age to promote the breadth of opportunity that careers in transport can offer. The challenge is that there are many initiatives in this area, and the effort can seem piecemeal. However where there is strong collaboration and efforts are focused, strong, tangible results can be delivered. Over the coming year STAT will continue to support collaboration with key outreach providers, and we will develop and roll out a methodology to more effectively target the populations that we are trying to reach and attract to a future career in our sector.



Why do we need to promote transport in schools?

- 7.1 Research shows that we need to be reaching out to children at a younger age. It found that STEM (Science, Technology, Engineering, Maths) careers (excluding medicine) are not popular aspirations among 10-14 year olds. By the age of 10 or 11, a significant proportion of pupils have already decided that the idea of studying science after the age of 16, and the idea of a career in a STEM area is 'not for me'.
- 7.2 Programmes of targeted engagement can have a real impact. For example, TfL's Enjoyment to Employment programme delivered in partnership with the London Transport Museum showed a 50% positive progression into employment or training for 16-25 year olds.
- 7.3 In recognition of the fact that children of primary age will be reaching the workforce by the time the railway is built, HS2 Ltd. has developed a programme of engagement targeted at schools within 5 km of the route. Progress, benefits and challenges are set out in the following case study.

HS2 Ltd Education Programme case study

HS2 Ltd's Education Programme aims to inform and educate pupils and their families about opportunities on offer in transport and infrastructure, removing barriers to under-represented groups and creating a pipeline of young talent. It does this by enabling them to explore the link between STEAM (Science, Technology, Engineering, Arts and Maths) subjects and careers associated with a major transport and infrastructure project.

Research by the Education and Employers' Taskforce has shown that repeated engagement by employers in schools can make a real difference to student prospects, reducing dramatically the risk of them becoming a young person not in education, employment or training. HS2 Ltd's outreach programme was established in 2013 and has to date engaged over 35,000 students during the course of 250 events in schools close to the line of route. Almost 400 HS2 education ambassadors have got involved

in these activities, ranging from tailored HS2-themed STEM Inspiration Days to mock interviews and careers workshops.

With almost 3,000 schools positioned within 5km of the route, the task of engaging repeatedly with students over the course of the project is not inconsiderable. The supply chain is already assisting in the development of local plans to engage schools working alongside our own engagement and construction teams.

One particular challenge is in reaching out to students in primary schools, a key audience within the community. Many current primary students could join the workforce even before Phase 1 is completed. And yet research by Network Rail has shown that gender stereotypes form at an early age, with girls potentially being 'switched off' to engineering careers by the age of 7. To address this, HS2 is developing Zoom Rail, an online resource which any school in the country can access, alongside more traditional workshop delivery for selected schools close to the route.

Driving volunteership across transport

7.4 Whilst individual organisations may need to target their engagement to address particular needs, overall, it makes sense to brigade effort and drive a more holistic approach as children, especially younger children are less likely to identify with the organisational differences that we recognise as adults.

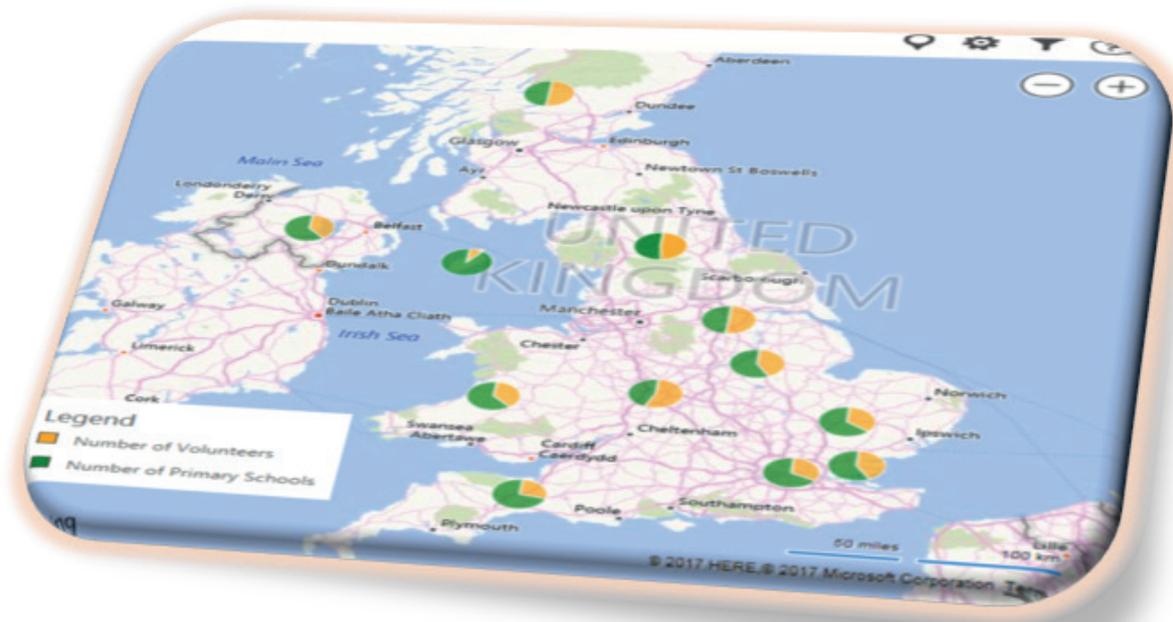
7.5 The Transport Infrastructure Skills Strategy set an aim to enlist sufficient volunteers to visit every primary school in the UK. STAT members have been promoting volunteering through their own organisations, by encouraging

employees to sign up to Inspiring the Future and STEM Learning using the keywords "Transport" and "Engineering" in their interests/specialisms.

7.6 We encourage any employee in transport and engineering sectors to sign up, regardless of profession, so that volunteers can speak about the variety of roles available. By using the key words of transport and engineering we are able to track volunteering numbers in organisations, and map them regionally.

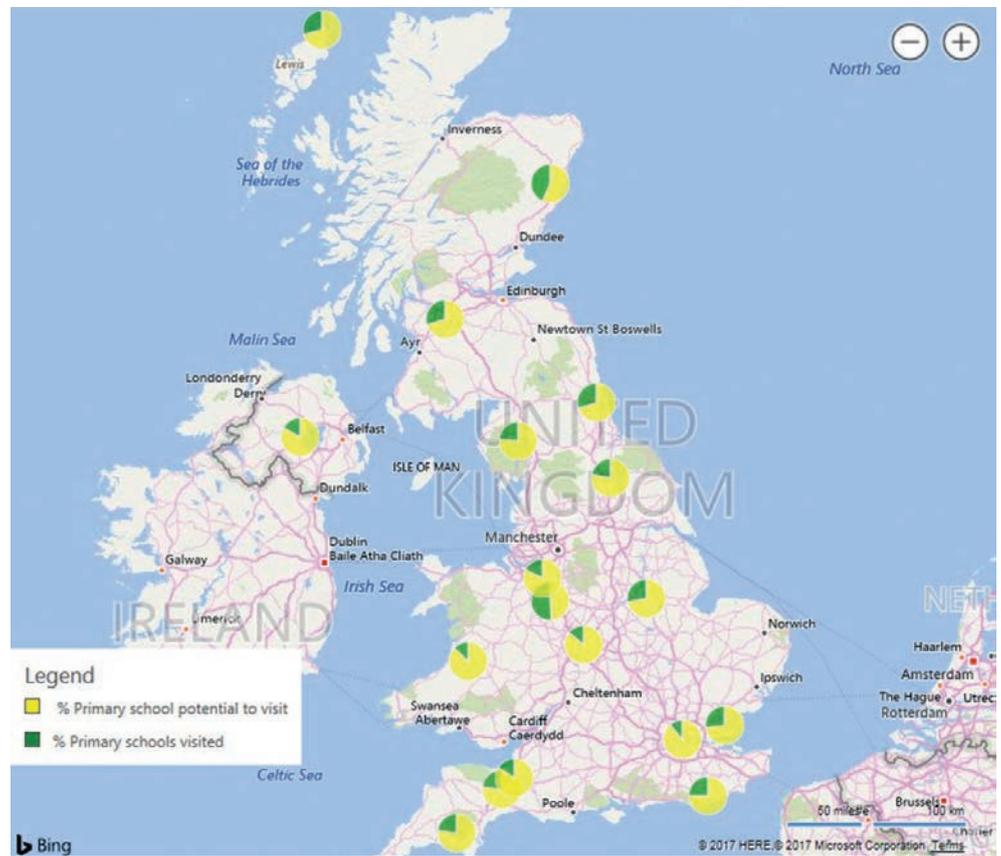
Current reporting shows:

- 17,413 engineering volunteers
- 3,725 transport volunteers (there may be some overlap with the above numbers)
- According to Inspiring the Future these numbers have doubled since last year
- 48 of those volunteers are, to date, from the DfT, who have launched a schools volunteer programme, headed by the Department’s Volunteering Champion, Sir Alan Massey, CEO of the Maritime and Coastguard Agency. We will be developing a volunteer schools visit programme for DfT for 2018
- To demonstrate the importance of linking with schools, the Department’s Executive Committee spent a day together visiting a school in June. TfL have 208 volunteers
- Tracking so far shows that secondary schools are much more intensively visited, and that a gap remains in terms of primary school engagement.



Securing our future skills

20% of Primary schools visited



90% of Secondary schools visited



Targeting effort

- 7.7 A targetted approach is needed:
The transport sector still lags woefully behind on gender representation, and that we lack even the basic knowledge on BAME representation. We also need to make sure that our sector drives social mobility.
- 7.8 We need to be targeting our schools engagement better so that we can attract a better balance of entrants for the future.
- 7.9 TfL has developed a methodology, described below to engage with schools across London boroughs with the aim of tackling diversity and skills shortages in the transport sector. STAT will develop a similar methodology on national basis. This will be used to shape the country wide schools engagement described at paragraph 7.5 and to track progress.

Resources

- 7.10 There are a variety of high quality resources available across the sector. Inspiring the Future and STEM Learning both have online resources available to help volunteers when visiting schools. Further resources to support volunteers include:
- 7.11 Chartered Institute of Highways and Transportation Careers Toolkit (2016)
Tomorrows Engineers Toolkit.
- 7.12 A number of high quality resources developed by our member organisations and industry stakeholders. STAT will develop an online library of these resources.

Case study: Transport for London Early Years Programme

TfL’s Early Years Programme provided TfL with a unique opportunity to tackle some of the key diversity and skills shortage challenges and to deliver a more diverse workforce profile for the future. Many of the activities were particularly focused on the way in which schools engagement can be broadened, with the long-term aim of encouraging girls and people from BAME communities to apply for apprenticeships and jobs in the transport sector, and from an early age to understand the impact that their choice of studies can have on their career options.

The schemes recruitment team have developed a strategic borough approach where a key activity has been the mapping of over 140 schools across London,

particularly in areas where there are hardship schools. The aim is to actively engage with schools and key influencers such as teachers and parents. These key relationships enhance opportunities and encourage entrants towards STEM fields, and a career in transport.



Next Steps

7.13 STAT will:

- Develop a methodology for effective school engagement, focusing on areas where access to opportunities may currently be limited.
- Create an online library of resources to support volunteering in school to promote transport.
- Continue to drive collaboration through Inspire the Future and STEM learning, encouraging greater uptake of volunteership to primary schools, establishing an ambition once the methodology is in place.

8 The Year of Engineering 2018

The Year of Engineering in 2018 will provide an opportunity for people to take a closer look at engineering and encourage more and different kinds of people to want to become engineers.

The government will help bring the public into contact with modern engineering by supporting events across the country which reveal the very widespread application of engineering. They will work with a range of partners to 'open the doors' on the sector, giving people the opportunity to meet engineers and see the breadth of creative and innovative opportunities available across the UK.

STAT members will be working closely with DfT on plans to help ensure that the transport is part of this focus, the range of careers in the sector and routes into them.

- 8.1** The Transport Infrastructure Skills Strategy acknowledged the valuable contribution the engineering sector makes to the transport industry and to wider society. Our forecasting study underlines the reliance of the transport sector on skilled engineers and technicians.
- 8.2** Engineers remain highly respected but research still shows that there is little understanding of what engineers today do as part of their jobs. The fact that engineering offers a career that can make a real difference to people's lives and be at the forefront of new and exciting technology and innovation is still being overlooked.
- 8.3** The Year of Engineering in 2018 is a cross-government initiative that will provide an opportunity for people to take a closer look at engineering and encourage more and different kinds of people to want to become engineers. When people discover more about engineering, they are surprised by its variety, how engineering improves the lives of others and what a well-paid and rewarding career it offers.
- 8.4** 2018 has been chosen as a year that provides rare opportunities to put modern engineering in the public spotlight, with the opening of Crossrail to members of the public (one of Europe's largest construction projects) and work underway on High Speed 2. Other announcements and initiatives across government will add to this programme, notably the Royal Air Force Centenary in April 2018 which aims to connect with a wide range of young people in Britain to create the engineers and scientists of the future through its tailored STEM packages for schools and colleges, community activities and social media.
- 8.5** It is recognised that there is already a great deal of communications and educational outreach to encourage more young people into engineering and STEM more broadly. It makes sense to harness the passion, activity and expertise behind STEM outreach to raise the profile of engineering, capitalise on the investment being made and avoid duplication in an already crowded arena.

- 8.6 Government will endorse and amplify this work to reach a wider audience, working closely with industry, the professional engineering institutions, STEM outreach organisations and schools to offer young people and those they turn to for advice on their careers and training a positive experience of engineering.
- 8.7 Over the course of 2018, the government will help bring the public into contact with modern engineering by supporting events across the country which reveal the very widespread application of engineering. They will work with a range of partners to 'open the doors' on the sector, giving people the opportunity to meet engineers and see the breadth of opportunities that are available across the UK.
- 8.8 Working with these partners will deliver a programme of events and activities all unified under the 'Year of Engineering' brand, which encourages young people, their schools and families to take a closer look at engineering. Sustained media coverage will put it in the spotlight and the brand will be recognised and used across a range of activities that celebrate the variety and creativity of the sector.
- 8.9 We will also encourage more organisations to join existing programmes which give people great experiences of engineering, like Tomorrow's Engineers.
- 8.10 By the end of 2018, government wants to have transformed young people's experience and perceptions of engineering, encouraging them to enter the profession, increasing understanding of what engineers do and the proportion of young people who see it as a desirable career choice.

Next steps

- 8.11 STAT members will work closely with DfT to will develop plans for the Year of Engineering to ensure that the transport and logistics sector showcases the forward looking and creative career opportunities it offers, and the routes into them.
- 8.12 STAT, through a programme of partner engagement during 2017, will recommend that those working with young people, in schools or recreational environments respond positively to the 2018 Year of Engineering project and provide people with a positive experience of engineering.

Case study: Maritime sector - High Tide's engineering week

High tide is a registered charity which aims to improve learning and employment opportunities, whilst raising aspirations for young people across the region through their unique work experience and industry-led skills programmes.

Industry member, MPI Offshore, has recently gained a new apprentice through its work with High Tide. Rachel Boynton was offered an engineering apprenticeship with the Stokesley-based company after taking part in their Engineering Week programme.

Established last year, Engineering Week is a dedicated week-long work experience programme run during the summer academic break. It is designed specifically for students interested in engineering. During the week, the young people visit a number of local engineering companies to gain an insight into the local industry.

After taking part in Engineering Week last year, Rachel was asked by MPI Offshore to submit her CV for potential future apprenticeships. After an interview process, Rachel successfully secured a position as an Apprentice Draughtsman and started her employment in December. In her role, Rachel will be predominantly based within the drawing office where she will gain experience of specialised computer software that will over time allow her to produce detailed engineering drawings. Working at MPI Offshore allows her the opportunity to combine office-based work with on-site visits to see the company's fleet of vessels and work with local fabricators to observe operations first-hand. Her apprenticeship will take two years to complete and when finished Rachel will have gained a HNC in Mechanical Engineering.

Commenting on High Tide and her new position with MPI Offshore, Rachel said:

“Something I really enjoyed about getting involved with High Tide was being able to go onboard the MPI vessels, being able to look around and talk to the Captain. Also what I found interesting was learning all about what MPI do from the drawings office to the installation vessels.”

Source: <https://www.hightidefoundation.co.uk/news/high-tide-graduate-secures-apprenticeship/>



Conclusions and next steps

1 This report sets out progress the Strategic Transport Apprenticeship Taskforce has made over the past year in delivering the skilled workforce the sector needs. We have much to be proud of, and have some powerful learning to take forward into next year in particular:

- The strength of our growing cross-sector collaboration
- The importance of comprehensive skills intelligence
- The importance of investment in skills, driven by direct or indirect levers and underpinned by certainty and understanding of the opportunity
- The importance of quality.

2 We know there are challenges:

- Delivering our higher level skills target will require long term investment throughout the supply chain, and we may need to do more to understand how our members and the wider industry can facilitate this investment.
- Without tackling our diversity challenge we will not meet our ambitions to deliver the skills we need. There has been some improvement in gender diversity but this is still not good enough. We will encourage more comprehensive reporting of ethnic diversity over the next year.

3 Building on the learnings from this our first year, the next steps for the taskforce and our recommendations for the sector are summarised as follows.

Meeting the demand for skilled people

Understanding the scale of need for skilled people

- 4 STAT will work with NSAR to update the Skills Intelligence Model on a regular basis to identify key skills shortages and prioritise areas of focus. This is likely to include:
- Deep dive into priority regions and disciplines
 - Additional survey work to inform inputs on workforce characteristics for roads and more broadly across the industry to inform inputs on our knowledge of sector diversity
 - Broadening the model to cover additional modes of transport.
- 5 STAT will use the model to influence the development of its future work programme as well as to:
- Inform educational institutions to deliver the capability required to meet future sector needs
 - Set out for industry the workforce demands driven by our investment programmes going forward.

Driving investment in skills

- 6 Long term investment requires long term thinking and confidence. STAT will carry out a programme of formal engagement with its shared supply chain at all tiers, aimed at identifying challenges and proposing steps which could improve the capacity and capability of the supply chain to invest in skills.

- 7 DfT will continue to seek opportunities to promote the uptake of apprenticeships among regional and local structures, such as through bidding competitions.
 - 8 STAT will continue to drive collaboration on the skills agenda across the transport and logistics sector.
- driving social mobility through the apprenticeship agenda, this is through providing support to those in areas where opportunities are limited.
 - supporting the drive of apprenticeships through the older workforce such as returners and career changers.

Greater workforce diversity & inclusion

- 9 To take forward with the STAT diversity leadership group the following recommendations:
 - Mentoring and coaching;
 - Tackling unconscious bias; and
 - Action to build on the success of 100 Years of Women in Transport.
- 10 We will continue to support the Major Projects Association and the Infrastructure Projects Association framework for supporting, engaging and monitoring equality, diversity and inclusion through the supply chain.
- 11 We will continue to work with DfE to improve the diversity of apprenticeships, particularly in STEM and digital apprenticeships.

Developing the right quality skills

What does quality look like?

- 12 STAT will:
 - Promote the benefits of the Investors in People quality mark for apprentice employers
 - Continue to seek opportunities to promote the uptake of apprenticeships for new entrants as well as upskilling the existing workforce. This includes carrying out research and putting forward recommendations on:

The strong and positive response to the quality imperative

- 13 STAT will:
 - Continue to monitor delivery of standards, and encourage collaboration where we find gaps;
 - Support sector skills initiatives such as the Rail Sector Skills Plan and the Highways England Skills Plan.

Securing our future skills

Higher and further education and transport centres of excellence

- 14 STAT will continue to support the effective implementation of the training alliance and the wider training provider network, and the inclusion of additional partners.
- 15 With DfT Ministers and industry experts, STAT will consider and act on the findings and recommendations of the independent FE and HE reports. Both research papers highlight the importance of providing better careers information about the transport sector. This will be one of the first areas that STAT considers.

Promoting transport and logistics to young people in schools

16 STAT will:

- Develop a methodology for effective school engagement, focusing on areas where access to opportunities may be limited
- Create an online library of resources to support volunteering in school to promote transport
- Continue to drive collaboration through Inspire the Future and STEM learning, encouraging greater uptake of volunteers to primary schools, establishing an ambition once the methodology is in place.

The Year of Engineering 2018

17 STAT and DfT will be working on plans for the Year of Engineering to ensure that the transport and logistics sector showcases the forward looking careers in the sector, and the routes into them. It will recommend those working with young people in schools or recreational environments respond positively to the Year of Engineering and provide people with a positive experience of engineering.

Glossary

The following acronyms have been used in the document:

| | |
|--------------|--|
| BAME | Black, Asian and Minority Ethnic |
| CEC | Careers and Enterprise Company |
| CECA | Civil Engineering Contractors Association |
| CITB | Construction Industry Training Board |
| DfT | Department for Transport |
| DWP | Department for Work and Pensions |
| ETF | Education and Training Foundation |
| FE | Further Education sector |
| FOC | Freight Operating Company |
| GWR | Great Western Railway |
| GVA | Gross Value Added |
| HE | Higher Education sector and Highways England |
| HNC | Higher National Certificate |
| HND | Higher National Diploma |
| HS2 | High Speed Rail |
| ICG | Infrastructure Client Group |
| IfA | Institute for Apprenticeships |
| IPA | Infrastructure Projects Authority |
| ITT | Invitation to Tender |
| MNTB | Merchant Navy Training Board |
| MPA | Major Projects Association |
| NCHSR | National College for High Speed Rail |
| NEET | Not in education, employment or training |
| NR | Network Rail |
| NSAfc | National Skills Academy for Construction |
| NSAR | National Skills Academy for Rail |

| | |
|---------------------|---|
| NTAR | National Training Academy for Rail |
| RDG | Rail Delivery Group |
| RIS | Road Investment Strategy |
| RTAS | Rail Training Accreditation Scheme |
| PQQ | Pre-qualification questionnaire |
| SBWA | Sector-Based Work Academies |
| SIM | Skills Intelligence Model |
| SME | Small and medium-sized enterprise |
| STAT | Strategic Transport Apprenticeship Taskforce |
| STE(A)M | Science, Technology, Engineering (Arts) and Mathematics |
| TB Programme | Trailblazer Programme |
| TIEP | Transport and Infrastructure Education Partnership |
| TISS | Transport Infrastructure Skills Strategy |
| TUCA | Tunnelling and Underground Construction Academy |
| TOC | Train Operating Company |
| TUC | Trades Union Congress |
| TUCA | Tunnelling and Underground Construction Academy |
| UTCs | University Technical Colleges |
| UKCES | UK Commission for Employment and Skills |

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