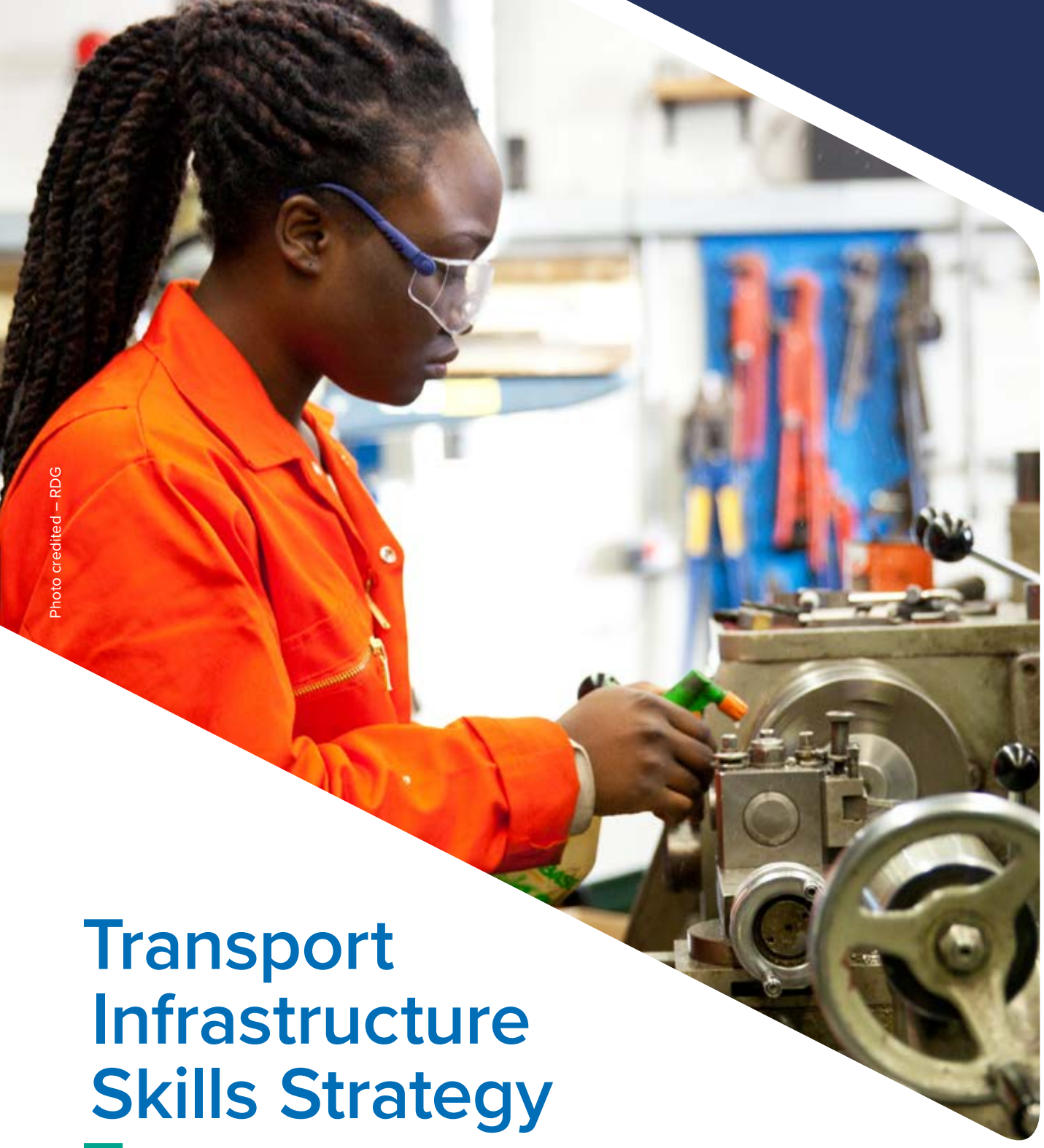

Photo credited – RDG

Transport Infrastructure Skills Strategy

Two years on

A report by the Strategic Transport Apprenticeship Taskforce **July 2018**

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Department for Transport
Great Minster House
33 Horseferry Road
London SW1P 4DR

Telephone **0300 330 3000**
Website **www.gov.uk/dft**
General enquiries: **https://forms.dft.gov.uk**

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Foreword

I am pleased to present the Strategic Transport Apprenticeship Taskforce's (STAT) progress, two years on, in delivering the Transport Infrastructure Skills Strategy – the plan to ensure that transport has the capability and capacity it needs to deliver infrastructure investment.

We have seen rising numbers of apprenticeships from transport employers, in contrast to the wider trend in apprenticeship numbers this year. I am pleased that there are more high quality opportunities right across our sector. In highways and rail, this increase amounts to 22%. In addition there are now some 8,000 new opportunities annually in express delivery, and Heathrow Airport has committed to ensuring 10,000 apprenticeships by 2030.

This success demonstrates the power of collaboration on skills. STAT is a broad collective of transport employers who are committed to creating more high quality skills and training opportunities to address current skills shortages, help to fill gaps in future skills, improve productivity, and drive growth. These opportunities must be open to all.

Mike Brown MVO
Commissioner, Transport for London and Chair of STAT

There is potential to drive investment in skills well beyond what we are currently realising. The apprenticeship levy is a powerful tool. However many levy paying members are currently drawing down only a fraction of the funds available. We believe that some flexibility in the levy to support schemes which boost apprenticeship delivery could drive further success, allowing the creation and recruitment of many more apprentices in the coming years.

Over the year, STAT has worked with transport supply chain organisations – where the majority of our workforce is employed – to understand how to overcome barriers to investing in jobs and skills, and to work together to address these. Our shared apprenticeship scheme will enable smaller employers to participate in the opportunity afforded by apprenticeships.

We are seeing some really good practice on gender diversity – for example at HS2, where 50% of the apprentices recruited were women. However, overall, women are still poorly represented in transport, in particular in science and technical roles, and we would like to see much better progress here. There are some very practical steps we can take collectively to tackle this long standing issue, and this report sets out some of those.

I am pleased to say that we have improved Black Asian and Minority Ethnic (BAME) representation in our apprenticeship starts, showing a proportional increase of 35% from where we were last year. Heathrow's apprenticeship intake this year was 43% from the BAME community. Although, overall there is much more still to do.

Securing a sustainable pipeline of skills requires a consistent and robust approach to tackling the lack of diversity. This will take long-term commitment and effort, and the golden opportunity created by Year of Engineering to promote jobs in our sector to young people cannot be missed. I am proud that so many employers in transport have become part of the campaign but, beyond 2018, we will need to build on this momentum to attract more diverse candidates to Science, Technology, Engineering and Mathematics (STEM) jobs and training.

This report sets out STAT's response to the challenges that we are facing. Looking forward to our third year, STAT has committed to focus on: adapting to emerging technologies; promoting better diversity and social mobility; piloting shared apprenticeships; working together to ensure the best use of apprenticeship levy spend; and, ultimately, continuing to create more high quality apprenticeships across the sector.

Executive summary

1 The UK's strategy for economic success is driven by innovation and improved productivity, underpinned by sustainable skills. There have been a number of policy developments over the year in support of this strategy. Investment in transport is fundamental to this.

2 Infrastructure Investment is trebling to a historic high, and getting the right people in place to deliver this investment is critical.

3 The Transport Infrastructure Skills Strategy was published in 2016 precisely to address this challenge. The strategy set stretching ambitions for new, high quality, apprenticeships and improving diversity in the transport sector.

4 STAT was established to deliver the strategy. Since 2016, STAT has expanded its reach considerably across the sector and, two years on, we are able to demonstrate good progress against our ambitions.

5 Whilst there is more to do, the breadth of STAT representation, and the different skills needs of each of the sub-sectors we represent, gives rise to a wide range of opportunities for apprentices from diverse backgrounds. These are opportunities for new entrants, as well as for upskilling and reskilling existing employees.

6 STAT members remain committed to the development of quality trailblazer standards and over the past year, a number of standards have been approved that will help the industry to address shortages. There has also been an increase in the higher level standards both approved and under development, which will help employers to meet future skills challenges.

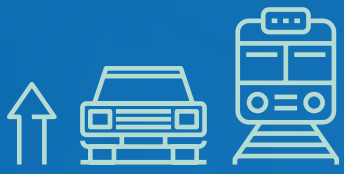
7 To this end, STAT urges the Institute for Apprenticeships (IfA) to continue to streamline and improve its approvals processes and communications with employers.

8 STAT is making good progress to develop its understanding of skills needs, remove barriers, and encourage collaboration to increase skills in the workforce.

9 In our first year, 2,000 apprenticeships were reported in roads and rail, and we set out our trajectory for 27,000 to 35,000 by 2022, as well as commitments to many thousands more across the sector.

10 In our second year, we have seen a 22% increase in apprenticeships created in road and rail, despite a wider fall in in the total number of apprenticeships created since the new levy was introduced. There are an additional 8,000 opportunities per annum in express delivery, training places for maritime cadets will rise to 1,200 per annum, and there is a commitment to ensuring 10,000 apprenticeships before 2030 at Heathrow.

Apprenticeships in Numbers



22% growth in apprenticeship starts
in road and rail, with 2,784 in 2017-18

12%
ahead of
forecasted starts to date in roads and rail

1,300
apprentice starts
in road freight
*reported as 15,000 in One year on

Looking forward...

10,000 **apprenticeship opportunities**
at Heathrow by 2030

8,000 **demand for apprentice starts**
per year in express delivery

1,200 **Maritime cadet starts**
will rise from 750 to 1,200 per annum

11 Whilst in road freight the industry did not meet its aspiration to deliver 15,000 apprenticeships in 2017-18, it is hopeful that it will see significant uptake in 2018-19 now the LGV driver level 2 apprenticeship has been approved.

12 We are working closely with our supply chain to better understand the drivers and barriers to investing in the skills we need. For small (and sometimes medium sized) businesses, in particular, these include a lack of business confidence and/or a lack of staff able to support apprentices or to navigate recruitment processes.

13 This has given rise to a commitment to develop a shared apprenticeship scheme in transport. STAT has teamed up with a range of industry partners and, through this group, will develop pilots for a shared or brokered apprenticeships model to facilitate take up in the supply chain below Tier 1.

14 Activities such as these can be facilitated by commercial models which support greater collaboration between client organisations and the supply chain, enabling the development of sustainable skills and increasing productivity.

15 Employers accept that capacity in the skills system to deliver new apprenticeships is still being built. A helpful change in these early years, whilst employers gear up to spend more of the funds in their levy pots, would be to allow increased flexibilities in the use of levy funds. For example, funding might support pre-apprenticeship training to build a pipeline into apprenticeships and to more sustainable employment opportunities.

16 Future skills will need a strong signal to market. The need is not yet there at scale, and so it can be challenging for employers to make a business case to invest in these skills. There is an equal need for client organisations, and the supply chain to consider their capability and capacity to make the most of the productivity benefits provided by the broad range of digitally enabled technologies which are set to transform the transport sector.

17 Government departments, including the Department for Transport (DfT), have signed up to a presumption for offsite construction in 2019. This could transform the construction sector, offering opportunities to increase efficiency through the standardisation of assets, and to spread the benefits of investment.

18 Industry also runs and manages unique legacy systems, some of which date from the Victorian era. Skills to maintain and operate these systems are necessary but are becoming increasingly uncommon.

19 As technology drives modernisation, the transport sector must ensure that its workforce properly represents and offers opportunities to the communities it serves. This is a business imperative. Two years on, STAT's reporting shows the scale of the task. Over the coming year, STAT will focus on addressing gender diversity and social mobility.

20 The proportion of women apprentice starts in roads and rail has remained static at 20%. Likewise, female technical and engineering apprentice starts have not progressed, holding at 10%. This leaves STAT only halfway towards its initial ambition and there is a clear need to do much better in subsequent years, specifically with regards to gender diversity. In contrast, BAME representation has increased and the reporting rate has improved over the last year.

21 Many employers are leading programmes to support social mobility, honouring the commitments detailed in STAT's one year on report. In the coming year, STAT member organisations will work collectively to further develop this good work. The STAT social mobility work programme will take place over 18 months and will identify potential pre-apprenticeship pilots to increase access to opportunities across transport.

22 As research shows young people make their minds up early about their future careers, and there are a number of programmes underway to help young people and their influencers to understand the opportunities in transport.

23 STAT members are working as part of the Year of Engineering 2018 campaign to showcase engineering to 7 to 16 year olds, and to ensure a legacy for transport in future years.

24 The world has changed since 2016's strategy was published. The UK is set to leave the EU in less than a year's time, and there is an emerging picture of strong reliance on non UK EU workers in certain parts of our sector. This makes STAT's work to build a sustainable pipeline of skills even more important.

25 Looking ahead, the aim of our collaboration is to continue supporting employers in their efforts to invest in apprenticeships, skills and the training needed, both now and in the future.

1

Context

"Creating more, high quality apprenticeships is vital to address skills shortages and gaps to deliver infrastructure investment."

The UK's strategy for economic success is driven by innovation and improved productivity, underpinned by sustainable skills. There have been a number of policy developments over the year in support of this strategy. Investment in transport is fundamental and infrastructure investment is trebling to a historic high.

Getting the right people in place to deliver that investment is critical. We know there are existing skills shortages and gaps from historic under-investment, an ageing demographic, and ill-informed perceptions of the sector.

The Transport Infrastructure Skills Strategy was published in 2016 precisely to address these challenges. The strategy set stretching ambitions for new high quality apprenticeships and improving diversity in the transport sector. STAT was established to deliver the strategy. Since then, STAT has expanded its reach considerably across the sector, and two years on, we are able to demonstrate good progress against our ambitions.

Of course, the world has changed since the strategy was published. The UK is set to leave the EU in less than a year's time, and STAT members have worked during the year to build a picture of the reliance in transport on non UK EU labour. We have found strong reliance in certain regions and in certain sub-sectors, which makes STAT's work to build a sustainable pipeline of skills even more important. STAT will continue to consider the impacts of the UK's exit from the EU on the transport workforce, and respond accordingly within its remit as the outcome of negotiations become clearer.

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Wider policy developments

1.1 The government's White Paper "Industrial Strategy: building a Britain fit for the future" was published in November 2017 and set out a long term plan to boost the productivity and earning power of people throughout the UK[1].

1.2 It sets out how government is building a Britain fit for the future – to help businesses create better, higher-paying, jobs in the UK through investment in the skills, industries and infrastructure of the future. Four Grand Challenges are set out as part of the strategy to put the UK at the forefront of the industries of the future.

1.3 The government's industrial strategy mandates use of the Procuring for Growth scorecard system. The guidance, developed by the Crown Commercial Service, introduces a balanced scorecard approach which government departments should use in designing major works, infrastructure and capital investment procurements where the value is more than £10 million. The scorecard helps procurers to consider the project requirements and needs, with criteria such as cost balanced against social, economic and environmental considerations, including skills.

1.4 In order to achieve good jobs and greater earning power for all, we must meet our business needs for talent, skills and labour. The Industrial Strategy sets out a focus on technical skills, STEM subjects, tackling regional disparities, and increasing diversity.

1.5 The Future of Mobility and Clean Growth are two of the Grand Challenges identified within the Industrial Strategy. The UK's road and rail network could dramatically reduce carbon emissions and other pollutants, congestion could be reduced through higher-density use of road space enabled by automated vehicles, and the mobility offer could be transformed. The Industrial Strategy will support electric vehicles through £400 million charging infrastructure investment and an extra £100 million to extend the plug-in car grant.

1.6 In recognition of the importance of infrastructure as a foundation for productivity, government has recently set out a number of key policy commitments, including increasing the National Productivity Investment Fund (NPIF) to £31 billion which, amongst other areas, supports investments in transport and housing infrastructure.

1.7 As part of the Industrial Strategy, the government is working with industry sectors to develop Sector Deals which seek to create strategies with clear objectives of driving long term productivity and growth. These include commitments from both the government and the sector to invest in support of these objectives.

1.8 The rail industry has risen to the challenge and is working on a potential Sector Deal.

1.9 On the railway, the ambition is to increase the supply chain's competitiveness, its capabilities, and support its efforts to grow and significantly increase exports whilst maximising its contribution to UK plc. A Sector Deal has the potential to transform the railway through innovation, investment in skills, increased productivity, and a rebalanced economy.

1.10 The Construction Sector Deal, published on 5 July, has been spearheaded by the Construction Leadership Council and aims to achieve a 33% reduction in whole life costs, a 50% reduction in project time, a 50% reduction in carbon emissions, and a 50% reduction in the trade gap for construction products and materials. It also aims to drive the skills to deliver these, with commitments to 25,000 apprenticeships per annum.

1 www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future

1.11 Linked to this, the £170m Transforming Construction Fund[2] under the Industrial Strategy Challenge Fund, is a four year challenge that aims to eliminate the productivity gap in construction and help the construction, manufacturing, energy and digital sectors come together to take a digitally driven, design for manufacture and assembly approach to built assets.

1.12 The Infrastructure and Projects Authority's (IPA's) Transforming Infrastructure Performance[3] programme sets out how the government will leverage the investment power of its £600bn pipeline of projects to transform the delivery of infrastructure over the long term. The government will use its influence and combined buying power to drive modern methods of construction, which can reduce waste by 90% and speed up delivery times by 60%.

1.13 The Transport Infrastructure Efficiency Strategy[4] is a collaboration across transport client bodies to deliver a step change in the way the industry drives efficiency through infrastructure projects. It includes a presumption in favour of offsite construction in transport by the end of 2019 and the increased adoption of digital construction techniques.

1.14 There has also been more detail set out around plans to reform the skills system. Bringing training for young people and adults in line with the needs of business and industry, supports the drive to improve productivity.

1.15 The 2017 Budget saw the announcement of the National Retraining Scheme to help adults to re-skill through their working lives[5]. Since then, discussions with businesses and unions have looked at how best to introduce an effective and far-reaching programme that provides adults with the opportunity to reskill as the economy changes. As an immediate priority, the scheme will help to address skills shortages in sectors identified as growth areas, including construction.

1.16 The scheme will be introduced in a phased approach to ensure effectiveness, with the programme being fully rolled-out by the end of this parliament, although the current timeframe up to 2020 will not help every employer working on long term infrastructure projects.

1.17 The Careers Strategy published in December 2017[6] highlights the need for improved careers provision and it expects schools in England to adopt the Gatsby Benchmarks for Good Career Guidance, to ensure that young people are better informed about the jobs and training available to them.

1.18 The development of new technical routes for post-16s, T levels[7], has progressed specifically on plans for the provision of industry work placements (minimum of 45 working days) for all pupils undertaking T levels. Employers in the transport sector acknowledge the value of industry placements, yet have concerns around their capacity of employers to support placements in the volumes needed and around ensuring equality of access to high quality placements.

2 www.gov.uk/government/collections/industrial-strategy-challenge-fund-joint-research-and-innovation#transforming-construction
3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664920/transforming_infrastructure_performance_web.pdf
4 www.gov.uk/government/publications/transport-infrastructure-efficiency-strategy
5 www.gov.uk/government/publications/autumn-budget-2017-documents/autumn-budget-2017#productivity
6 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664319/Careers_strategy.pdf
7 https://www.gov.uk/government/consultations/implementation-of-t-level-programmes

1.19 Government also announced support for the creation of new Institutes of Technology (IoTs), prestigious institutions which specialise in delivering the higher-level technical skills that employers need. The Institutes will focus on teaching technical disciplines where industry demand is growing, driven by the pace of technological change and the loss of skills as older people retire. A call for proposals was launched at the end of 2017[8].

Post Brexit

1.20 Potential constraints on labour supply stemming from future migration policy add a further dimension to skills challenges that the transport sector is addressing.

1.21 STAT members have worked together during the year to help to build a picture of the reliance in transport on non-UK EU labour. This work has been provided to inform the work of the Migration Advisory Committee[9]. Whilst there are clear limits to our data, STAT has been able to draw some conclusions.

1.22 There is a picture emerging of potentially strong reliance on non-UK EU workers in certain regions and in some specialisms. This also appears to be stronger in the lower tiers of the supply chain and among agency workers, and less so in our delivery bodies; for example, Network Rail and Highways England. Whilst there is a proportion of these workers in what we have traditionally understood as the "lower" skills levels, with UK unemployment at a 42 year low[10], we must not assume that the levels of experience these workers bring can always be quickly replaced, like for like.

1.23 Ameliorative action such as the work of STAT therefore becomes ever more important, and whilst our work is a real opportunity, it is not a quick fix. As this report will set out, there are challenges around implementation in a policy environment that is still bedding in. Programmes which develop the skills the sector needs can also take three years and more for a learner to complete. Many plans will only truly come to fruition around 2030, when the school children we are engaging today through outreach programmes such as those described in chapter 6, are entering the workforce.

1.24 For infrastructure projects, the presumption for offsite construction presents a real opportunity to address regional disparities and to spread economic benefits, but this will take time and investment to truly take hold.

1.25 Until such time as policy and strategies around developing sustainable skills can fully come to fruition, some highly specialist roles and those demanding hands-on experience, will still need to be filled by non-UK employees.

1.26 Any visa system therefore needs to be straightforward and flexible enough for businesses to use when needed. Ideally, this will accommodate a need for workers at a range of skill levels, as well also taking into account regional or project based variations.

1.27 STAT will continue to consider the impacts of the UK's exit from the EU in the transport workforce and respond accordingly, acting within its remit, as the outcome of negotiations becomes clearer.

8 www.gov.uk/government/publications/institutes-of-technology-competition
9 www.gov.uk/government/publications/eea-workers-in-the-uk-labour-market-interim-update
10 ONS, Unemployment rate to August 2017.

STAT and its membership

1.28 STAT was established in April 2016. It is the primary delivery vehicle for the Transport Infrastructure Skills Strategy and it set stretching ambitions for new high quality apprenticeships and improving diversity in the transport sector. It recognised the need to collaborate on promoting transport as a career to young people and their influencers[11].

1.29 The taskforce is a collaboration across industry. The Chair is appointed by the Secretary of State for Transport and minsters are kept informed of progress.

1.30 The taskforce is currently chaired by Mike Brown MVO, Commissioner of Transport for London. Membership is at the invitation of the Chair. Apprentices are represented on the taskforce to bring their invaluable perspective to the skills and training agenda. Apprentices from member organisations also joined the project team to drive the development of this report. See page 16/17 for the full taskforce membership.

1.31 STAT is supported by a working group, predominantly skills and employment leads from member organisations, as well as the procurement and commercial leads who meet in the Supply Chain Skills Network.

1.32 Although the original ambitions in the Transport Infrastructure Skills Strategy relate to the road and rail sectors, clearly the whole sector has a joint interest in skills and training. Data continues to be reported by the original membership of STAT to check progress against the ambitions that were set out in TISS.

1.33 However, focusing exclusively on road and rail would present a partial picture of efforts to fill skills gaps and invest in quality training. We have asked other employers to report data on apprenticeship starts created in their organisations and supply chains, to build a more comprehensive picture of work to date. This is included within the third chapter of this report.

11 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/495900/transport-infrastructure-strategy-building-sustainable-skills.pdf

Mike Brown MVO
Chair of STAT
Commissioner,
Transport for London

Becky Ivers
People Director
Heathrow

Paul Plummer
Chief Executive
Rail Delivery Group

Beverley Bell
Senior Traffic Commissioner 2012–17

Katie Kelleher
Former Crossrail apprentice and Crane Operator

Neil Robertson
CEO
National Skills
Academy for Rail

Callum Brown
Senior Apprentice Civil Engineer
Highways England

Miriam Lea
Programme Manager
DfT

Kevin Rowan
Head of Organisation and Services
TUC

George Clark
Director of Engineering
TfL

Iain Mackinnon
Secretary to the Maritime Skills Alliance

Dana Skelley
Director of Strategy and Operational Excellence
Skanska

Catherine De Marco
Deputy Director Infrastructure Skills and Efficiency DfT

Richard Mould
Procurement Director
HS2 Ltd

Matthew Steele
Commercial & Development Director
Network Rail

Richard Steele
Chief Executive
Port Skills and Safety Ltd

Russell Wallis
Change Director
Highways England

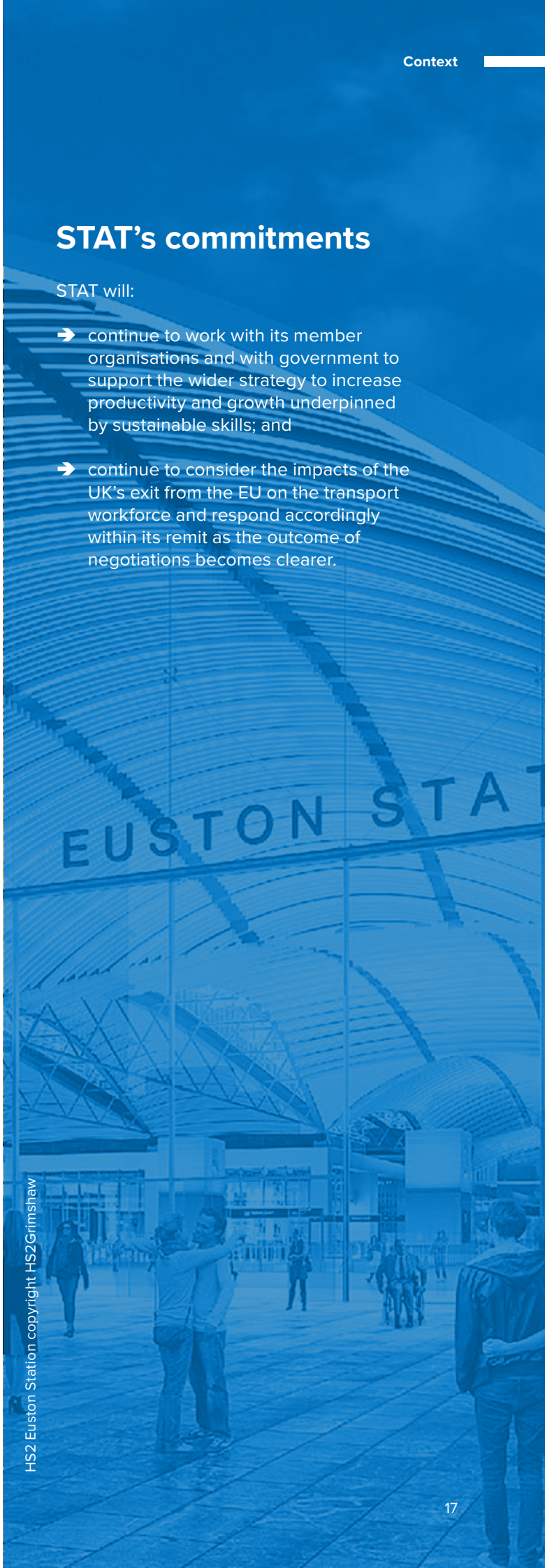
Tracey Worth
CEO & Secretary to Viscount Falkland
President IoC

Nicola Wright
Signalling Engineer & former apprentice
Network Rail

STAT's commitments

STAT will:

- continue to work with its member organisations and with government to support the wider strategy to increase productivity and growth underpinned by sustainable skills; and
- continue to consider the impacts of the UK's exit from the EU on the transport workforce and respond accordingly within its remit as the outcome of negotiations becomes clearer.



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2

Building capacity and capability

"Existing roles will change and may require increased levels of competence. New roles will emerge which require skillsets not previously needed."

The breadth of STAT representation right across transport and the different skills needs of each of the sub-sectors we represent, gives rise to a wide range of opportunities for apprentices from diverse backgrounds. These are opportunities for new entrants as well as for upskilling and reskilling existing employees.

STAT members remain committed to the development of quality trailblazer standards to support these opportunities, and, over the past year a number of standards have been approved that will help the industry to address shortages.

There has also been an increase in the higher level standards both approved and under development. These will help us to meet our future skills challenges. STAT urges the Institute for Apprenticeships (IfA) to continue to streamline and improve its approvals processes and communications with employers.

Infrastructure that delivers sufficient, consistently high quality training is essential to support these standards and STAT welcomes the opening of the National College for High Speed Rail, offering courses from level 4 upwards. We continue to support robust quality assurance.

Photo credited – RDG

The skills we need

Roads and Rail (Skills Forecasting Baseline Study)

2.1 STAT commissioned, through the National Skills Academy for Rail (NSAR), the development of the most detailed skills forecasting tool the transport industry has ever had.

2.2 The baseline study was published in June[13] and sets out current workforce and future needs of the road and rail sector against known investment plans or, where these are yet to be set, against our best case assumptions.

2.3 In roads, we will need an additional 25,000 people by 2025, driven by increased investment, and an additional 16,000 people if we are to replace those who are due to retire. This includes 25% more people than we have currently working on investment projects. In rail, we are due to lose 50,000 people by 2033 due to retirement. This will be felt more acutely at operative level in our investment workforce.

2.4 The report shows shortages in traditional trades. In turn, this risks inefficiency and poor productivity. As the nature of the work in our sector changes, there are potential skills gaps. The need for people with higher skill sets will increase, due to developments in technology, increasing digitalisation and different ways of doing things, for example the move towards offsite construction and smart asset management.

2.5 Existing roles will change and may require increased levels of competence. New roles will also emerge which require skillsets not previously needed in conventional transport roles.

Workforce Requirements

41,000
people in roads by 2025*

50,000
people in rail by 2033*

*based on NSAR Skills Forecasting Baseline Study

13 www.gov.uk/government/publications/strategic-transport-apprenticeship-taskforce-skills-forecasting-baseline-study

Maritime

2.6 The maritime sector is made up of a number of specialised clusters often found around, but not necessarily restricted to, areas around ports. Clusters of specialised businesses such as those found in London, Glasgow, Merseyside, the Solent and the Humber develop around specific parts of the sector and are powerful engines of local growth.

2.7 Employment is not concentrated in one region; with London, Scotland, the south-east and the south-west, all having a 16-17% share of total employment.

2.8 We expect the number of cadets in training to rise from 750 to 1,200, thanks largely to the doubling of the Support for Maritime Training (SMarT) fund from £15m to £30m over the next seven years, announced by Minister Nusrat Ghani. The scheme, called SMarT Plus, sees multinational shipping companies pledging to provide the additional 450 training places in return.

Heathrow

2.9 Heathrow airport employs 6,500 direct employees, with 76,500 indirect employees working across a range of airport operations including construction, logistics, retail and hospitality sectors[14].

2.10 With expansion, Heathrow Airport Limited estimates a total of 180,000[15] jobs nationally and 10,000[16] apprenticeships by 2030[17].

2.11 The Heathrow Skills Taskforce, under the chairmanship of Lord Blunkett, has been advising Heathrow on measures to ensure the 10,000 apprenticeships by 2030. The Taskforce recommendations will be made available later in the year. These recommendations will be used to help inform Heathrow's future education, employment and skills strategy.

14 Heathrow Airport, March 2017, Heathrow pledges to create over 500 airport apprenticeships this year, http://mediacentre.heathrow.com/pressrelease/details/81/Corporate-operational-24/8352

15 PwC, Airports Commission modelling 1. Strategic Fit: GDP/GVA Impacts, www.gov.uk/government/uploads/system/uploads/attachment_data/file/439176/strategic-fit-updated-gdpgva-impacts.pdf

16 Heathrow Airport, Heathrow pledges to create over 500 airport apprenticeships this year, http://mediacentre.heathrow.com/pressrelease/details/81/Corporate-operational-24/8352

17 Transport Infrastructure Skills Strategy: One year on op cit

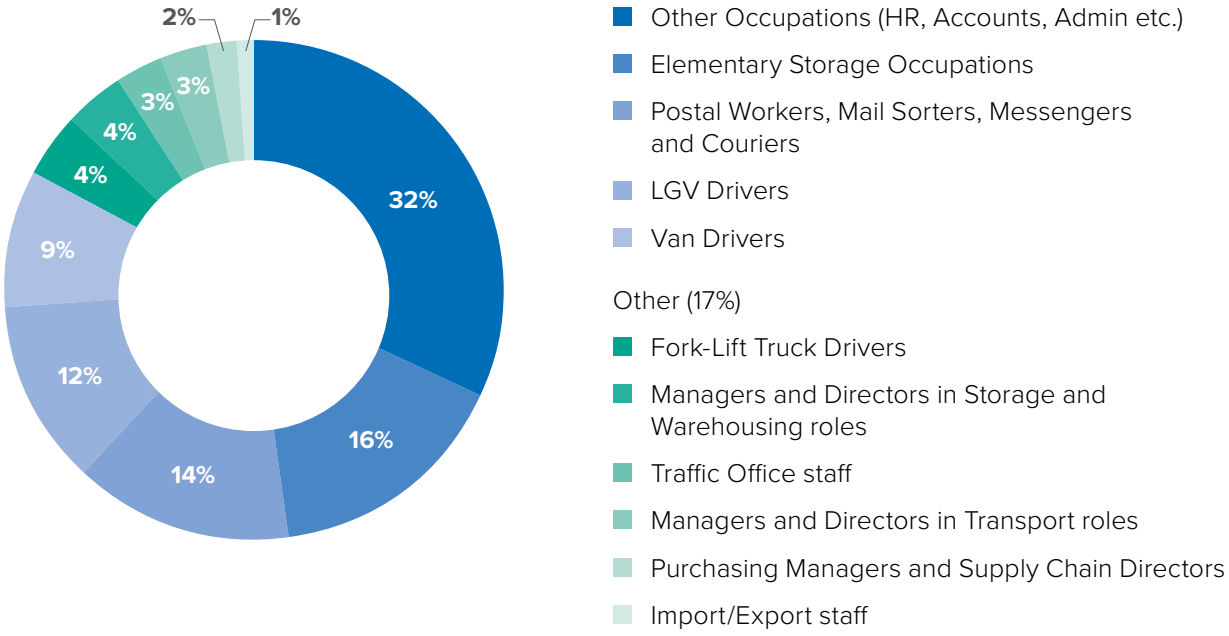
Freight Transport and Logistics

2.12 Sector employment is spread nationally with clusters of big box logistics (units of 100,000 sq ft or more) in London, the Midlands and major cities such as Liverpool, Manchester, Leeds, Newcastle and Glasgow. There are also clusters in the areas around ports and rail depots. The pie chart below sets out the key employment categories in logistics organisations.

2.13 Following a period of decline since 2013, the number of Heavy Goods Vehicle (HGV) drivers employed has been rising.

2.14 The number of people claiming Jobseekers' Allowance who stated that "HGV driver" was their usual occupation has continued to fall from 15,255 in March 2009 to only 530 drivers (0.2% of total drivers) as of August 2016[18]. However, the Freight Transport Association (FTA) believes the sector is short of 43,000–45,000[19] drivers and the Road Haulage Association (RHA) has suggested it is closer to 60,000[20]. The driver shortage is believed to be increasing as the number of drivers retiring from the industry exceeds new entrants. The average age of HGV drivers was 47.9 years old as of June 2016.

Key jobs by percentage of employment in Logistics Organisations



18 Nomis – Claimant count by occupation (August figures) 14 September 2016

19 FTA methodology: the driver shortage is estimated by comparing job growth since 2001 for the general population with HGV drivers based on ONS LFS statistics

20 Evidence provided to the House of Commons Transport Committee inquiry "Skills & workforce planning in the road freight sector", 20 July 2016

2.15 The road freight sector has established Think Logistics as a vehicle to promote the industry to young people, highlight the wider range of skills required and the opportunities available. Think Logistics comprises of representatives from the Chartered Institute of Logistics and Transport (CILT UK); Freight Transport Association; NOVUS; and Abbey Logistics; and is chaired by Beverley Bell, CBE.

2.16 The RHA is establishing Road to Logistics, a not for profit training provider, to target the lorry driver shortage and ensure that the logistics supply chain can continue to operate in post Brexit Britain.

2.17 The Institute of Couriers (IoC) has regenerated the former skills council stairway graphic with trailblazer apprenticeship content to show a progression route across road transport logistics in three streams, truck, warehouse and storage and express and mail. This runs from level 1 to level 6 degree apprenticeship and beyond to level 8.

2.18 The rapid and continued growth of sortation hub activity in the UK is a response to consumer demand created by express delivery. In 2016, three one-million foot sortation hubs were launched, focused on belt sortation systems. These were for UK Mail in Coventry, Hermes in Rugby and DPD in Warrington, with more following in 2017 and planned for 2018.

2.19 Sortation hubs are not merely an evolution of the traditional warehouse, they are designed and set up as dedicated sites and are a sustainable solution utilising the latest technological innovations in sortation design.

The opportunities: who is a transport apprentice?

2.20 There is a broad range of opportunities across the transport sector and employers are increasingly looking to apprenticeships to fill them, and to attract candidates from a diverse background.

2.21 Whilst many people perceive apprenticeships to be for young people, more employers are also offering apprenticeships to their existing workforce; attracting older candidates who would like to upskill, reskill or change direction.

2.22 Existing staff in Network Rail are improving their skills through a range of apprenticeships. This is thanks to a successful partnership between the company, the National Union of Rail, Maritime and Transport Workers (RMT), and national training provider The Skills Partnership (TSP).

2.23 Network Rail offers some of the most sought after engineering and maintenance apprenticeships in the country. The partnership with RMT is seeking to help staff not involved in its traditional apprenticeship disciplines to develop their careers. By taking part in a new quality apprenticeship programme, they can improve their knowledge and skills in their specific work areas, supported and encouraged by RMT's team of union learning reps (ULRs).

Upskilling:

Network Rail/RMT/national training provider

Network Rail HR Director for Route Businesses Tim Craddock said, *"The company and the union are working collaboratively to deliver a really important outcome for the people who work for the company and who are trade union members."*

The Union learning representative contribution in particular has been crucial to the success of the programme. *"I think it gives it credibility: it means that it's not seen as a top-down imposition, it's coming up from the shop floor."*

The engagement numbers back up his assessment. In the first year of the programme, RMT Union learning representative John Holmes was able to enrol more than 120 colleagues. John was so successful that he is now in his second year of a secondment as RMT learning organiser to help further extend the reach of the project.

When Tim Craddock presented many of the recent cohort of 40-plus graduates with their certificates at a ceremony at York Medical Society in March, he was particularly struck by the pride in their achievements.

Photo credited to Ivor Riddell

“What really shines through is everyone’s real pleasure and pride in what they’ve done – and everyone I’ve been talking to today, they’re not satisfied just with where they’ve got to: they want to look now at what’s the next programme they can do and what doors that opens in terms of their future career.”

Tim Craddock
Network Rail HR Director for Route Businesses

2.24 Training opportunities span entry level positions to increasingly higher level qualifications. The case studies below provide a snapshot of roles across the sector and some of the motivations apprentices have for choosing a training opportunity within transport.

Eve Haythornwaite

Highways England: Quantity surveyor

Eve completed her A levels and applied for a degree apprenticeship after being inspired by her love of the built environment and the idea of being able to make a positive impact in the developing world.

"Working for Highways England offered me a fantastic opportunity to be able to study for a degree in Quantity Surveying while gaining valuable practical experience at work. At the end of my degree, I will be working towards RICS chartership to become a chartered quantity surveyor."

Charlotte Mortimer

Angel Trains: Rail Engineering Technician

Charlotte secured her apprenticeship via the NSAR connect service and is currently studying foundation engineering skills and core industry knowledge at Northampton College.

Peter Lees

Highways England: M5 Oldbury Viaduct

Peter formerly worked as a Black Country metal worker, and at 60 year old is now enjoying picking up new skills, earning a wage and feeling good about himself.

Alyssia Samra

HS2: Transport planning, level 3

Alyssia finished her GCSEs and realised she didn't want to progress through to college. The blind auditioning process used during recruitment gave Alyssia confidence, to alleviate concerns over her CV.

Jonathan Field

Knights Old Group Ltd:
LGV apprentice

Jonathan previously worked as a painter and decorator and at 35 year old joined the Supply Chain Specialist LGV driver programme to better his and his family's prospects.

"The Apprenticeship programme has built a level of self-confidence and belief in myself that previously might have not been there."

Aarondeep Lalli

TfL:
Engineering fabrication and welding, level 3

Aaarondeep was shortlisted for Young Rail Professional Apprentice of the Year 2018, having become a fully accredited and coded aluminium welder in record time. Aarondeep has subsequently been offered a secondment in the quality department.

Ramz Islam

DfT:
Commercial apprentice

Ramz finished his A levels and thought an apprenticeship would be a great alternative to university. He is flourishing in the process and building towards a procurement qualification.

Victoria Myall

Eurostar:
Apprentice engineer

Victoria joined in 2015, after completing 8 GCSEs and is now in her third year of the scheme, working in the team looking after repairs made to Eurostar's fleet of high speed trains.

Gaby West

DfT: Business administration, level 4

Gaby joined DfT in 2016 and will soon be graduating from the scheme and starting a new role on promotion within central government.

Joel Hadfield

Amphorea Packaging Ltd: Warehousing and storage

Joel joined at 17 years old and Amphorea now find themselves with a versatile, engaged and skilled member of the workforce, with maths, english and ICT skills.

Naomi Blissett

HS2: Project management qualification

Naomi worked in customer service and support, until changing career and deciding to undertake an apprenticeship at HS2, motivated by the future potential.

Quality training

2.25 Transport employers will need to forge strong links with education and training providers to build sufficient capacity to address skills needs and create quality opportunities to support the needs of the industry.

2.26 The development of quality standards is critical to this. The IfA have made progress in approving more standards, which in turn has enabled more apprentices to be recruited into key training roles. Employers across the sector would welcome further progress by the IfA over the coming year.

2.27 The table in Annex A sets out the standards approved or under development, since STAT's inception, where members have taken part in the trailblazer committee.

2.28 This year, STAT welcomes in particular the train driver level 3 standard, which will support the new virtual academy for train drivers. The Steel fixer, Scaffolder, Large goods vehicle (LGV) driver and Express delivery operative at level 2 will help employers to address existing shortages and to capitalise on areas of growth. We welcome the increase in standards approved and under development at levels 6 and 7, which will help the sector to meet our future skills challenges.

2.29 Transport employers have responded positively to the need for collaborative working on skills. In the express and courier sector, a group has been established to drive employer engagement in the development of apprenticeships. This is essential for an industry undergoing rapid growth in recent years, driven by rising customer demand for online shopping and faster deliveries.

2.30 The Express Delivery Group was formed in 2015, and has two standards approved by the IfA: Express delivery operative level 2 and Express delivery manager level 6, with others in development. The group is employer based with meetings and workshops that are often integrated into existing logistics events to maximise broad engagement. The group reports demand of 8,000 apprentices per year; which in turn drives demand for quality training, training resources and facilities.

2.31 Transport is seeing progress in approving higher level standards. Industry and employers will need to consider how best to engage higher education providers to comprehensively address the need for higher level skills within the industry and support innovation and research in the key areas set out in Chapter 4.

Caption National College for High Speed Rail Doncaster

2.32 As part of this, industry has continued to fund state of the art training facilities. The National College for High Speed Rail (NCHSR) opened last autumn, welcoming students to its brand new state-of-the-art campuses in Birmingham and Doncaster. Students learn through using the latest technology; virtual reality augmented headsets and cutting edge real-life equipment.

2.33 Students learn in a real work environment on former Eurostar power cars which are set within workshops consisting of rail track, railway bogies and overhead line equipment. This allows learners to combine traditional learning techniques with the latest digital technologies.

2.34 Courses are designed enable students to adapt to future technology, innovate and lead, and are tailored to meet business needs. The College offers courses from level 4 upwards, including apprenticeships, such as the new High Speed Rail and Infrastructure Advance Technician apprenticeship.

2.35 The NCHSR works closely with industry. It has the backing of more than 30 businesses and staff share their expertise with learners.

2.36 It has successfully attracted students from diverse backgrounds through pro-actively targeting male and female school leavers and those looking to re-skill, such as army re-settlers. This year (2017-18), 17% of all enrolments were from females and 35% were from a black or minority ethnic background (BAME).

2.37 Network Rail has become the lead rail industry partner for the new Westminster University Technical College (UTC), the first transport focused UTC in the country which opened in 2017.

2.38 The National Skills Academy for Rail (NSAR) has established its Training Partnership, a national network of colleges and training providers, comprising Further Education (FE) colleges, partner universities, development centres, specialist training academies and NSAR quality assured training providers.

2.39 The rail industry has introduced a process to raise training standards through a unified rail industry scheme for training organisations, trainers and assessors. The objective has been to ensure that poor practices are eliminated through robust quality assurance practices, and the quality of training becomes 'Good' or 'Outstanding' when measured against a framework similar to Ofsted.

2.40 The assurance regime is robust and delivers a package of compliance and educational assessments ensuring that quality standards are consistently delivered. Sampling activities are undertaken that observe delivery, review documentation and ensure that learner work has been assessed.

2.41 NSAR has worked with training providers, encouraging them to upskill their workforce so that new trainers will be required to hold the Certificate of Professional Development: Teaching in a Work Based Learning Sector (40 Credits at level 4) or another programme with the similar outcomes.

2.42 The objective has been to create a culture of continuous improvement so that, over time, the sector becomes an exemplar for work based training and assessment.

2.43 As capacity for providing quality training and development increases, the job of promoting the sector and opportunities to young people becomes more important. Extensive efforts to engage young people and attract them to training and job opportunities are being made and are set out in chapter 6.

STAT's commitments

STAT will

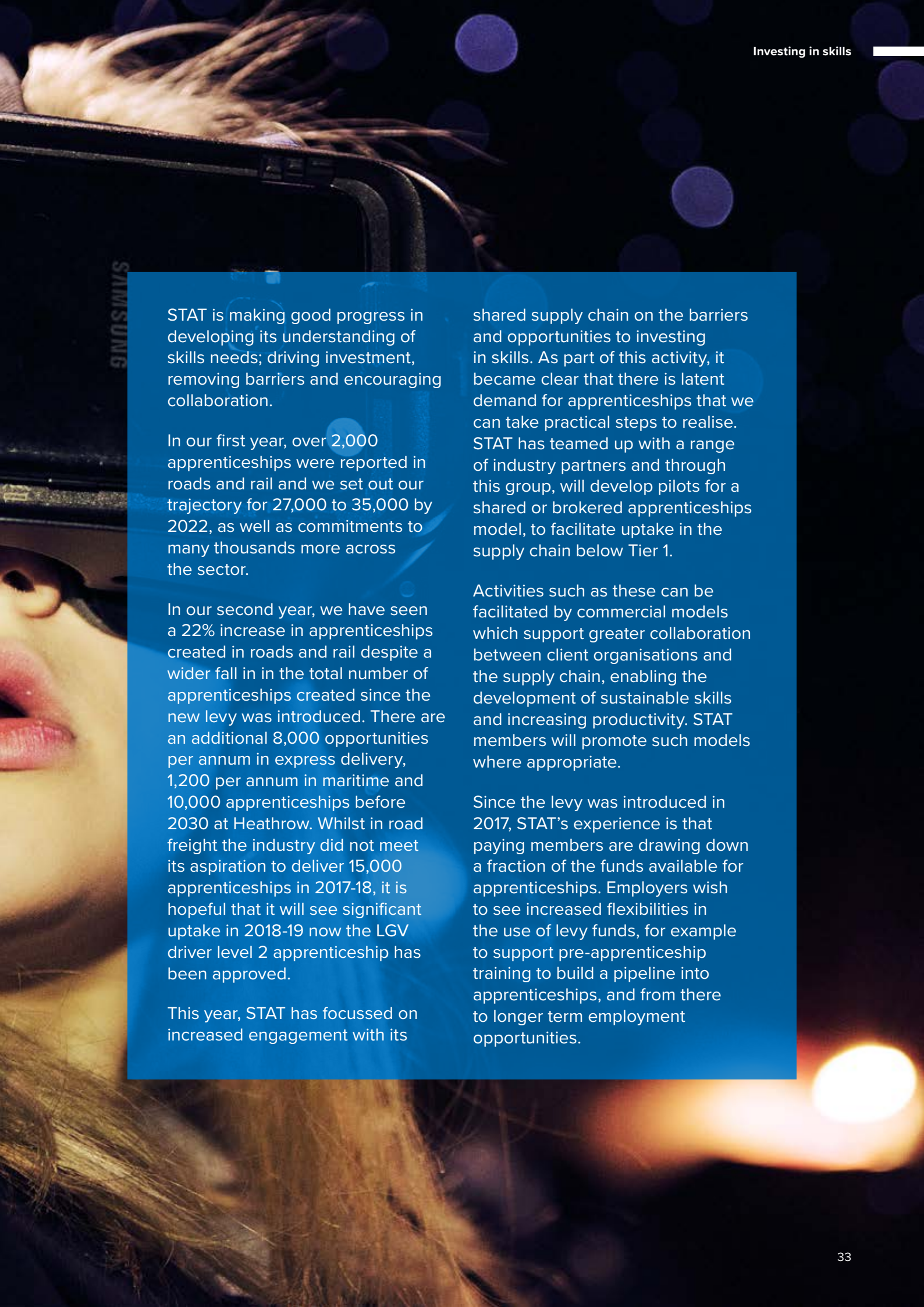
- keep its understanding of skills needs up to date through the NSAR forecasting model and consider how the model might reflect the wider sector; and
- continue to use our convening power to support the development of quality trailblazer standards where there are gaps; upskill the existing workforce, as well as work to attract new entrants.

Photo credited – RDG

3

Investing in skills

"There has been a 22% increase in apprentice starts in roads and rail, with thousands more opportunities across the sector."



STAT is making good progress in developing its understanding of skills needs; driving investment, removing barriers and encouraging collaboration.

In our first year, over 2,000 apprenticeships were reported in roads and rail and we set out our trajectory for 27,000 to 35,000 by 2022, as well as commitments to many thousands more across the sector.

In our second year, we have seen a 22% increase in apprenticeships created in roads and rail despite a wider fall in in the total number of apprenticeships created since the new levy was introduced. There are an additional 8,000 opportunities per annum in express delivery, 1,200 per annum in maritime and 10,000 apprenticeships before 2030 at Heathrow. Whilst in road freight the industry did not meet its aspiration to deliver 15,000 apprenticeships in 2017-18, it is hopeful that it will see significant uptake in 2018-19 now the LGV driver level 2 apprenticeship has been approved.

This year, STAT has focussed on increased engagement with its shared supply chain on the barriers and opportunities to investing in skills. As part of this activity, it became clear that there is latent demand for apprenticeships that we can take practical steps to realise. STAT has teamed up with a range of industry partners and through this group, will develop pilots for a shared or brokered apprenticeships model, to facilitate uptake in the supply chain below Tier 1.

Activities such as these can be facilitated by commercial models which support greater collaboration between client organisations and the supply chain, enabling the development of sustainable skills and increasing productivity. STAT members will promote such models where appropriate.

Since the levy was introduced in 2017, STAT's experience is that paying members are drawing down a fraction of the funds available for apprenticeships. Employers wish to see increased flexibilities in the use of levy funds, for example to support pre-apprenticeship training to build a pipeline into apprenticeships, and from there to longer term employment opportunities.

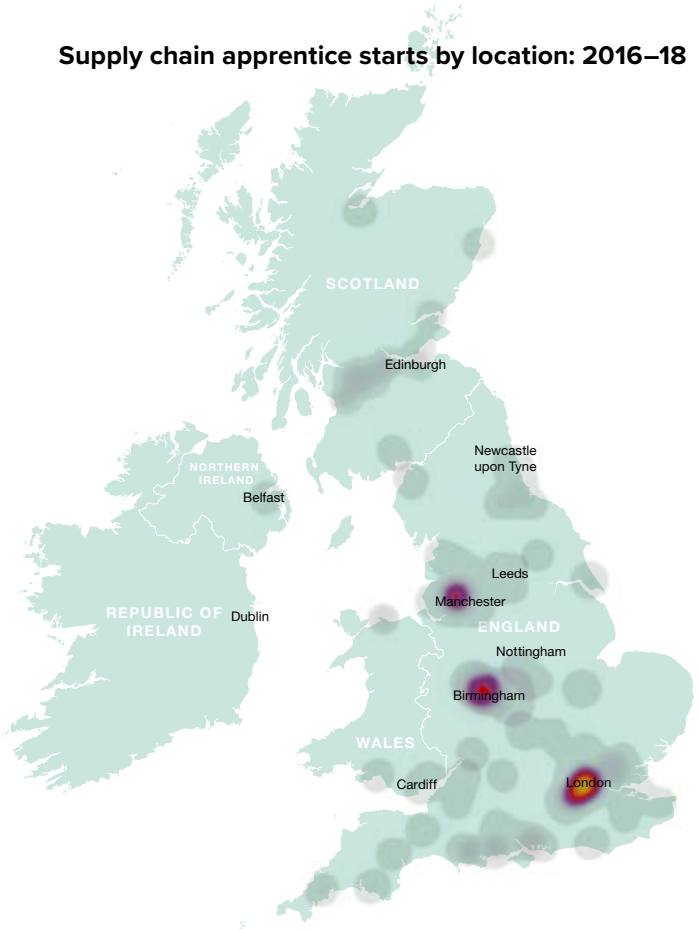
Reporting data in roads and rail

3.1 The Transport Infrastructure Skills Strategy set out an ambition for 30,000 apprenticeships in roads and rail. Accordingly, DfT, our roads and rail delivery bodies and the Train Operating Companies (ToCs) through the Rail Delivery Group, report data on apprentice starts across our organisations and through our supply chain contracting.

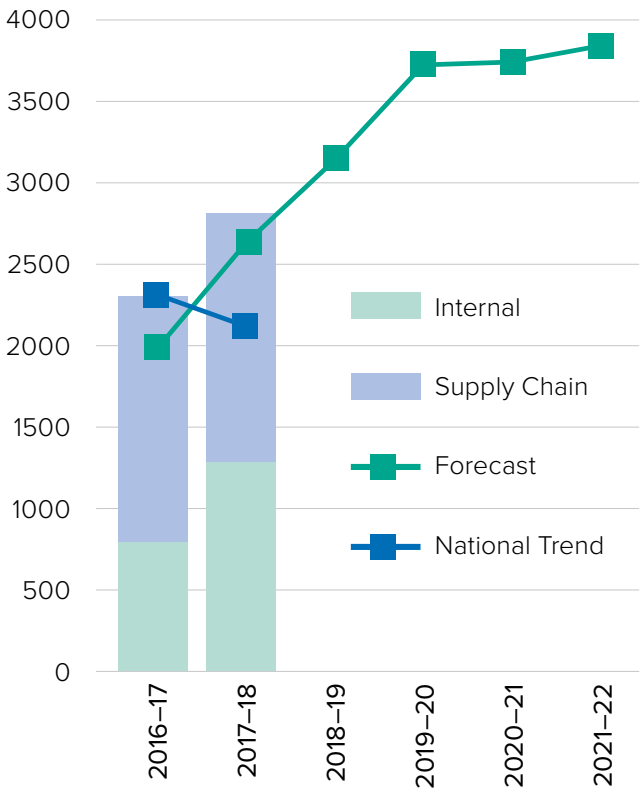
3.2 These reports are used to monitor progress against the strategy's ambitions. STAT's One year on report 2017, forecast a range of 27,000 to 35,000 apprenticeships in road and rail by 2022. This was based on organisational business plans as well as modelled need using NSAR's skills intelligence model.

3.3 This section details outcomes to date against overall apprenticeship starts in the organisations listed at 2.1. Outcomes against STAT's diversity ambitions are reported in chapter 5.

Supply chain apprentice starts by location: 2016–18



Apprentice starts in roads and rail against forecast

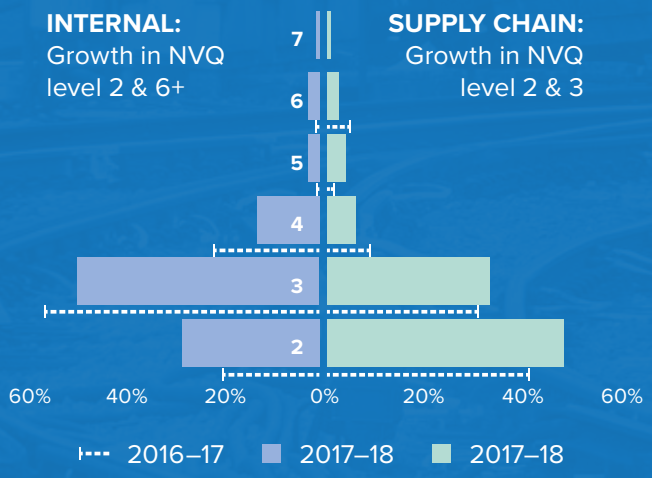


Two Years On Progress

22% increase
in apprenticeship starts
for rail and road in 2017-18

12% ahead
of two year forecast
starts to date

33% trending above
expected starts based
on the national picture
post levy introduction



Supply chain starts

3.4 Between 2016-17 and 2017-18, there has been a 22% increase across all (internal and supply chain) apprentice starts, with a total figure of 2,784. This is driven primarily by a 61% year on year increase of internal starts, with 1,261 reported this year.

3.5 In 2016-17 STAT reported 1,162 supply chain apprenticeship starts, which after adjustment to include data received in 2017-18, has now increased to 1,496, a 29% increase on reported starts last year.

3.6 Reporting shows that STAT organisations are trending above the forecast presented in the One year on report. With 5,066 starts to date, the current cumulative total is 12% higher than forecast for two years on. Of these, 2,055 starts are internal to the organisations and 3,011 from the supply chain.

3.7 The increase in starts is in contrast to the national picture in the aftermath of the introduction of the apprenticeship levy. Following the declining trend in the first and second quarter of the 2017-18 Academic Year, as published in Department for Education official statistics[22], we would expect a figure for new starts of 2,088. The actual starts show that road and rail members of STAT are performing at 33% above the national average.

3.8 Internally, STAT has seen a shift in apprenticeship starts from skill levels 3 and 4 towards level 2, driven largely by the uptake of rail infrastructure operator apprenticeships. There has also been a five-fold increase in starts at level 6 and above, albeit these numbers remain small.

3.9 Supply chain apprentice starts are filling skills shortages mainly in NVQ levels 2 and 3, in 2017-18, growing from 72% of starts to 81%. At the higher end, we can see that absolute starts at level 7 have grown from just 1 in 2016-17 to 14 in 2017-18.

3.10 These observed shifts are potentially signs that we are beginning to gear up to meet our gaps in the higher level skillsets, such as digital, that we will need to address as part of our future challenge. A higher uptake of degree level apprenticeships may also be a response to the implementation of the levy, as employers try to spend a greater proportion of their levy pots on the more expensive apprenticeships.

22 www.gov.uk/government/statistics/apprenticeship-and-levy-statistics-may-2018

MTR Crossrail strategic labour needs and training in contracts

TfL's Supplier Skills Team (SST) implements Strategic Labour Needs and Training (SLNT) in contracts, requiring our suppliers to create skills and employment outcomes as a condition of doing business with us. The contract to operate the Elizabeth line was awarded to MTR Crossrail in May 2015, initially commencing with TfL Rail services. MTR Crossrail has worked with the SST to create over 200 apprenticeship opportunities to date as part of their SLNT commitment. The Elizabeth line will need over 500 drivers to be trained by 2019.

During mobilisation of the contract MTR Crossrail and the SST worked together to identify opportunities to create apprenticeship roles, including the accreditation of MTR Crossrail's Train Driver Training Programme as an apprenticeship. The SST also assisted MTR in identifying a suitable apprenticeship standard and finding a training provider.

MTR Crossrail has been committed to improving the diversity of applicants, and have run targeted campaigns, attended events such as the annual TfL Supply Chain Apprenticeship Recruitment Fair, and launched a number of initiatives all aimed at raising awareness of the roles to women and BAME candidates. The proportion of train drivers that are female, BAME and/or under 35 years of age, compared to national averages, is shown in the table below:

Subsequently, the SST has encouraged collaboration with other operators of TfL services to fulfil their SLNT commitments. This includes Arriva Rail London, the operator on TfL London Overground Services. This collaboration has also led to the development of the SST 'Women with Drive' programme, which gave 19 women the opportunity to find out about the role of the train driver, attend two weeks of pre-employment training and gain two weeks work experience exploring the role of driver further, as well as other rail services roles.

	Female	BAME	Age <35
Diversity of AGA TUPE Drivers to MTR Crossrail on 31.05.2015	3.4%	13.4%	25.8%
Diversity of MTR Crossrail Train Drivers on 31.05.18 (Includes qualified drivers, trainee drivers & the trainee drivers recruited but awaiting their training course to start)	12.8%	28.1%	47.0%
October 2017 National Driver Diversity (provided by aslef)	6.0%	5.0%	10.0%

3.11 Across our road and rail delivery bodies, skills requirements are embedded in our contracting. These require suppliers to create apprenticeships in proportion to the contract value, this is in the range of one apprenticeship for every £3 to £5 million of spend, or 2.5% contract workforce per annum. Network Rail has contractualised this measure ahead of CP6.

3.12 Apprentice starts in the supply chain over the past two years show evidence of a wide spatial distribution across the country.

3.13 Supply chain reporting has improved, with an increase of 20% in data returns. Of those reporting, 55% are Tier 1 suppliers and 40% are classed as other. In terms of pure start numbers, Tier 1 is responsible for 69%, whist other is just 19%. As we know that more than 75% of the workforce is below Tier 1, there is clearly more work to do.

CA Blackwell – New ways of training earthworks operators

The earthworks sector of the UK Construction Industry is experiencing a period of sustained growth following a lengthy period of decline which is placing strain on the availability of a skilled workforce. To meet the upskilling and upsizing challenges Blackwell, whom are currently employed as a Tier 2 earthworks subcontractor on the A14 Cambridge to Huntingdon Improvement scheme, have established an on-site earthworks plant training facility in one of the scheme's borrow pits for the training of plant operatives.

The programme, which has so far involved 11 new trainees and five apprentices ranging 19 to 58 years of age, has been established in collaboration with Highways England and the A14 Integrated Delivery Team, and contributes to the project's local employment and upskilling legacy objectives. It is expected that the model could be shared as best practice and successfully replicated on other large-scale earthworks projects in the future.

Heathrow

3.14 At Heathrow, internal data from 2017-18 indicates 61 starts, of which 44% are at NVQ level 2. A greater number of apprenticeships are delivered annually across a range of employment sectors and skill levels within the airport such as in retail, hospitality, logistics and management for which data at this stage is not available.

3.15 Since 2016-17 the Heathrow Employment and Skills Academy has supported its supply chain to meet its recruitment and training needs via apprenticeships in a range of disciplines relevant to the sector and across multiple skill levels. An employment and skills network has been established with its four main construction supply chain partners to develop a clear plan for ensuring that apprenticeship opportunities are maximised.

3.16 The All Party Parliamentary Group on Apprenticeships (APPG) has developed a toolkit for delivering apprenticeships in Small and Medium Enterprises (SMEs), with sponsorship support from Heathrow and other businesses committed to the apprenticeship agenda.

APPG Toolkit – Heathrow Sponsorship

Heathrow is one of the sponsors of the All-Party Parliamentary Group (APPG) on Apprenticeships. Earlier in the year the APPG published a tool kit to help more SMEs recruit apprentices. This toolkit seeks to bridge the gap between the benefits that SMEs derive from employing apprentices and the challenges they face in engaging with the system. The toolkit also makes recommendations of practical actions that government, LEPs, local councils and larger businesses can take to promote apprenticeships to SMEs more effectively.

The APPG has heard evidence that one of the biggest perceived barriers to SMEs hiring apprentices is how long and time-consuming the process is. However, new resources and additional support have become available which minimise the pressures of initially setting up a scheme.

The APPG strongly believe that apprenticeships should be an opportunity, not a hassle. Apprenticeships are a proven way to help businesses grow their own talent, reduce staff turnover and give the business the skills it needs to succeed.

Freight transport and logistics

3.17 In freight transport and logistics, LGV drivers, express delivery, warehousing and storage are key areas for apprenticeship uptake.

3.18 The road freight sector had forecast 15,000 LGV driver apprenticeship starts this year, with the aim of making significant inroads into the 45,000 shortage of LGV drivers. But those recorded in the early part of the year are at 5% of the total required to meet that aspiration. The industry currently relies on 60,000 EU nationals working in the UK, and 75,000 drivers are expected to retire in the next 10 years.

3.19 There are a number of issues that have impacted on the uptake of apprenticeships in the freight transport and logistics industry:

- → the funding level for the LGV standard is not felt to reflect the cost of the training;
- → delays in approving amendments to the standard;
- → the timing of the approval of the end point assessment; and
- → a lack of recognised training providers has delayed uptake.

3.20 The industry is responding, with plans to work collaboratively to provide training for ex-offenders, military service leavers and job seekers. Venues for pilot schemes on the prison estate for driver training and the establishment of a consolidation centre have been identified. The logistics sector provides the possibility of better outcomes through secure employment and higher salaries than other sectors. A significant reduction in re-offending is expected, providing long-term savings for government.

3.21 SMEs make up 85% of the companies operating in the freight transport and logistics sector, which may also contribute to the low level of apprenticeship starts. The lack of a HR function in SMEs could act as a barrier to small operators seeking to train and employ an apprentice. The proposed Road to Logistics training initiative could also provide the essential training infrastructure for SMEs in the sector. The road freight sector has contributed £84 million to the apprenticeship levy but has only drawn approximately 5% of that contribution.

3.22 Urgent action to address the lack of apprenticeships is vital if the road freight sector is to address the long term labour force issues and the knock on effects for the economy.

3.23 In express delivery, the level 2 Express delivery operative has just been approved by the IfA.There is demand for some 8,000 starts per year and a level 6 trailblazer standard in sortation is also under development.

3.24 Warehouse and storage has always been a predominant NVQ in logistics, with uptake ranging between 7,000–8,000 candidates a year.

Maritime

3.25 450 extra cadets will be trained in maritime every year, thanks to a £15 million funding boost to the Support for Maritime Training (SMaRT) fund, called SMaRT Plus. Announced by Maritime Minister Nusrat Ghani, SMaRT Plus will double the fuunding available from £15million to £30 million over the next seven years, will be offered through Support for Maritime Training (SMaRT), enabling the annual intake of cadets to rise from 750 to 1,200.

3.26 Multinational shipping companies, including Carnival UK, BP, Shell, Maersk and Stena UK were among those that backed the SMaRT Plus proposal and the commitment by industry to create an extra 450 training positions. SMaRT Plus will provide newly qualified officers the experience at sea that will help them to gain their next officer qualification, an internationally recognised certificate setting them in good stead for future careers both at sea and ashore.

10,000

apprenticeship opportunities

at Heathrow by 2030

8,000

demand for apprentice starts

per year in express delivery

1,300

apprentice starts in road frieght

*reported as 15,000 in One year on

1,200

maritime cadet starts

will rise from 750 to 1,200 per annum

Industry pulls together in the aftermath of Carillion going into receivership

3.27 On 15 January 2018, Carillion announced that it had gone into receivership. STAT members and joint venture partners' immediate concern was to ensure the ongoing employment of Carillion apprentices on those projects, as well as in the wider system. All former Carillion apprentices employed as part of project joint ventures in HS2 Ltd and Highways England were immediately taken on by the joint venture partners.

3.28 More widely NSAR, co-ordinating with the Construction Industry Training Board, used NSAR Connect to redeploy apprentices and trainers.

NSAR redeploys apprentices and trainers post Carillion

After the Carillion's liquidation announcement, NSAR provided support to all Carillion rail apprentices and trainers/assessors through informing them of the opportunities available for potential redeployment via NSAR-CONNECT, a placement service to match apprentices with employers. In this instance, NSAR-CONNECT service was extended to all Carillion rail employees. NSAR's communication with its members received many positive responses from employers with interest to assist with the ongoing training of Carillion rail apprentices and employment opportunities for rail trainers/assessors. These employers were directed to the Carillion rail apprentices and employees registered on NSAR-CONNECT to contact them regarding potential vacancies. Many of the apprentices were able to find re-employment within the industry.

NSAR-CONNECT

Work to understand barriers to investment

3.29 In 2016–17, STAT focused on getting internal procedures and contracting activity aligned. Building on this work, the second year has focused on a programme of formal engagement with STATs shared supply chain. This work identified the challenges faced, particularly by smaller organisations, and through working closely helped to identify the steps that could support these organisations to invest in skills.

3.30 The data collected on apprenticeship starts by STAT gives us an indication of the issues. Initial assessment showed that although numbers were steadily improving, the diversity of apprenticeship intake wasn't quite where industry needed to be and skills requirements didn't seem to be flowing through the supply chains, with most reported figures coming from Tier 1 contractors.

3.31 STAT discussed various ways of improving the position, recognising the solution was two-fold, improving communication with the supply chain and working to build capability.

3.32 It is important that contractual targets are not seen as the sole solution to driving investment in skills across the sector. Tackling skills gaps and shortages will require a proactive approach within industry, and STAT has taken steps over the past year to understand how the wider industry can facilitate this investment and the constraints that most of the shared supply chain faces in terms of capacity and capability.

Supply chain engagement

3.33 Analysis of the shared supply chain identified around 120 suppliers that are critical to delivering apprenticeships. STAT secured a commitment from these organisations to collaborate on the uptake of apprenticeships and investment in skills through engagement with the CEOs of the relevant organisations and maintained contact by launching a newsletter to help ensure ongoing visibility of STAT's work.

3.34 An event was held in November 2017 for CEOs to provide an opportunity to set out the work being led by STAT and to facilitate discussion with industry on the challenges. Mike Brown, Leo Quinn (CEO Balfour Beatty), NSAR and HS2 set out the case for ongoing skills investment and a facilitated session (hosted by STAT member Dana Skelley of Skanska) invited delegates to suggest where future collaboration would be most beneficial.

Dana Skelley – Skanska

3.35 Employers were extremely engaged in the skills agenda, and positive about promoting their industry and willing to work collectively. The contractual approach used by delivery bodies was validated, with the acknowledgement that a lot was being asked for of the supply chain, but (in its view), it was necessary.

3.36 Two key themes emerged from the event where it was clear that pragmatic solutions would be welcomed. These were appetite for shared apprenticeships, and improving the diversity of intake. This informed the second programme of formal engagement with supply chain organisations, which targeted practitioners in both the Commercial and Human Resources professions.

Supply chain event – November 2017

3.37 The second supply chain event, which took place in June 2018, was again well received. Delegates were keen to learn and build on existing good practice in both procurement and recruitment/retention.

3.38 STAT has also engaged separately with suppliers around reporting, recognising that some of the apprentices employed further down the supply chain are not assigned to specific projects, therefore making reporting on individuals difficult. STAT continues to work with supply chain partners to improve reporting requirements.

3.39 Members will keep whole life contractual provisions under review, including investigating barriers which may arise elsewhere in the procurement process and present unintended consequences for the skills agenda.

Shared apprenticeships

3.40 There is latent demand for apprenticeships in the supply chain which STAT can take practical steps to help realise. As last year's One year on report[23] showed 75% of apprentice starts reported to STAT were in our Tier 1 suppliers, yet we know that over 75% of the workforce is at Tier 2 or below. This figure is slightly improved in year 2, to 69% but the imbalance remains.

3.41 We know that for any five year investment period a Tier 2 supplier may only receive 11 months' guaranteed work, providing a significant barrier to investing in skills at this level[23].

3.42 STAT is committed to providing support and leadership to help to address this. At STAT's November CEO event, the business benefits to the overall economy of supporting smaller firms to participate in efforts to grow a sustainable workforce by taking on apprentices was well understood.

3.43 Feedback underlines significant energy and commitment to working together to address the most acute skills shortages and attract the right people into our industry. It also demonstrated that many employers are finding it difficult to recruit large numbers of apprentices.

3.44 STAT has been shown that many Tier 2 or 3 companies are keen to play a more active role in the apprenticeship agenda. However, there are obstacles to success. This activity may require more specialised skills than the necessarily broad apprenticeship standard content, so companies are often only able to deliver part of the apprenticeship. They may also have relatively small numbers of apprentices, leading to poor bargaining power in the market place for training provision and may not have staff with capacity to support apprenticeships.

3.45 STAT has identified two ways to address these barriers:

- shared apprenticeships – a means of enabling employers to work together to enjoy the benefits of taking on apprentices, where they would not necessarily be in a position to offer long term placements on their own. Apprentices would be employed by a combination of client, Tier 1 and SME placements, with a common programme and shared training; and
- brokered apprenticeships – here a company with a small number of apprentices comes together with others in a similar position, usually in geographical proximity to create a cohort viable for a training provider.

3.46 STAT will lead and enable the development of one of these, or an alternative model. STAT is not currently considering the Apprentice Training Agency (ATA) model.

3.47 STAT has brought together interested parties to help to design this process. These parties include Balfour Beatty, Bam Nuttall, the Highways Term Maintenance Association (HTMA), the Civil Engineering Contractors Association (CECA), the Institute of Couriers, Network Rail, Highways England and TfL. The process is jointly led by STAT members Skanska and NSAR.

Balfour Beatty htma Highways Term Maintenance Association SKANSKA TRANSPORT FOR LONDON bam nuttall ceca highways england NetworkRail The National Skills Academy RAIL

23 www.gov.uk/government/publications/transport-infrastructure-skills-strategy-one-year-on

3.48 A short survey of the supply chain was developed to test the appetite of businesses to take part in a shared apprenticeship scheme. A total of 71 responses were received from organisations of varying sizes, with the highest number of responses coming from the highways construction and maintenance sector; followed by infrastructure engineering.

3.49 51% respondents employ 250 employees or more; 24% 101-250 employees; and 25% employ 100 people or less. In total respondents employ 1,579 apprentices.

3.50 Where respondents were not looking to employ further apprentices business uncertainty was given as the main reason. Respondents also listed a lack of available apprentices; a lack of staff available for mentoring and scope of the levy (i.e. only covering training, and therefore the cost to the business of apprenticeships). Age restriction on site was also a barrier.

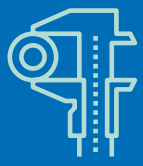
3.51 70% of respondents are experiencing skills shortages in their business. Skilled and semi-skilled operatives came out as an area of real need, including: plant operators; paving operators; traffic management operators; steel fabricators and welders. A range of engineering skills also featured strongly, including: mechanical and electrical engineers; civil engineers; railway systems engineers; design, contracting and digital engineers.

3.52 60% of respondents would be interested in taking part in a shared scheme. Of these, 32% are based in London and the south-east; 16% in the midlands; 14% in east anglia; 10% in the north west and north east respectively.

3.53 As a result, STAT, through its shared apprenticeships steering group and facilitated by NSAR with Skanska, will now work with employers to develop pilots for appropriate model schemes. These pilots will be led by TfL and CECA with Balfour Beatty, BAM Nuttall and the HTMA.

70%

respondents experience skills shortages in their business in the following:



Engineering skills

mechanical
electrical
railway system
design
contracting
digital

Skilled and semi-skilled operatives

steel fabricators
steel welders
lorry drivers
plant operator
paving operator
traffic management operators

Heathrow Employment & Skills Academy Construction Shared Apprenticeships

Heathrow, via its Employment and Skills Academy has launched a new innovative way to maximise apprentices employed within the construction sector at the airport – The Heathrow Employment & Skills Academy Construction Shared Apprenticeship Scheme. In an ideal world, an employer will be able to employ and support the apprentices for the duration of the qualification. However, we are aware that this is not always possible. The Construction Shared Apprenticeship Scheme is specifically designed to support employers who wish to employ apprentices directly or to hire apprentices for a minimum of six months

The Academy will source, prepare and employ local people, who are seeking a future within construction at Heathrow, and rotate them around different host employers until the Apprenticeship is complete. While ensuring that high standards of vetting and due diligence are in place throughout the process, candidates will be recruited and matched to apprenticeship positions generated at the airport. This will create sustainable employment and life-changing opportunities.

The employer will host the apprentice for at least six months of their involvement on the construction project. If and when there is no more work for the apprentice, The Academy will arrange for the apprentice to move onto their next placement either at Heathrow or locally to the airport to continue their apprenticeship scheme.

Commercial models to support investment in skills

3.54 Investment in skills is facilitated by commercial models which support greater collaboration between client and supply chain to achieve shared strategic objectives.

3.55 The new Highways England Regional Delivery Partnership Framework is one such approach, set out on page 47.

Highways England Regional Delivery Partnerships

Highways England recognises that contracts set the economic environment for successful relationships with suppliers. In its new Regional Delivery Partnership Framework, a critical element of achieving improved performance comes from changing the way the market is engaged. Through Delivery Integration Partnerships, the contracting model is set to deliver regionally bespoke schemes worth £9bn over 6 years.

The Framework recognises that having a sustainable supply of capable labour is a building block for achieving high performance. Attracting a greater diversity of talent into the sector is part of the solution. The longer term nature of the work packages and the lack of secondary competition by allocating future programme packages on performance, are all key elements of the approach to securing successful outcomes.

Employment and skills design, planning and performance have been woven into all stages of the procurement and framework. This clearly signals to suppliers that people continuity and resilience is a corner stone of strong performance. It is Highways England's belief that collaboration in talent planning and management across the delivery community is fundamental to achieving greater efficiency, productivity and innovation.

The new Delivery Integration Partnerships seek to enhance collaborative strategic workforce performance through intelligence sharing, building capability to attract, recruit and retain talent from the widest talent pools and deliver on the TISS apprenticeship ambition.

3.56 The Institution of Civil Engineers (ICE) has launched Project 13. Project 13 is an industry-led initiative to transform the current infrastructure delivery model – that fails to deliver the best outcomes for the public and customer as well as a more highly skilled, innovative workforce that leads to a more sustainable, productive construction industry.

3.57 It seeks to develop a new collaborative business model – based on an enterprise, not on traditional transactional arrangements – to boost certainty and productivity in delivery; improve long-term value in operation and support a more sustainable, innovative and highly skilled industry. Moreover, this new model will provide better value for money for the taxpayers and consumers who ultimately fund our infrastructure investment.

3.58 Project 13 promotes collaboration and early engagement between those who invest in, own, commission and deliver our infrastructure. It calls on government, private and regulated businesses to transform their relationships.

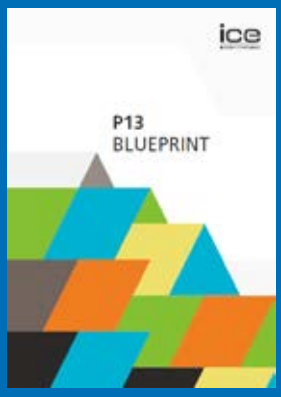
3.59 It is sponsored by the Infrastructure Client Group, a joint group of industry figures, academics and infrastructure owners with 19 members from 16 different client organisations including transport clients and representing public, private and regulator interests.

3.60 Over 400 individuals and more than 160 organisations from within the built environment sector and associated industries are involved in Project 13. Their combined efforts will lead to shared expertise, improved ways of working and better delivery of UK infrastructure.

3.61 On 1 May 2018, five organisations announced their early adoption of the model, including Heathrow Airport Ltd. More organisations are expected to adopt the model as it matures. The programme will report on progress at six monthly intervals.

What does Project 13 do differently to support investment by the supply chain in skills?

- → long term relationships with closer collaboration, this allows suppliers and advisors to get to know their customer (the asset owner) better and adapt and develop skills and behaviours for their needs;
- → enterprise partner selection, this is based on individual's skills and expertise rather than company expertise, so suppliers invest more in developing all staff;
- → reward for impact on outcomes, so that suppliers and advisors are rewarded for the quality of the service and input they provide rather than the quantity or number of hours provided, therefore incentivising the use of fewer more productive and highly skilled staff; and
- → asset owners who follow the Project 13 principles will act with a degree of consistency which helps industry focus their skills development.



Effectiveness of the levy to boost apprenticeship uptake

3.62 Concerns are being raised by employers across all sectors about the implementation of the apprenticeship levy.

3.63 STAT employers welcome recent improvements by the IfA on the approval of standards and relationship management, yet for many employers, the system remains resource intensive and bureaucratic.

3.64 In terms of the big picture, STAT does not believe that apprenticeships policy is delivering what was intended. Numbers are down and take up low, in the round. Funding currently set aside for skills now is likely to be diverted to Her Majesty's Treasury (HMT) by 2019.

3.65 Based on STAT's discussions with its stakeholders, many employers are not engaging with the Apprenticeship Levy of those who are, many are calling for reform, to allow greater flexibility in terms of allowing funds in levy pots to support a wider range of training.

3.66 Employers in the STAT membership are fully committed to providing quality apprenticeships to upskill and reskill their existing workforce and for new entrants. They would like to see greater flexibilities introduced for the apprenticeship levy, specifically to support programmes that can support entry into apprenticeships and build a pipeline of staff where there are shortages, notably at level 2.

3.67 Large organisations in our membership are reporting that they are experiencing a 'levy lag' in terms of anticipated draw down. Since the introduction of the levy, some larger employers have so far only drawn down a fraction of the funds available in their pots.

3.68 For Network Rail, around £1 in every £9 of the current levy pot has been spent. For TfL, around £500,000 has been spent of a £7.5m pot. More rigorous assessment of the impact of the levy will be necessary, but early indications show that it will be difficult for these larger employers to spend their total levy pots over the next 24–36 months.

3.69 The reasons for this include: many apprentices in the transport sector will have started pre-April 2017 (i.e. the date at which the levy was introduced); delays in recruiting apprentices post April 2017; delays in the approval of standards by the IfA; and a significant number of apprenticeships in the transport sector having a duration of 3+ years. This means that managing the profile of spend vs the draw down is more challenging over the longer term.

3.70 For some employers, planned and incremental growth in apprentice recruitment through upskilling and reskilling will mean that in all likelihood, employers will use their levy pots in around 2021-22. For other employers, there is a significant shortfall in levy spend and less confidence that the gap will be bridged in the coming years. The logistics sector (according to the RHA) estimates its current pot at some £68 million, with 1,300 apprentices in place this year.

3.71 STAT acknowledges that the current system will continue to bed in, the approval of standards will develop and procurement levers will grow – all of which will continue to drive numbers. Even so, there is valuable activity STAT would like to do as an industry to support pipelines into apprenticeships. Initiatives such as pre-employment training, which, can have an 80%[24] conversion rate to apprenticeships if implemented quickly. STAT believes that these could help employers to make better use of unspent levy in this and the coming financial years and address STAT's commitments to improve diversity and support social mobility.

3.72 Members have considered the opportunity for apprenticeship levy paying employers to be able to fund apprenticeships in another organisation through a levy transfer. This amounts to a substantial sum – up to 10% of the levy pot within each organisation.

3.73 However STAT's feedback is that, the current transfer system is bureaucratic and onerous for employers. The levy transfer can only be spent on apprenticeship training and assessment, which makes up a small fraction of the total costs from a receiving employer, who would already receive 90% of apprenticeship training and assessment funding from the Education and Skills Funding Agency.

3.74 Levy transfer funds make up a tiny proportion – STAT estimates around 2% of the total cost of an apprenticeship.

3.75 STAT believes that the current transfer rules will not make a real difference for smaller non-levy paying employers in our sector.

24 Movement to work presentation to STAT Board, 11/05/2018

The cost of an Engineering Apprenticeship level 3

The cost of an engineering apprentice level 3 is around

£120,000

inclusive of salary

and the government training cap is

£27,000

With receipt of 90% of the funding cap from government, the actual cost benefit employers can receive via levy transfer would be

£2,700

STAT's commitments

STAT will:

- keep contractual requirements and reporting under review to ensure they remain appropriate and effective;
- through its shared apprenticeships steering group and facilitated by NSAR with Skanska, work with employers to develop pilots for appropriate model schemes. Pilots will be led by TfL and CECA with BAM Nuttall, Balfour Beatty and the HTMA;
- promote commercial models which support closer working with the supply chain as a way to facilitate collaboration on skills and increase productivity;
- work with other levy paying transport employers to make a strong case to government for levy funds to be used to support initiatives that will help to develop a pipeline of apprentices into the sector; and
- continue to assess the impact of apprenticeship levy transfer rules on driving funding for apprenticeships in supply chain organisations, motivating for change where this would help smaller employers to invest more in skills and apprenticeships.

4

Future skills

"The UK is on the verge of a 4th industrial revolution, which will dramatically increase productivity, providing we can meet the skills requirements."

Future skills will need a strong signal to market. The need is not yet there at scale, and so it can be challenging for employers to make a business case. There is an equal need for client organisations and the supply chain to consider their capability and capacity to make the most of the increased productivity afforded by the broad range of digitally enabled technologies which are set to transform the transport system.

Government departments, including DfT, have signed up to a presumption for offsite construction in 2019. This is a potential game changer for the construction sector, offering opportunities to drive efficiency through the standardisation of assets and to spread the benefits of investment across the economy. STAT is supportive of the Construction Sector Deal, which aims to drive the transformation of the sector.

STAT also recognises that in parallel, the sector runs and manages unique legacy systems, some of which date from the Victorian era. Skills to maintain and operate these systems will continue to be necessary but are becoming increasingly uncommon.

Changing skills

Top 10 skills

	in 2020		in 2015
Complex Problem Solving		1	Complex Problem Solving
Critical Thinking		2	Coordinating with Others
Creativity		3	People Management
People Management		4	Critical Thinking
Coordinating with Others		5	Negotiation
Emotional Intelligence		6	Quality Control
Judgment and Decision Making		7	Service Orntation
Service Orntation		8	Judgment and Decision Making
Negotiation		9	Active Listening
Cognitive Flexibility		10	Creativity

Source: Future of Jobs Report, World Economic Forum

4.1 The future of skills is evolving in response to the 4th industrial revolution. The World Economic Forum (WEF) has consulted a number of cross-sector business leads on emerging issues.

4.2 In the face of new technologies and new ways of working, workers are going to have to become more creative, whilst the advent of masses of data and the application of Artificial Intelligence (AI), will take away many decision making processes.

4.3 As automation begins to gather pace, workers will need to focus more on customer facing skills such as emotional intelligence. We need to bear these issues in mind though our recruiting processes if we are to keep pace in transport, and compete for talent.

4.4 A report by MACE[25] estimates that anywhere from 40,000 to 600,000 construction employees could need to be re-skilled over the next two decades across a range of roles.

25 [2] www.macegroup.com/perspectives/171027-moving-to-industry-40

"There are hundreds of different engineering type apprenticeships and it is estimated over 25,000 different types of qualifications currently; we need to identify common and core skills that we need – not specific jobs"

Peter Cheese, CEO, CIPD

Modern Methods of Construction

4.5 In the Autumn Budget 2017, the government announced that it would enter into a National Retraining Partnership, with the Trades Union Congress and the Confederation of British Industry, to develop the National Retraining Scheme. As a first step, the National Retraining Partnership will oversee targeted short term action in sectors with skills shortages, initially focusing on construction and digital.

4.6 CITB will administer the allocation of a £22m construction fund. The intention is to set up 20 on site learning hubs across England, with a potential focus on unemployment and pre-employment programmes that can help to retrain adults and help them to gain employment and further training. There is an opportunity for collaborative bids to the scheme.

Construction Industry Training Board (CITB) and the National Retraining scheme

The national retraining funds are to prioritise two areas the government has earmarked as growth areas: construction and digital. A total of £34m has been allocated to construction retraining. In addition, CITB has launched a £22 million Construction Skills Fund, which they will administer for the Department for Education. The focus is on housebuilding but not exclusive to this – infrastructure projects can apply for funding. MMC – modern methods of construction is a key interest for the bidding process. The plan is to have up to 20 onsite learning hubs across England. Hubs would ideally be located within a large housing development or infrastructure project. Funding can cover a physical hub, a co-ordinator post, training development and qualifications (capital and revenue funding). Funding is for an 18 month period. It is envisaged that on-site training hubs will design programmes focused on those wishing to join the sector from full-time education, those who are currently unemployed, and those wishing to switch careers. For more details about the fund and how to apply go to: **www.citb.co.uk/funding/types-of-funding/structured-fund/construction-skills-fund/**

4.7 The Construction Sector Deal announced in the Industrial Strategy will support significantly increased uptake of apprenticeships and approval of standards, particularly those related to future skills and higher level learning in construction.

4.8 Analysis commissioned by the Construction Leadership Council (CLC) suggests that significant productivity gains could be achieved by adopting digital and manufacturing technologies in the construction sector[26].

4.9 Manufacturing provides the opportunity to spread out the benefits of infrastructure investment across the country, as components and assemblies can be manufactured away from the construction site, with more regions benefiting from investment in capital and in skills.

4.10 A more widespread use of manufacturing in construction can tackle some of the major skills challenges in the construction sector, with the Farmer Review[27] warning that "we could see a 20-25% decline in the available labour force within a decade".

4.11 Government, as the single largest construction client and investor in the UK economy, will play a leading role in supporting industry and asset owners to embrace technology and innovation. The Infrastructure Projects Authority (IPA) set out its Transforming Infrastructure Performance (TIP) in 2017 as part of a UK government strategy to improve infrastructure and boost construction sector productivity and generate savings of £15bn per year.

4.12 This is a substantial change programme with a ten-year horizon that builds on existing best practice and tackles the systemic issues that still limit the performance of UK infrastructure, changing the skills landscape.

4.13 This transformation will be supported by the £170m Transforming Construction Fund allocated to help to commercialise cutting edge digital and manufacturing technologies. Competitions were launched earlier this year by Innovate UK covering digital, manufacturing and energy technology.

4.14 Transport represents 95% of government spend on economic infrastructure, so getting delivery right is critically important to tackling the productivity gap in the infrastructure sector and effecting lasting change.

4.15 The Transport Infrastructure Efficiency Strategy (TIES) was launched by the Secretary of State in December 2017, setting out 7 key challenges to boosting efficiency and productivity in transport. Crucially, it commits DfT and its client bodies to move to a presumption in favour of offsite manufacturing by 2019; exploiting digital technologies and standardising our assets to enable the adoption of best practice from the manufacturing sector.

4.16 We know from feedback during the development of TIES that there is currently a lack of available training; and a lack of trainers with the requisite knowledge, to address the potential gaps created by digital construction.

4.17 During the course of work concerns were raised in relation to the availability of new skills to support:

- → advanced manufacturing;
- → building information modelling (BIM); and
- → digital technology in design.

4.18 There are also shortages of people with transferable skillsets, such as project, programme and portfolio management and risk management. These new skills will be critical to achieving the government's commitment to offsite construction.

4.19 STAT believes that the challenge to upskill sits as much with the client bodies to deliver the technical aspects required and to perform an intelligent client function; as with the capability of the supply chain to respond.

4.20 As emerging technologies develop and traditional construction moves more towards manufacturing, there will be a potential skills gap. However it is challenging for employers to invest in training where jobs do not yet exist.

4.21 The Manufacturing Technology Centre (MTC) has addressed this challenge with their innovative apprenticeship model, supported by funding from Lloyds Bank.

26 www.constructionleadershipcouncil.co.uk/wp-content/uploads/2016/05/SG_Roadmapping_Doc_Version-FINAL.pdf
27 www.constructionleadershipcouncil.co.uk/wp-content/uploads/2016/10/Farmer-Review.pdf1

4.22 STAT believes that apprenticeships are an appropriate mechanism for developing relevant skills at scale to meet the challenges of the future. Six competency frameworks for modular construction have been developed by the Advanced Manufacturing Training Centre (AMTC), part of the MTC. These have been derived from the manufacturing competencies that the MTC is currently promoting in schemes offered to apprentices and the manufacturing supply chain. Roles have been developed to support project delivery based on the stages in the Royal Institute of British Architects (RIBA) plan of work.

4.23 STAT supports the integration of these frameworks into existing trailblazer standards as a means of driving uptake. The standards will embrace digital technologies and Design for Manufacture and Assembly (DfMA); lean methodologies and principles; team working and culture. The relevant standards are at different stages of the approval process.

4.24 CITB will be launching a funding commission to support offsite training delivery and upskilling in summer 2018, with a further commission later in 2018 to support offsite assessor/assessment infrastructure.

4.25 STAT member Skanska is working in collaboration with the MTC in Coventry and the CITB to explore the need for a Digital Construction Higher Apprenticeship standard aimed at upskilling existing construction professionals on the current and future digitalisation knowledge skills needed in the sector.

4.26 In April 2017, Heathrow invited organisations across the country to send in their expressions of interest for hosting one of the four logistics hubs the airport has committed to in relation to its expansion programme.

4.27 Logistics hubs will help Heathrow to create a diverse, innovative and sustainable supply chain that achieves new standards of delivery, while leaving a construction legacy that Britain can be proud of. The logistics hubs will deliver five key benefits for Heathrow's expansion programme:

- → economic benefits across Britain;
- → efficient and affordable expansion;
- → quicker delivery to unlock the benefits of an expanded airport sooner;
- → a platform for excellence in sustainability; and
- → supporting Heathrow's existing operation.

4.28 TfL is also developing its construction training model to support it's growing property development pipeline. This will include expanding the training offer at the Tunnelling and Underground Construction Academy (TUCA) to ensure it has a modern methods focus to meet the skills needs of both housing and infrastructure partners, and developing on site learning hubs at some of their major property development sites. On site learning opportunities will be aimed at supporting under-represented and hard to reach groups into both housing and infrastructure construction roles and could potentially be feeders for other projects.

4.29 TfL is also in early discussion with AMTC on the potential to use the Tunnelling and Underground Construction Academy at Ilford as part of a regional hub and spoke network for off-site construction skills.

4.30 TfL is working with partners to ensure these plans will form part of a new collaborative construction training model in London to support the Mayor's Construction Academy (MCA) scheme. This initiative aims to ensure more trained Londoners are in place to access vacancies in the sector and enable better coordination and collaboration across construction training provision and between education and industry. Stage one of this process was launched in March 2018 to appoint quality marked training providers, with 21 providers successfully awarded the MCA Kitemark. The second stage, launching in June 2018 will establish a network of MCA Hubs, which will take the lead in coordinating this activity.

4.31 Whilst initiatives such as these will help, the further education sector does need to be more joined up if transport is going to deliver future skills at scale. STAT urges a review of the quality of provision for offsite construction in the further education sector, and CITB would be well placed to carry out this review.

4.32 Transport can learn from how other industries have responded to the need to adapt and meet the demand for future skills.

4.33 Anglian Water Alliances have developed a collaborative partnership with the College of West Anglia (CWA) in Wisbech, creating two sponsored courses in order to generate a pool of future skills within Anglian Water's region. To date, 80% of all students that have successfully completed the course are now employed as apprentices across the Anglian Water Alliances.

4.34 This partnership evolved out of the Wisbech 2020 programme, born from discussions between Anglian Water and its Alliances, Fenland District Council and Cambridgeshire County Council, along with the local MP. As the location of four of the top eight most deprived areas nationally, all parties agreed that the challenges Wisbech faced were greater than those elsewhere in their constituencies and it was recognised that there could be an opportunity to make a difference in education and employment.

4.35 The Alliance partners face significant challenges in maintaining the skills and capabilities required to deliver a £450m a year investment programme, both in terms of staff numbers and in developing future skills that support new ways of working. Complementing the needs of the Alliances, the college is looking to increase opportunities for its students, while serving a catchment of diverse and potentially capable students.

4.36 These perspectives were brought together in the formation of sponsored development programmes for civil, mechanical and electrical engineering students.

Anglian Water's Alliances sponsored courses

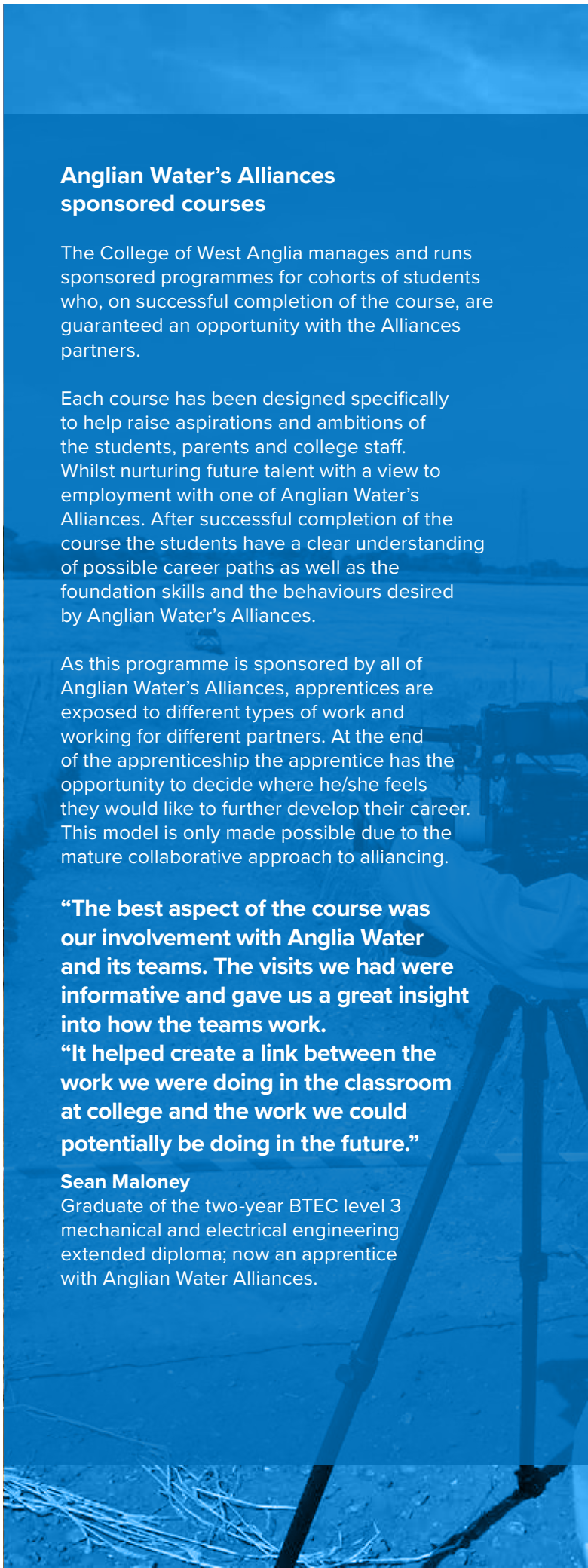
The College of West Anglia manages and runs sponsored programmes for cohorts of students who, on successful completion of the course, are guaranteed an opportunity with the Alliances partners.

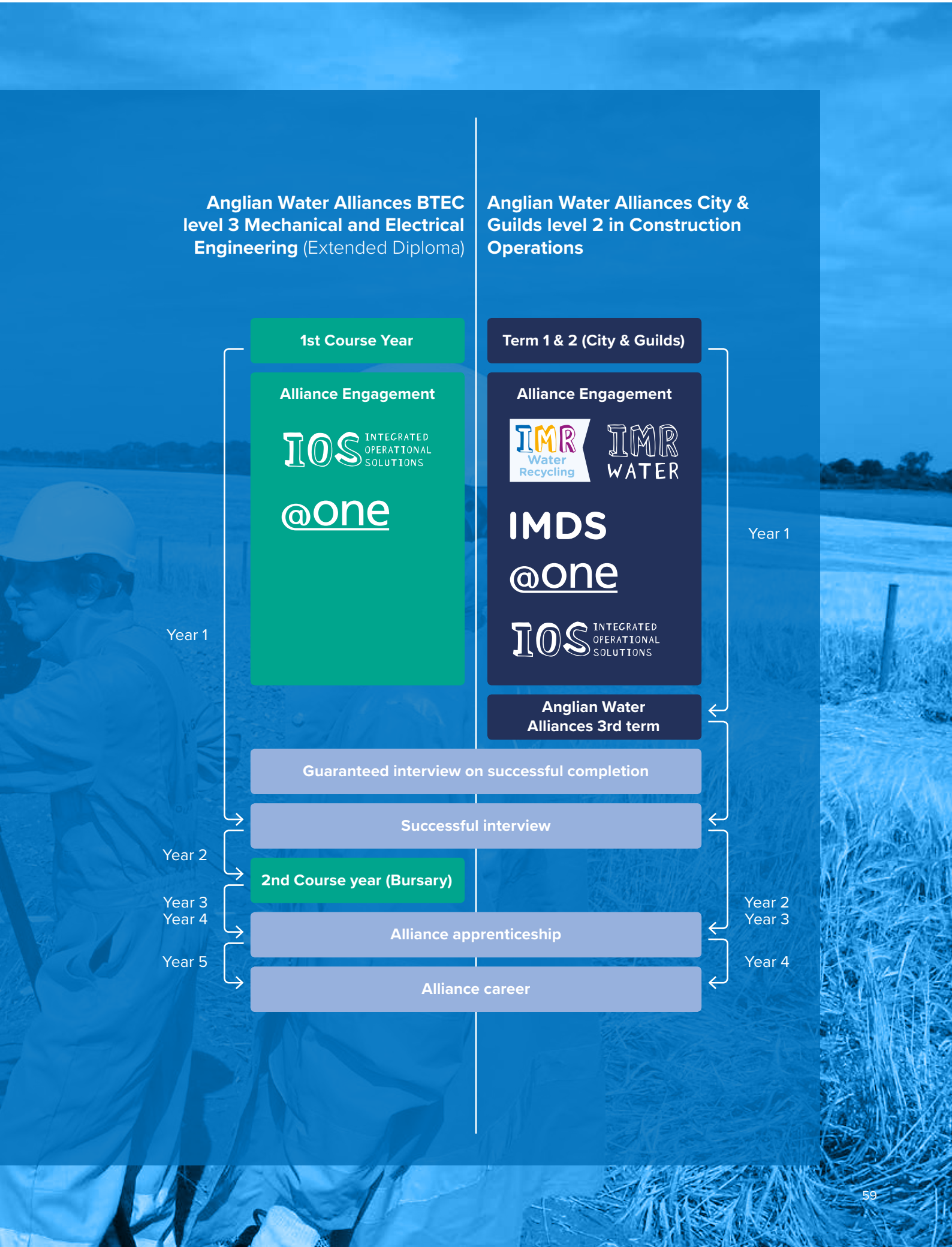
Each course has been designed specifically to help raise aspirations and ambitions of the students, parents and college staff. Whilst nurturing future talent with a view to employment with one of Anglian Water's Alliances. After successful completion of the course the students have a clear understanding of possible career paths as well as the foundation skills and the behaviours desired by Anglian Water's Alliances.

As this programme is sponsored by all of Anglian Water's Alliances, apprentices are exposed to different types of work and working for different partners. At the end of the apprenticeship the apprentice has the opportunity to decide where he/she feels they would like to further develop their career. This model is only made possible due to the mature collaborative approach to alliancing.

"The best aspect of the course was our involvement with Anglia Water and its teams. The visits we had were informative and gave us a great insight into how the teams work.
"It helped create a link between the work we were doing in the classroom at college and the work we could potentially be doing in the future."

Sean Maloney
Graduate of the two-year BTEC level 3 mechanical and electrical engineering extended diploma; now an apprentice with Anglian Water Alliances.




Anglian Water Alliances BTEC level 3 Mechanical and Electrical Engineering (Extended Diploma)
Anglian Water Alliances City & Guilds level 2 in Construction Operations
1st Course Year
Alliance Engagement
IOS INTEGRATED OPERATIONAL SOLUTIONS
@one
Year 1
Term 1 & 2 (City & Guilds)
Alliance Engagement
IMR Water Recycling
IMR WATER
IMDS
@one
IOS INTEGRATED OPERATIONAL SOLUTIONS
Year 1
Anglian Water Alliances 3rd term
Guaranteed interview on successful completion
Successful interview
Year 2
2nd Course year (Bursary)
Year 3
Year 4
Alliance apprenticeship
Year 2
Year 3
Year 5
Alliance career
Year 4

4.37 As the guardians of professional qualifications, bodies such as the Royal Institute of British Architects (RIBA) and Royal Institution of Chartered Surveyors (RICS) need to consider how competencies for modern methods of construction could influence future professional skills competencies.

4.38 The impact and potential of modern methods of construction for infrastructure client organisations is only just beginning to emerge. Clients will be required to interface and collaborate with a supply chain that will increasingly be using automated design processes and digital twins (digital replicas of a clients' physical network) in a business as usual environment.

4.39 Clients need to make sure that their internal organisational capability meets this challenge. Thus far, thinking has focussed on large scale construction projects. However, construction skills will encompass design and maintenance of the asset too and existing asset owners will need to consider these implications for their organisations.

Digital design

4.40 Building Information Modelling (BIM) is the process of creating and managing digital information of a construction project at every stage of its lifecycle, enabling everyone involved to have visibility, share information, collaborate and work to the same principles. This means job roles will change and employees will have to learn new skill sets.

4.41 A report by LEICA noted that one approach to solving the BIM skills shortage would be to hire new staff who are already BIM trained, offering more attractive career opportunities to ambitious young people[28].

4.42 The BRE Academy's recent skills gap survey[29] reveals that BIM skills are lacking across the construction industry and at organisation-wide level, with 67% of respondents saying that there should be more focus on promoting construction's hi-tech and digital aspects.

4.43 BIM introduces major digital transformation to a construction industry forecasting significant future skills shortages. The industry has challenges attracting new, skilled talent and traditionally invests less in skills development than other comparable industries.

4.44 As a catalyst for growth, HS2 is learning lessons from other major projects and enhancing the use of BIM within the Architecture, Engineering and Construction (AEC) industry, creating knowledge, skills and experience that can be applied to future projects here and overseas.

28 https://leica-geosystems.com/en-gb/about-us/content-features/bim-whitepaper
29 www.bre.co.uk/academy/skills_survey

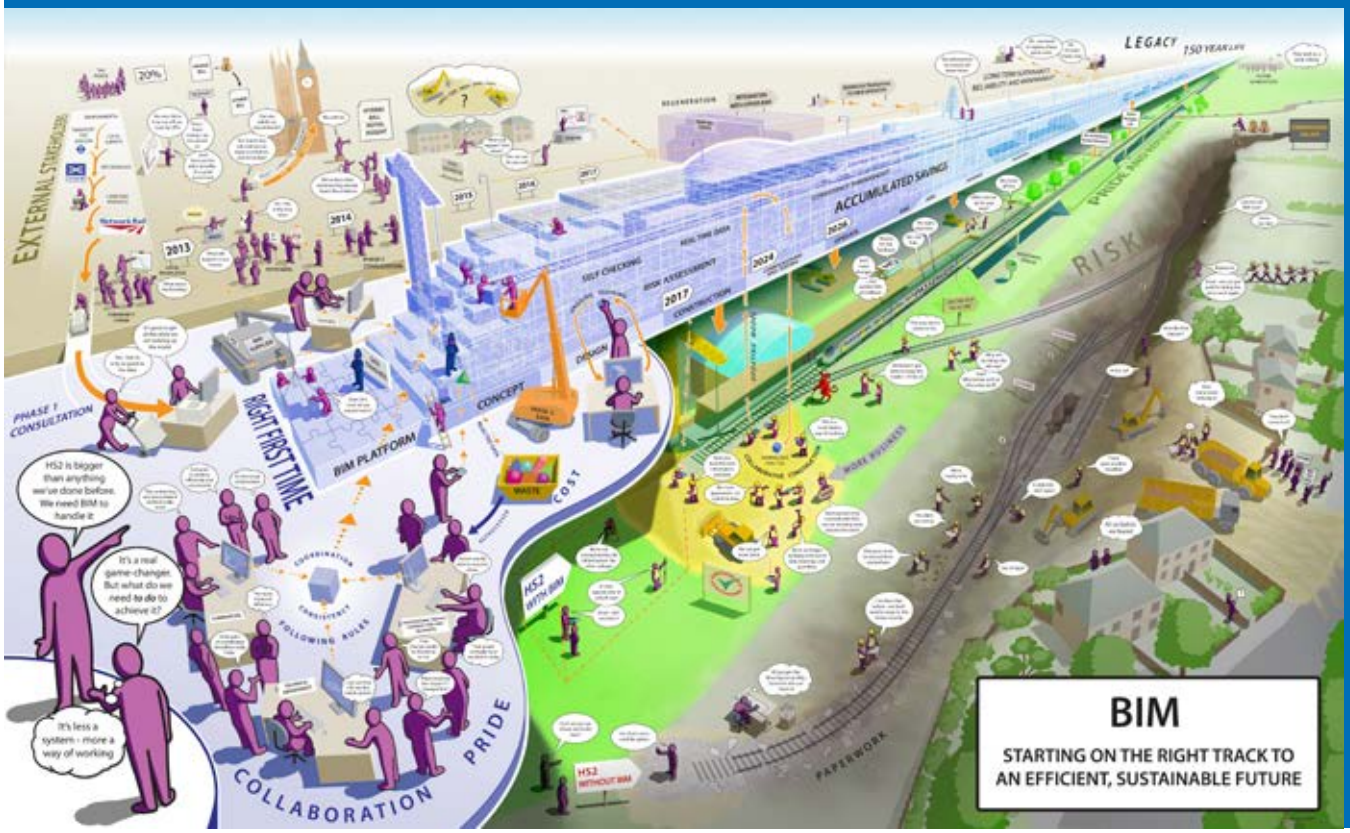
How HS2 is realising value from BIM

In light of these lessons, and the significant benefits that have been identified through the successful implementation of BIM within HS2 as a client and its supply chain, HS2 has developed a BIM Strategy that targets three principal areas:

- → leadership – creating a clear and transparent environment in which suppliers can innovate and meet HS2's information requirements;
- → future-proofing – utilising open standards and software-neutral approaches to build a digital twin for use in Operations and Maintenance; and
- → upskilling – ensuring that HS2 as a Client and its supply chain have the right skills and education

The goals and objectives in this strategy are adopted throughout the supply chain, and progress towards combined success measured as part of HS2's BIM Operating Framework. The key differentiator between traditional methods and BIM processes is the requirement for (and procurement of) structured information, whether that's graphical or non-graphical data. Having the right skills to identify what decisions are required to be made, including what data supports those decisions and the structure of that data, is critical to providing the right contractual specification and clarity to the supply chain. Likewise, the capability to understand those data requirements and the ability to meet them in the most efficient and effective way is just as important.

On the back of a comprehensive supply chain BIM Upskilling Study[30] undertaken, HS2 developed a BIM Upskilling Platform[31] to support the supply chain with skills development. HS2 is also supporting the National College of High Speed Rail who have ensured BIM is a core component of each programme they run; and further still that an apprenticeship is developed to train and upskill in the management of digital information, providing industry with a pipeline of digitally skilled people.



30 www.gov.uk/government/publications/hs2-supply-chain-bim-upskilling-study
31 www.bimupskilling.com

4.45 Harnessing the potential of BIM, a digital approach is central to the Rapid Engineering Model (REM). This is an automated design process developed by Bryden Wood Technology Ltd with Highways England for use on the Smart Motorways Programme (SMP). The REM acts as a means to digitally reconstruct the physical environment that an asset is placed within and, subsequently, automatically generate design options for roadside assemblies. Impressively, the REM workflow potentially reduces the time taken for the design of SMP schemes from months to less than a week.

Rapid Engineering Model for the Smart Motorways Programme (SMP)

There are two key themes that drive REM; data analytics and automated design. The workflow can be best conceptualised by breaking the REM process into the following components;

1. Analysis of digitally captured topographic and environmental data.
2. Evaluation of suitability of topographic data analysis.
3. Automation of design layout, following SMP design rules.
4. Optimisation of design layout according to project specific criteria.

The analysis of proximal three dimensional topographic and environmental data in a digital format allows for risks and opportunities to be identified along the asset network in a greatly reduced timeframe. This wealth of information can then be analysed and used to automatically design the layout of major roadside assemblies, such as gantries, in accordance with SMP guidance. These plans may then be further optimised, to suit the specific SMP requirements of a particular project. With this information, REM can generate many different outputs types and formats for a variety of uses, including;

- → GIS data layers;
- → Highways England compliant BIM models;
- → interactive, browser based data dashboards; and
- → 'drive through' visualisations.

A number of the above outputs provide functional support to day-to-day business operations, promoting a data-driven approach to asset management. The potential to view the data set in 'virtual reality' enables a fully realised, scaled 3D render of the environment in question for those undertaking project work. The combination of these approaches, improves efficiency and drives significant time savings over traditional design approaches. The functionality of the Rapid Engineering Model workflow continues to be expanded.

Digital Railway

4.46 Digital Railway has the potential to offer capacity and performance improvements at lower cost than conventional enhancements, avoiding disruptive conventional works. Digital signalling unlocks the space needed to enable greater flexibility about where, when and how fast trains run. Analysis shows that targeted digital modernisation on the national rail network offers compelling benefits.

4.47 The government's commitment towards a Digital Railway has been further affirmed in the Digital Railway Strategy[32], which clearly sets out how the UK will adopt digital signalling. Plans for a Digital Railway are already underway, with digital technology being delivered in the Thameslink, London core area and on Crossrail 1 between Paddington and Heathrow.

32 https://cdn.networkrail.co.uk/wp-content/uploads/2018/05/Digital-Railway-Strategy.pdf

National Skills Academy Rail Skills Live

With the evolution of the Digital Railway, Skills Live is one of the projects that NSAR is delivering to address skills shortages and diversity issues within the rail industry.

Funding has been awarded to NSAR by UfI (University for Industry) to create an online platform to attract young unemployed people, aged 18-24 years who have an interest in digital careers, into the rail sector. Skills Live will be accessed via mobile devices and will host a series of video insights exploring the roles and skills of young rail apprentices. The aim is for the young adults who work their way through the video insights to be signposted to apprenticeships, pre-apprenticeships or training opportunities to help them get that first step into a digital rail career. NSAR is working with apprentices from TFL, Network Rail and Go-Ahead to create the video content. The pilot will be rolled out in November 2018 with the aim of reaching the 60,000 unemployed young people in London and the south east of England. Deployment will be to nationwide areas in the first half of 2019. This initiative moves to support the rail industry in fulfilling its forecasted 5,000 digital roles.

4.48 The ongoing evolution of the skills, knowledge and expertise that Digital Railway will bring will provide a benefit which can be transferred to other infrastructure sectors and the potential to bring talent from other sectors outside of transport. Existing staff will need greater systems engineering, advanced telecoms, software programming and crucially business change skill sets to help fully realise the benefits of a Digital Railway. Successful development will build upon the industry's existing capability, and give the opportunity to boost exports.

4.49 As well as building rail capability, Digital Railway can also enable skills to be realised across other industries – by bringing about agglomeration benefits that allow greater connections between skills and jobs, and goods with markets. Digital Railway has the potential to extend the catchment area of major cities. Accelerating these benefits could unlock additional productivity and economic growth for the UK economy. Funding is currently being sought for the setting up of a skills academy to realise the opportunity of Digital Railway within a wider people and training plan.

Legacy schemes and associated skills need

4.50 The transport Industry is looking forward and investing in skills that will be in high demand and where it is competing with other sectors. At the same time the industry runs and manages legacy systems, some from the Victorian era, that require skills and competencies which are becoming increasingly uncommon.

4.51 Even as Network Rail transitions its signalling capability, the pace of technological change continues to limit the potential of the network. Changing the signalling system requires tight integration between track-based equipment, telecoms, train-borne equipment and driver and signaller skills.

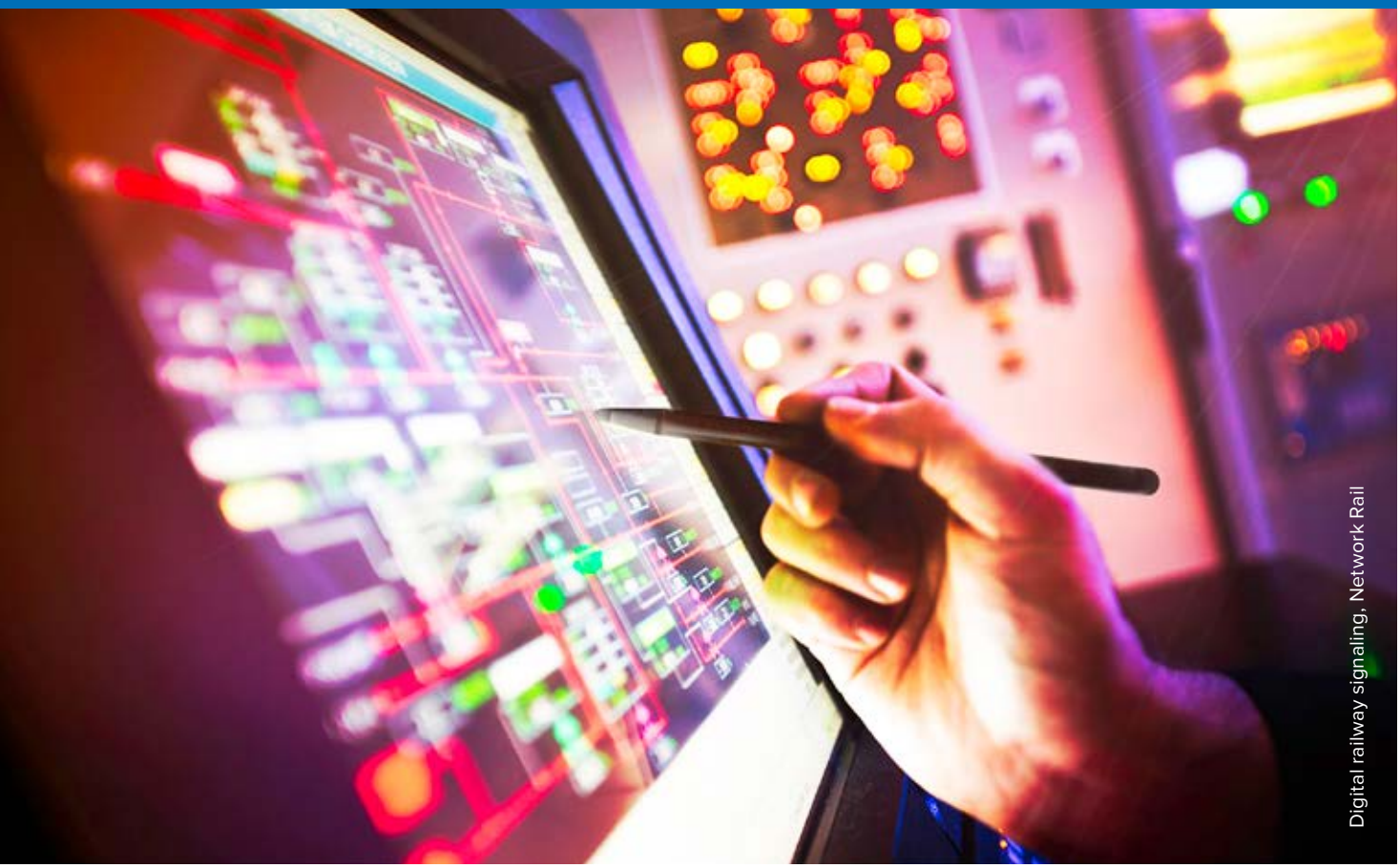
4.52 Digital technologies will connect new and legacy assets into 'systems of systems' increasing the requirement for telecoms, systems, electronic, networking and computer engineers.

Network Rail develops digital rail capability through upskilling and reskilling its signallers

The Three Bridges Regional Operating Centre (ROC) near Crawley in West Sussex is currently being transformed by the introduction of new digital technologies to comply with ETCS (European Train Control System) and TMS (Traffic Management System). The skillsets needed to use the new systems and technologies are very different from those required in more traditional signalling environments, with a focus on understanding the digital environment, the application of digital control systems and data-based communications. However, the digital transformation is not a 'quick fix' and staff at Three Bridges are faced with the challenge of keeping the operational railway running, using three distinct signalling systems of differing ages and technical complexity simultaneously whilst the transition takes place.

Both the operation and maintenance of the signalling control systems are impacted, and staff in both areas at Three Bridges are being reskilled to meet the new requirements. For signalling operations staff, this means acquiring the relevant IT skills to operate the new systems, as well as the behavioural capability to make sensible judgements about the frequency of manual intervention. The skills and capability challenge is even greater amongst the maintenance community, who will be required to diagnose, fault-find, repair and maintain both new and legacy signalling systems during an extended transition period. The attitudinal change required to manage a complex maintenance regime through a 'system of systems' approach' is significant.

For the training team, this has meant significant investment in new training technology and the design of new interventions against a revised role-based capability framework, which aims to raise the capability of systems thinking, digital skills, data analytics and 'diagnostic incident response'. It has also required a change of focus to move beyond the development of individual skills to team and organisational level training focussed on cross-disciplinary collaboration to achieve improved asset performance, safety and customer responsiveness. In the area controlled by the Three Bridges ROC alone, over 450 people have received integrated technical and behavioural training in operating and maintaining ETCS, traffic management and incident management systems using new digital technology.



Digital railway signaling, Network Rail

4.53 These skills are not widely available within the rail signalling community and Network Rail has recognised the opportunity to grow its engineering talent base with the digital skills and knowledge that the future rail industry will need. As the process of digitisation of railway control systems accelerates over the next few years, those responsible for operating and maintaining the technology will also need to have an understanding of a network of complex interacting systems, and the immediate focus is on reskilling and upskilling the existing workforce.

Maritime 2050 Strategy

4.54 The Maritime 2050 call for evidence on the future of the sector notes that there may be some big changes in the skills and expertise needed in the future. Even those entering the current workforce will likely face many changes in how they operate either at sea or on the shore. With a move to autonomous shipping particularly, there could be demands not identified at present that are likely to mean changes in the skills needed for the industry. It is likely that the jobs that are automated will be replaced with higher skilled jobs. In particular the number of electrical engineers and IT staff needed is increasing and is likely to continue to do so.

4.55 The sector has been asked to respond to numerous questions around future skills gaps. The call for evidence is now closed and responses are being analysed. Publication is expected by the end of 2018.

STAT's commitments

STAT will:

- work to engender a greater understanding of the labour and skill levels required in order to support the government's presumption for offsite construction and the use of emerging technologies to support productivity. We will send a strong signal to market that it is important to gear up for these potentially transformational changes;
- work with others to develop and promote a client strategy for adopting modern methods of design, maintenance and construction. To support this we will:
  - encourage employers on trailblazer groups to develop apprenticeship standards which are future proofed, whilst recognizing the need to maintain skills for a legacy infrastructure;
  - use our convening power to bring together key representation across the sector, to support the development of skills in innovative technologies to improve productivity and efficiency; and
  - encourage employer engagement with FE, particularly to improve the quality and knowledge of trainers in this field, and to develop high quality programmes. We call for the CITB to review FE provision and to develop a train the trainer programme in offsite construction specifically.

5

Accessible, quality opportunities for all

"The case for creating diversity within apprenticeship opportunities is already won. STAT's focus is about pragmatic, deliverable solutions"

TfL Innovate Schools Challenge
in association with Cleshar.

The transport sector must ensure that its workforce properly represents and offers opportunities to the communities it serves. This is a business imperative. Two years on, STAT's reporting shows the scale of the task in challenging the status quo. Over the coming year STAT will focus on addressing gender diversity and social mobility in response to our reported apprenticeship starts and previous commitments.

The proportion of female apprentice starts in roads and rail has remained static at 20%. Likewise, the proportion of female technical and engineering apprentice starts have not progressed, holding at 10%. This leaves STAT only halfway towards its initial ambition and there is a clear need for a concerted effort to move the dial in subsequent years. In contrast, BAME representation has increased and the reporting rate has improved over last year.

Many employers are leading programmes to support social mobility, following the commitments detailed in STAT's One year on report. In the coming year, STAT member organisations will work collectively to develop this good work further. The STAT social mobility work programme will take place over the next 18 months and will identify potential pre-apprentice pilots to increase access to opportunities across transport.

Bringing about lasting change is a gradual process and there are already some examples of excellent practice across STAT's member organisations. Building on these will enable the transformation of diversity within the workforce.

Progress in BAME and gender starts

5.1 The business case for diversity is well established and our industry partners are fully engaged in building a diverse pipeline of talent for the future. Following the One year on report, STAT's focus is on furthering pragmatic, deliverable solutions.

5.2 STAT's reporting shows that the total proportion of female apprentice starts in the road and rail reporting organisations is the same as last year at 20%.

5.3 The proportion of female apprentice starts in technical and engineering roles has also remained static at 10% between years. This follows the combining of internal and supply chain starts, alongside revised start numbers for last year.

"An important way of empowering women and tackling issues like the gender pay gap is encouraging more girls to consider well-paid, influential careers – like engineering. As we see rapid developments in new technology and major investment in infrastructure, it's also vital that the transport industry and wider engineering profession is attracting a diverse workforce that truly represents the society we live in."

Nusrat Ghani, Minister for the Year of Engineering and transport skills

5.4 STAT is not seeing the progress needed in terms of improved gender diversity.

5.5 Encouragingly, female apprentice starts represent 36% of all starts at NVQ level 6 and over. And these numbers are increasing in absolute terms. Within STAT's internal reporting, there are more female starts at NVQ level 6 and above in 2017-18 then there were for all gender starts in 2016-17.

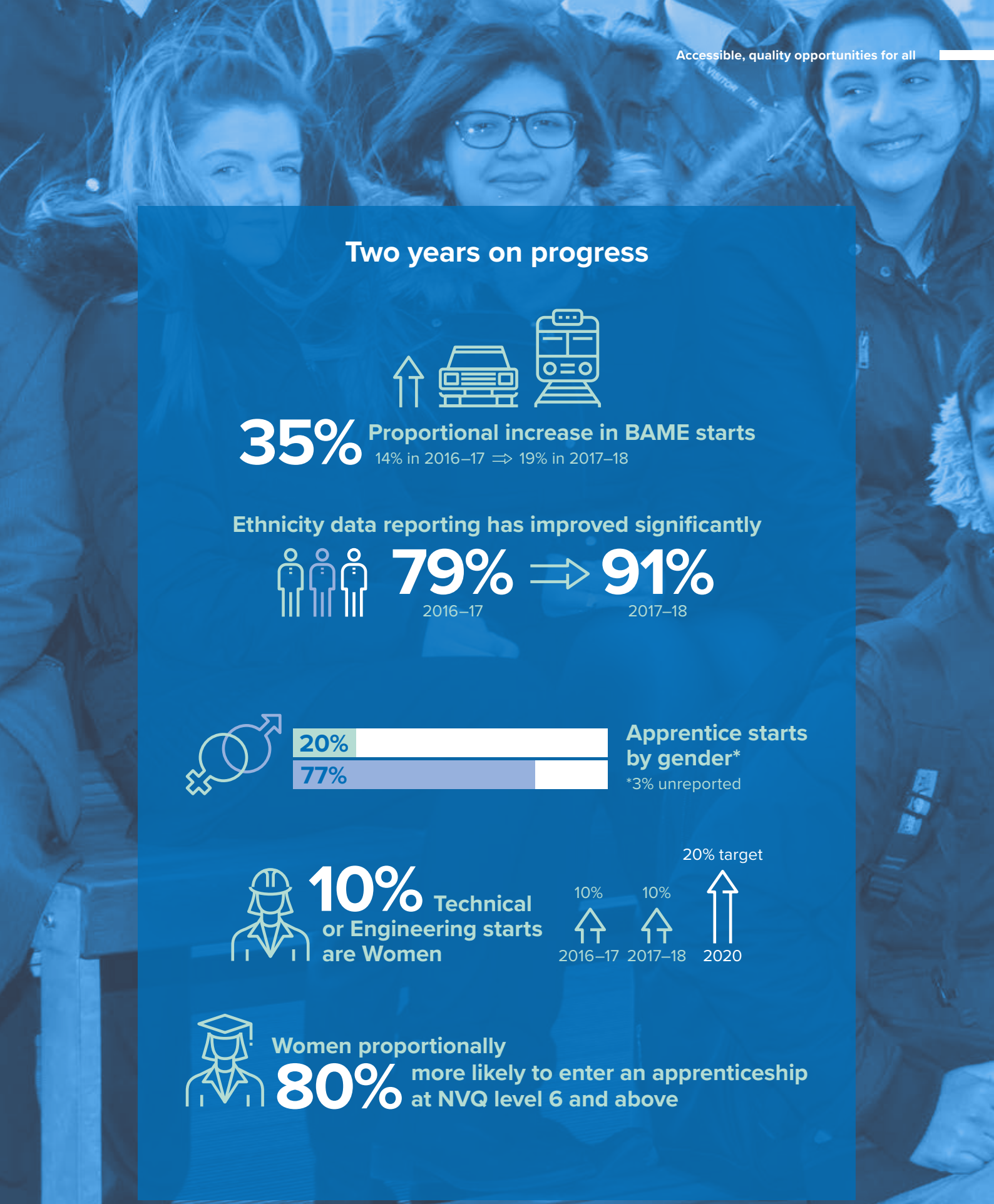
5.6 Continuing the upward trend for female employment at NVQ level 6 and above is vital to increasing the pipeline to higher paid roles. This will help to tackle the gender pay gap and the proportional lack of women in high paid senior roles within the transport sector.

5.7 Beyond road and rail, the Women in Maritime Taskforce led by Maritime UK is developing a charter to committing signatories to work towards greater diversity in their workforces. The first step in that process will be the signing of pledges during the Seawork Conference in July 2018.

5.8 It is good news that overall STAT is able to report an improvement for BAME representation, as the proportions of apprentices starting has risen from 14% to 19%. Reporting has improved to 91% from 79% last year, which is an encouraging sign.

5.9 Heathrow reported 43% BAME starts for apprentices for 2017-18.

5.10 There is more to be done to ensure there is greater BAME representation at higher NVQ levels.



Two years on progress

35% Proportional increase in BAME starts
14% in 2016–17 ⇒ 19% in 2017–18

Ethnicity data reporting has improved significantly

79% 2016–17 ⇒ **91%** 2017–18

Apprentice starts by gender*
*3% unreported

10% Technical or Engineering starts are Women

Women proportionally **80%** more likely to enter an apprenticeship at NVQ level 6 and above

Recruiting and retaining a wider talent pool

5.11 There are existing pockets of good work, including low cost interventions, which if rolled out more widely could help our work on diversity to gather momentum and allow us to make the progress that industry wants and needs to see.

5.12 Jo Abeyie, an award winning diversity champion, provides proof that improving diversity need not come at a significant price. Jo founded Shine Media aged 21 using innovation, problem solving and an open approach to talent, managing to place over 3,000 candidates from diverse backgrounds in permanent and freelance jobs in the creative industries.

5.13 In November 2017, STAT hosted an event with its supply chain CEOs which generated widespread commitment to tackling diversity. A second event took place in June 2018 with the HR & commercial community; discussions focussed on practical solutions that deliver tangible results quickly. The following text sets out some of the approaches discussed.

"Creating inclusive hiring processes does not require a large budget. I created many unique recruitment processes from my bedroom, and once implemented across industry saw a significant increase in the employment of diverse talent."

Joanna Abeyie Managing Director, Hyden Recruiting, SThree Plc

Attracting diverse talent

5.14 To make effective interventions to increase the diversity of any workforce, it is important to evaluate the internal culture of an organisation and ensure it is inclusive.

5.15 Organisational attraction strategies can have a significant impact on the diversity of the applicants it is able to attract; as seen by Network Rail's work with Insights in Engineering. This has helped Network Rail to understand how shifting from an infrastructure focused approach, to one centred on people can drive positive change.

Before

After

5.16 Improving the understanding of how to reach a target audience allows for maximum engagement, for example, with teachers and parents who do not necessarily recognise the breadth of opportunity offered by transport, but who would quickly respond to positive role models.

5.17 One such role model is Pia Wilkes, the DfT, Vehicle Certification Agency (VCA) CEO. Pia has been named by Autocar as one of the top 100 women working in the automotive sector, with nominees selected from a field of individuals who have succeeded acting as role models for others.

5.18 A number of STAT organisations have been working to improve the reach of their recruitment campaigns.

5.19 TfL's Women's Staff Network group has been working with The Girls Network, a charity with a clear mission to inspire and empower girls from the least advantaged communities by connecting them with a mentor and a network of professional female role models.

Apprenticeship Champion of the Year – Network Rail

Network Rail has been recognised as Apprenticeship Champion of the Year 2017 at the National Transport Awards.

Michelle Nolan-Mcsweeney,
Head of Training Strategy explained:

"To achieve this, we overhauled our recruitment, selection and assessment processes and changed the language on our apprentice website. We also moved our residential training from Gosport Royal Navy base to university-style accommodation at our Westwood facility.

"We increased the pastoral support we offer to apprentices through our own staff networks and last year, we also partnered with the Young Women's Trust to provide dedicated support to our female apprentices throughout the duration of their training."

TfL's Women's Staff Network Group mentoring scheme with the Girl's Network

Launched in January 2017, TfL's Women's Staff Network Group mentoring scheme consists of 20 trained TfL mentors with active mentoring partnerships who have been paired with girls from across London, including schools in Tower Hamlets, Haringey, Lambeth and Brent.

Dozens of women at TfL have also participated in a number of engagement events outside of their mentoring capacity. This includes careers fairs jointly hosted by the Women's Network and Siemens during International Women's Day celebrations in 2017 and 2018, and the UK's largest transport-focused speed mentoring event held at ICE's head offices to celebrate Rail Week in 2017.

Working with The Girls Network has allowed TfL to engage directly with a range of young women at schools with high levels of deprivation and to promote the variety of roles available within the transport industry. In addition, the mentoring element allows for TfL colleagues to personally develop their own mentoring skills and make a tangible impact on girls who need it most. The aspiration is to scale up the number of mentors who are trained with The Girls Network and to expand mentoring opportunities to more colleagues across TfL.

Photo credit – Lou Jasmine

Recruitment campaigns

5.20 Research from the Journal of Personality and Social Psychology (2011)[34] highlights the importance of language in job advertisements. Words that are usually associated with male stereotypes such as 'competitive' give women a 'lower sense of belonging'.

5.21 Job adverts that offer flexible hours, job sharing or agile working are more inclusive. These can address barriers that often prevent talented people from participating in the workplace – such as people with parenting or caring responsibilities.

5.22 Job adverts may be improved by discarding criteria that incorporate biases, such as minimum years of experience, where these are not strictly necessary.

5.23 There are emerging tools such as Textio and recruitment tech companies such as TalVista available to help optimise job applications and interview processes to promote diversity.

5.24 Network Rail and DfT have targeted female recruits through media such as Instagram, Snap Chat and Facebook. DfT has begun using geo-targeting, blogs and video attraction and this has had a positive impact on attracting more female candidates, especially when a female vacancy holder or member of staff was used in the video.

5.25 The DfT Resourcing Group is working closely with vacancy holders, such as the VCA to understand how best to attract and retain female candidates with the skills required for specialist roles.

Department for Transport Vehicle Certification Agency (VCA) Recruitment

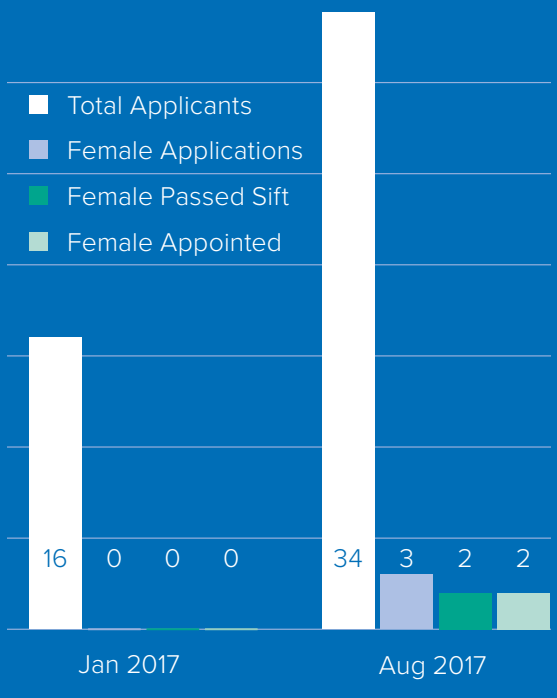
The VCA have worked collaboratively with Harvard Business School to produce a less corporate job advertisement, including a reduction in the use of masculine language. This is to appeal to a new generation of engineers without undermining the importance of knowledge, experience and technical expertise in the role.

Specialist software was used to review and edit the wording to ensure there was a balance between male and female language. Whilst the paid media advert focused on the candidate and the opportunities for professional development and international travel or placements, which had not been alluded to in previous adverts.

A targeted social media campaign was used through media partner's SNAP programme to increase engagement. Alongside this the VCA directed advertisement towards specialist publications and more generic job boards to extend the reach as far as possible.

The result demonstrated a great level of success: the recruitment campaign attracted its first female applicants and two female candidates were successfully appointed to the roles. There was an increase of over 100% in the total number of applicants compared to the previous similar campaign.

VCA Type Approval Engineers



34 Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality. Journal of Personality and Social Psychology.

Selection processes

5.26 Recognising unconscious bias in recruitment and selection, specifically in the interview process is key to removing barriers to employment. It is important to address this accordingly, through appropriate measures in the recruitment processes.

5.27 Blind recruitment is a useful mechanism to overcome such bias by removing all protected characteristics from the application stage. HS2 have had particularly impressive results in this area, having increased female shortlisting from 17% to 47%.

5.28 However, blind recruitment will have a reduced impact if unconscious bias is allowed to return at the interview stage. Organisations can overcome bias and bring about positive change by employing a diverse set of interviewers. For example, women are much more likely to join a company when they can interact with other women who are already there, and can testify to a company's commitment to diversity.

5.29 To further overcome biases, interview teams should evaluate candidates on a predetermined set of criteria, using processes such as skills sifting.

5.30 It is also important to consider on-boarding mechanisms. Schemes such as buddy mechanisms and reverse mentoring can be effective. Recent candidates feeding back into the recruitment process can also help to ensure continuous improvement.

HS2's outcomes around recruitment of current apprentice cohort

HS2 will support 25,000 jobs, including 2,000 apprenticeships, through the construction and operation of the new high speed railway. Head of Skills, Employment and Education at HS2 Ltd, Kate Myers says the company wants to create the most diverse workforce in British infrastructure – not just at HS2 but across the whole supply chain.

"HS2 is a champion of equality, diversity and inclusion (EDI) in recruitment strategies, and we see this as key to getting the best people in the right jobs. By introducing new recruitment processes we can change perceptions, reach a wider talent pool and make sure that HS2 is built by people as diverse as the population it serves."

The first cohort of apprentices at HS2 were recruited through 'blind auditioning', which removes the CV or application form entirely and replaces it with skills-based assessment derived from the job description. Methods include online, anonymous technical assessments which directly test the key skills required for the role. By introducing objectivity into the recruitment process, this ensures shortlisting is based on ability rather than anything else.

Outcomes of blind auditioning were extremely pleasing. The process resulted in the current apprentice cohort being 44% women, 36% BAME and 8% over 30. And importantly, feedback from the apprentices was very positive – they felt they were judged on their aptitude for the role rather than previous experience.

The blind recruitment model is now being researched and adopted by companies in the HS2 supply chain that are also committed to rebalancing opportunities for, what have historically been, underrepresented groups in the industry.

Kate Myers,
Head of Skills and Employment (HS2)

Retaining and progressing talent

5.31 Supportive workplaces contribute to the likelihood of keeping under-represented groups within the workforce.

5.32 Workplace schemes that support those returning to work after a career break, networking and mentoring are all seen as beneficial in terms of retaining talent within an organisation.

5.33 In June 2017 Highways England launched its first returners programme. The programme was aimed at attracting people who had taken a career break of two or more years and who were looking to come back into the work place at middle to senior level.

5.34 Employers will also need to ensure that a culture is in place that visibly supports progression through the organisation for under-represented groups. STAT members carry out a number of initiatives to provide targeted support where it is shown to be beneficial to encouraging a more diverse workplace.

5.35 Employers are also encouraged to conduct exit interviews to understand the reasons why employees choose to leave the organisation. This allows employers to identify and take action to address any working practices and behaviours which can prevent under-represented groups from staying and progressing within the sector. Collecting such information will further enable the analysis of data to understand any differences in why men and women leave an organisation.

"The Returners Programme has given me the chance to return to work in a challenging role without having to apologise for, or attempt to disguise my career break"

Diane Foster-Jones,
Programme Management Office (PMO) Manager

Highways England returners programme

Highways England received 90 predominantly female applicants for the returner's programme, of which 20 were shortlisted for assessment stage.

With a focus on transferable skills, there was no pre-requisite for experience within a specific industry or role. Instead, interviews centred on alignment to Highways England's values, allowing candidates to showcase how they could add value and help Highways England to deliver on its objectives as an organisation.

14 candidates were hired during the process and placed into roles across three business areas – a higher than average conversion rate at assessment stage.

Over the course of the six-month programme, returners received dedicated support from within HR to aid them in settling back into the workplace in addition to coaching sessions and support from a mentor from within the business. At the end of the programme, all 14 of the returners remained in the business either in a permanent capacity or on a fixed term basis.

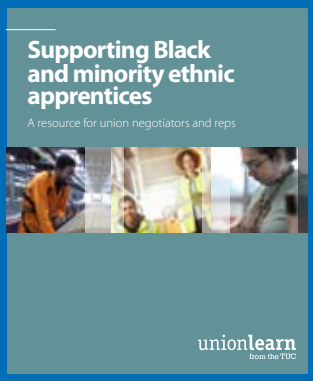
Trades Union Congress (TUC) Equality & Diversity Guides for Union Representatives

The learning and skills arm of the TUC, Unionlearn, is producing a series of three guides for workplace union representatives to help them boost the opportunities for certain groups facing unfair barriers when it comes to accessing high quality apprenticeships. The identified groups are: disabled people, BAME groups and women.

Each guide covers a range of areas where union reps can make a real difference, including negotiating good quality apprenticeship programmes with employers that include a clear focus on arrangements to support more disabled people, BAME groups, and women to successfully apply. The guides also address the different forms of support that union representatives in the workplace can offer to people from these groups to help them complete their apprenticeship and progress to sustainable well-paid employment.

The first guide, covering disabled people, has already been produced – it is available on the Unionlearn website and hard copies can also be ordered at no cost (**www.unionlearn.org.uk/publications/accessible-apprenticeships**). The guide covering BAME apprentices will be available later this summer and the guide covering gender issues is scheduled for production later in the year.

The union role in widening participation in apprenticeships is also a central feature of a new edition of Unionlearn's comprehensive Apprenticeships Toolkit. Some of the TUC's affiliated unions have produced their own branded versions of this toolkit, including those with coverage in the transport and infrastructure sector, such as RMT and Unite.



TUC Equality and Diversity Guide for Union Reps

Improving social mobility

5.36 In response to the commitments laid out in the STAT One year on report, STAT members are working together to identify and pilot initiatives that will promote social mobility.

5.37 There is a seemingly entrenched correlation between social class and success. According to the social mobility foundation[35] just 4% of doctors, 6% of barristers and 11% of journalists are from working class backgrounds, with further significant regional variations. This represents a clear misuse of the diverse and talented workforce that is available.

5.38 There is untapped potential across the UK, with employers' standard recruitment practices often unintentionally excluding talented individuals who may not have attended a good school, university, have the right contacts or cannot afford to work unpaid in internships which may lead to future employment.

5.39 Apprenticeships can act as an essential tool for social mobility, and, as highlighted in the One year on report, STAT wants to make sure that an apprentice can start work at a junior level and to finish their career in a senior role.

5.40 Within our member organisations, Skanska has been ranked at number three of the top 50 employers in the UKs first-ever Social Mobility Employer Index (2017).

Skanska is a top 50 employer for social mobility

The Social Mobility Index ranks Britain's employers on the actions they are taking to ensure they are open to accessing and progressing talent from all backgrounds and showcases progress towards improving social mobility in the workplace.

Skanska is the only construction and development company to feature in the Index, with an overall rank of three, for its', 'Experience Skanska' programme, which has been created to tackle social mobility and to bring much needed skills to the industry.

'Experience Skanska' enables those that may be disadvantaged or from different socio-economic backgrounds to join Skanska through a tailored work placement. This includes those not in education, employment or training (NEETs), offenders, ex-military, those with a disability, apprentices and people returning from a career break of two years or more, which can be for a number of reasons such as to have a family or after recovering from long-term illness.

35 www.socialmobility.org.uk/wp-content/uploads/2017/11/SMF-Annual-Review-16-17.pdf

What have we been doing?

5.41 There are a number of encouraging initiatives underway through STAT member organisations and their supply chains. The following examples, whilst by no means exhaustive, provide an overview of some of the activities STAT members are undertaking. This will help to build a body of expertise and best practice within the industry that other employers can draw upon in promoting social mobility in their organisations.

Permanent Secretary, Department for Transport Bernadette Kelly leads from the front on social mobility as the Civil Service Social Mobility Champion.

"I joined the civil service more than 30 years ago as a Birmingham-born daughter of a bus driver. I think it's a bit of shame if people still feel they need to fit into the prevailing norm instead of being proud of who they are"

Bernadette Kelly
The DfT Permanent Secretary

5.42 Pre-apprenticeship schemes help to facilitate movement into apprentice starts, and work is already ongoing at TfL, the TUC, Heathrow, Network Rail and NSAR. However there is more work to be done by the transport sector.

5.43 The Heathrow Employment and Skills Academy set up in 2004 has been a crucial factor in helping local people to gain and sustain quality employment and training. A team of skilled recruiters, account managers, trainers, assessors and mentors work to change lives and inspire everyone to grow, from entry-level candidates to experienced professionals.

Heathrow Airport's pre-employment training

Working with Job Centre Plus and other key employment agencies as partners, Heathrow Airport's pre-employment training begins with a seven-day pre-employment course in Workskills and Construction. This has seen a number of local people facing multiple barriers to employment achieve a level 1 certification, gaining a Construction Skills Certification Scheme (CSCS) card for construction and finding work at the Airport. Candidates come from a diverse set of backgrounds, such as learning difficulties, disabilities, mental health issues, and homelessness; with many others lacking in confidence and experience preventing access to the workplace.

Nyomi for example attended the pre-employment training course and has now secured a role with World Duty Free. She has since progressed onto a level 2 retail and now a level 3 in customer service. Dwayne has learning difficulties and struggled with confidence and performing at interviews. The pre-employment training helped him overcome these barriers and is now working full time with WHSmith.

Colleagues at the Academy have experienced young people with qualifications struggling to access employment due to lack of quality careers advice in schools. One candidate with a 2:2 in mathematics thought the only sector open was finance. After two years of trying to find employment, Ahmed was introduced to the Academy who advised him that with a mathematics degree, any job, any sector is open. Ahmed is now completing a quantity surveying apprenticeship with Morgan Sindall at the Airport.

The Academy supports over 500 people per year with pre-employment training with a 50% conversion to employment at the airport. Additionally, the Academy delivers a range of apprenticeships from level 2 to 7 across multiple sectors such as engineering, retail, hospitality, logistics, construction, business administration, team leading and management.

Since inception, an estimated £13,579,800 savings to the public purse have been generated as a result of the Heathrow Employment and Skills Academy.

5.44 Beyond this, there are great examples of schools and outreach in deprived areas with 'Moving Forward' by TfL, engagement with state funded schools along the route of HS2. There are also schemes that support those with disabilities (TfL); work with the Social Mobility Forum (HS2); utilise Union engagement (TUC) and work with military and ex-offenders (TfL, Crossrail).

TfLs ex-offenders programme pipelining into apprenticeships

The TfL Early Careers recruitment team have been developing and delivering a smart sourcing ex-offender strategy that has a direct link into apprenticeship hire. Partnering with the charity Working Chance, TfL has successfully hired two candidates; one onto the Quantity surveying scheme and one onto the Track renewal scheme.

From this, TfL have broadened their remit to begin developing a strategy of working directly with prisons. In April 2018, Her Majesty's Prison, Brixton was engaged with, to identify candidates that would be suitable for the level 2 Engineering apprenticeship scheme, starting September 2018. To enable this, a detailed risk assessment was developed that could be applied to inmates to identify their level of risk.

HMP Brixton identified 33 candidates that met the required criteria, which were then subjected to the risk assessment. Once reviewed, a total of 20 candidates were selected to attend workshop 1.

Outcomes

On 29 May 2018, TfL ran an assessment centre in HMP Brixton with the three candidates that had passed all previous stages. All three candidates performed extremely well, and met the assessment centre benchmark and will be considered for offers. One of the candidates scored higher than any other candidate assessed externally. This is a true reflection of how impactful TfLs employability workshops are to ensuring success for candidates.

TfL Steps into Work

The year long programme combines work placements, job coaching, and vocational study, towards a BTEC level 1 Work Skills qualification for up to a maximum of 12 students per year (24 students from January 2019).

The primary aim is to help TfL's candidates to develop the employability skills required to secure a paid job. The programme is based in Central London (Zones 1 – 2) with the vocational study, job coaching and work placements all delivered on site at TfL locations across the city.

Outcomes

An average of 83% of student alumni from the 2015 and 2016 cohorts are now in paid employment, whilst the figure for the most recent cohort which completed in December 2018 is currently sitting at 33%.

It was on the basis of these employment outcomes that plans to expand the programme to a maximum of 24 students across two cohorts per year have been endorsed.

What the students say

Six months ago, current student Eva Gibbs had lost all hope of finding a job. Today Eva, who has autism, is brimming with confidence and is optimistic about her future. Eva said:

"After university I went to interview after interview and never got anywhere. Nobody wanted to give me a chance. Being part of Steps into Work is a dream come true."

TfL Ambassador Manager Susan Jackman is supervising Eva on her work placement and said:

"Hosting a student is very rewarding. You really see them grow in confidence over time."

5.45 In the transport supply chain, STAT has seen promising examples which address a range of issues facing those seeking employment. Kier's S-Skills for Highways is an innovative partnership between Surrey County Council, Kier and Brooklands Motor Museum which brings vulnerable people furthest from employment into the workplace through a supported programme. The cohort consists of those not in education, employment or training (NEETs) or those with special educational needs, and enables participants to carry out basic highway works in the community.

KIER

Kier's S-Skill for Highways

The current model supports 24 candidates per year, in three cohorts, engaged in meaningful work, giving the right balance of sustainability and benefit for the local authority. S-Skills use a strengths-based assessment to bring candidates onto their programme and determine whether their interests and career goals are a good match for an opportunity in highways.

S-Skills applies the principles of restorative practice to helping assess the needs of young people on their programme and to support progress. This means working with participants to recognise any setbacks or difficult situations they have faced in the past and to understand how to respond.

Freddie's Story:

"Since a young age I have been aware of my conditions, which consist of attention deficit disorder (ADD), autism, dyslexia and dyspraxia. These cause problems with learning and concentration and have a big impact on my work.

I was offered the chance to enrol on the Kier S-Skills programme at Brooklands Museum at the beginning of 2017. After completing the two-week programme, I was hoping to be offered a job on the roads. However, I was offered the opportunity of work experience then a job in The Control Hub at the Surrey contract. I would never have thought that I would enjoy a job in an office.

Since I started at Kier I have had more confidence with the people I work with and enjoy learning about my role. I am learning how to apply knowledge I learn at college into my work. This will help me gain a professional qualification and look to further my development in a working environment."

STAT's Social Mobility Working Group

5.46 Building on the work highlighted to date and recognising our ability to improve, STAT formed the Social Mobility Working Group to identify the areas of work that will best support social mobility in the industry and further encourage employers to support work in this area.

5.47 Members have worked to agree a common definition of social mobility to inform future work and to ensure that efforts contribute to a shared goal across member organisations. The agreed definition is *"The provision of accessible and quality opportunities for all that enable progression in the Transport and Infrastructure sector"*.

5.48 To drive this work forward, the STAT social mobility working group is embarking on a programme of work that will:

- identify and share areas of good practice in the industry;
- identify barriers/risks around deliverability and review how these are mitigated;
- identify how we can influence the broader supply chain (including SMEs);
- identify opportunities for STAT to improve social mobility across the sector; and
- raise awareness of the challenges of social mobility across the transport sector.

5.49 In the immediate future, members have agreed to develop a pre-apprenticeship toolkit, for use by other employers undertaking activity in their own organisations.

5.50 This toolkit will follow examples such as Steps into Work, an employability programme that supports individuals aged 16 or above with mild to moderate learning disabilities.

STAT's commitments

STAT will:

- use its collective experience in driving social mobility forward, to develop and pilot a pre-apprentice scheme, with a longer term goal to develop a toolkit for use by other employers;
- seek to increase our understanding of BAME representation across the sector through a refresh of NSAR's diversity survey. Continue our progress in increasing BAME representation in our workforce and work towards greater representation of BAME candidates;
- work towards improving our understanding of how we retain apprentices and their career progression within the industry; and
- recognise the need to do more to ensure we move the dial in regards to gender diversity. We will seek to roll-out collaborative approaches to drive improved diversity through our supply chains. Tracey Worth from the Institute of Couriers will be leading this work and will set out more detailed plans in the autumn.

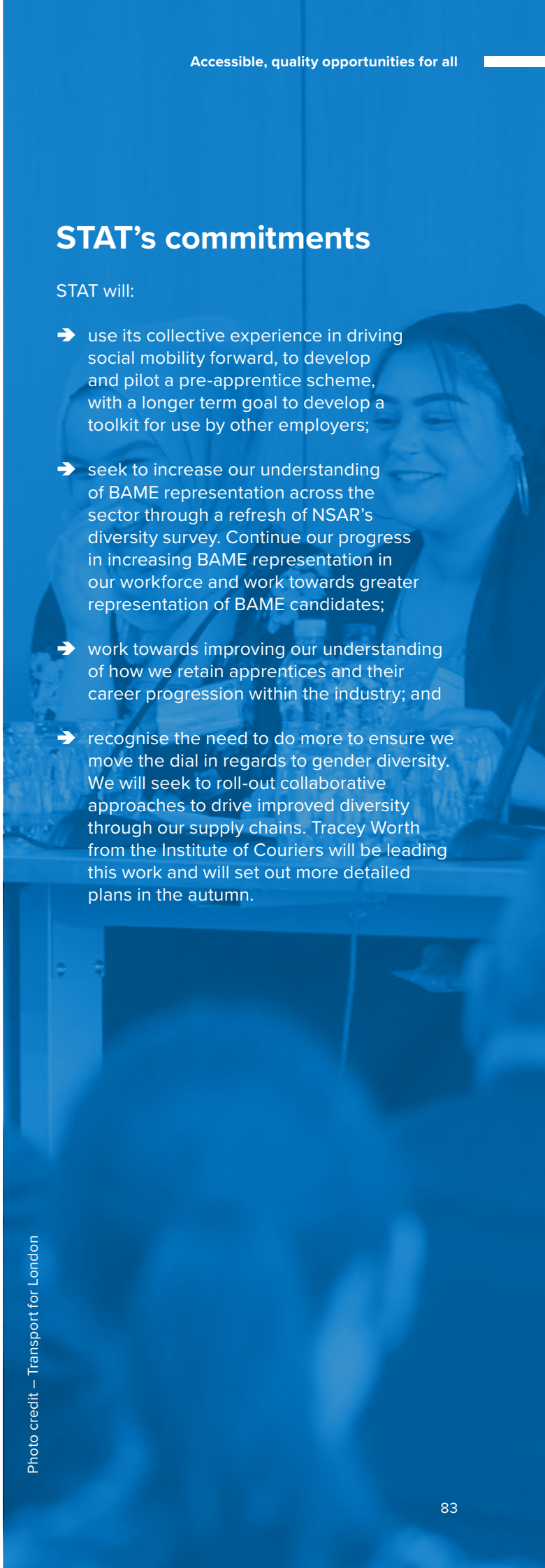


Photo credit – Transport for London

6

Inspiring the next generation

"As research shows that young people make their minds up early about their future careers, young people, their parents and teachers need to understand the opportunities in transport."

Reforms being led by the Department for Education (DfE) encourage employers to work more collaboratively with education providers to give an introduction to the world of work and to set out the range of jobs and training on offer to young people.

Research shows that young people make their minds up early about their future careers. There are a number of programmes underway to help young people and their influencers to understand the opportunities in transport.

STAT members are working as part of the Year of Engineering 2018 campaign to showcase engineering to 7 to 16 year olds and on ensuring a legacy for transport in future years.

Photo credit – Ahead Partnership

The opportunity for greater engagement with education providers

6.1 As the TISS sets out, reaching children early is vital to overcoming their stereotypes about work environments.

6.2 Face-to face activity can broaden aspirations and address outdated perceptions about the types of jobs and roles available in the transport sector. This will be critical as the industry further embraces emerging technologies, artificial intelligence and automation.

6.3 A number of key policy initiatives have been announced or further developed over the past year. Radical reform of the post 16 education landscape is underway with the development of T levels, a technical alternative to A levels, which will offer students a substantive work placement within industry as part of their learning. Reform presents opportunities and challenges for employers, and it will be vital that employers are well supported to develop inclusive, meaningful and inspiring placements.

6.4 The Careers Strategy[37] provides a framework for improvements to careers information and advice for young people in secondary schools. This will provide an updated and more holistic picture of jobs and training. It will be of great importance that those working in education are well informed about the breadth of opportunities within the transport sector.

6.5 There are many examples of good practice in engagement with young people through education providers, some of which are featured in this chapter. It will be important to continue these efforts in future, and to build an understanding of what works to ensure that such activity meets the needs of employers, schools and participants alike.

Skanska takes over a school for the day

South Bank Engineering University Technical College[38] (UTC) is an engineering-focused school for 14–19 year old students in Brixton. More than 60 Skanska UK employees took over the UTC and set a bespoke curriculum for the day, involving activities designed to give students a taste of some of the challenges facing industry and help prepare them for working life.

Business one-to-ones and mock assessment centres helped to prepare students for their first step to a construction career and provided them with valuable advice and feedback on their CVs.

A climate change workshop raised awareness of what it means and provided an insight into the students' own impact on carbon emissions. Students got to grips with some of the latest construction-related technology through a digital and innovation exhibition.

Adam Crossley, who organised the day, said:

"The feedback from students and teachers following the event has been incredible. It has been a truly rewarding experience for the whole Skanska team and a great example of education and industry working together to close the skills gap."

37 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664319/Careers_strategy.pdf
38 http://southbank-utc.co.uk/

6.6 In DfT, Ministers are working with independent education experts to identify ways to encourage transport employers across the country to undertake educational outreach activity. This work will be informed by research to identify motivations and barriers for employers, and is due to be completed later this year. It will complement work already underway to raise the visibility of jobs and training in transport, attract underrepresented groups, and inspire young people and their influencers to consider jobs with a more science or technology focus.

6.7 Some employers are evolving schemes already in place to respond to specific skills challenges. TfL's 'Innovate schools challenge' in association with Cleshar, is one such scheme. Young people in years 12 and 13 (aged 16 +) are asked to consider what transport innovation they would develop to improve life in London, giving them the opportunity to develop skills for their next steps in life. The scheme aims to address social mobility and to encourage more girls to choose STEM subjects.

6.8 The TfL initiative challenges participants to work in teams to develop an innovation to meet the Mayor of London's transport priorities. They produce a filmed presentation, a short advertisement and a design concept. During the Year of Engineering, HM governments campaign to inspire the next generation of engineers, the top four teams were invited to present their ideas to senior representatives from government, TfL and business. All the finalists gained work experience with TfL.

6.9 In 2017-18, 44 schools (a 131% increase on the previous year), colleges and youth groups registered to take part in 2017-18, including eight girls schools. This year over half of the schools taking part had higher than the London average number of pupil's eligible for free school meals. All types of schools, colleges and youth groups throughout the UK are welcome to participate but London girls' schools and those with a high percentage of pupils on free school meals are specifically targeted. This year the four finalist teams are the first gender balanced intake of 'Innovate' work experience students.

Winners of the TfL's Innovate Schools Challenge in association with Cleshar

Year of Engineering

6.10 The Year of Engineering 2018 is a HM government's campaign led by the DfT, to inspire the next generation of engineers in the UK. The campaign's objective is to widen the pool of young people who would consider engineering as a career to help address the engineering skills gap. It also aims to improve the diversity of a profession which is currently 91% male and 94% white.

6.11 The campaign has attracted around 1,400 partners ranging from businesses including Apple and Lego education and the voluntary sector. Partners have come together with the aim of offering 7–16 year olds at least one million direct experiences of engineering and encouraging young people, their teachers and families, to take a closer look at engineering.

Year of Engineering transport campaign highlights calendar

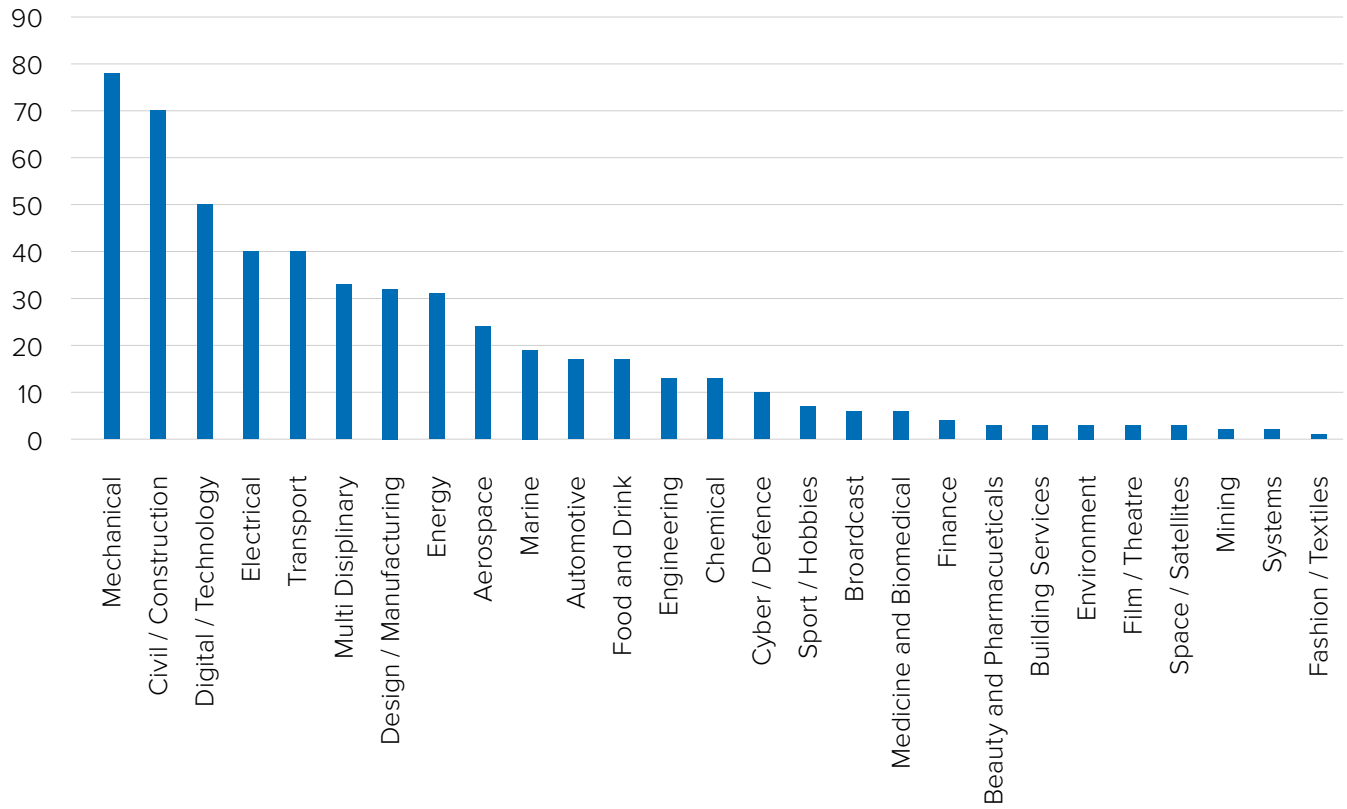
	January 18	February 18	March 18	April18	May 18	June 18
YoE themes	The YoE is here	Creativity and inspiration	Routes into Engineering	Engineering: improving lives	Engineering and the environment	Engineering in sport
YoE activity for schools across year	➔ RAF 100 ➔ 2018 for 2018 – getting 2018 maritime engineers into schools ➔ Crossrail 'behind the hoardings' open day events ➔ Mars rover space centre – Airbus, Stevenage ➔ Subs for schools – imarest schools kit to build their own submarine ➔ 1851 Trust, Ben Ainslie Racing, Tech Deck & educational workshops					
Confirmed activity from YoE partners	Department for Transport SMarT plus annouced	MARITIME UK Inaugral Women in Maritime Taskforce meeting	Department for Transport International Women's Day Apprenticeship Week Big Bang Fair Being Brunel new visitor centre at SS Great Britain London Transport Museum Digging Deeper gallery opens	NetworkRail Rail – Engineer a Career Campaign Rail industry social media improving lives month highways england Highways England bring your child to work day	NetworkRail London Bridge station opening Trinity House Inspire the Future Mariner – Ministerial event TfL stem careers showcase at Sandhurst SOS visit A1 Leeming-Barton stakeholder roundtable with engineers	seafarers AWARENESS WEEK 23-30 June 2018 Seafarer awareness week Women in Engineering day National College for High Speed Rail 1st graduates Rail Delivery Group careers forum Crossrail annual report Hs2 – High Speed Rail leaders conference Hs2 skills strategy

6.12 There has been an enthusiastic response from the transport sector, with over 100 organisations pledging their support for the campaign. Key sector groups and organisations, from the Transport Communications Network and Routes into Rail have contributed to a Year of Engineering calendar of transport themed events and activities to inspire young people.

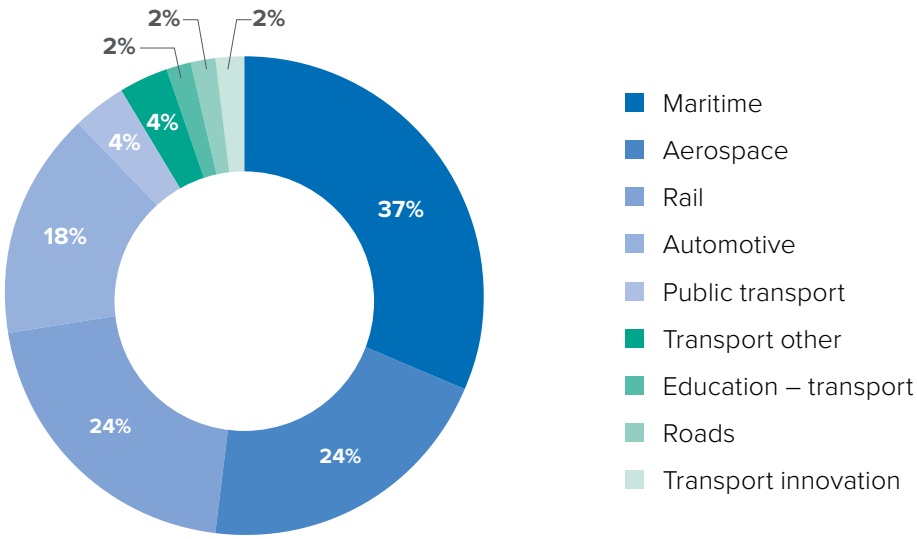
July 18	August 18	September 18	October 18	November 18	December 18
The summer of Engineering		Back to school	Engineering: shaping the future	Tomorrow's Engineers	YoE legacy and next steps
Imarest sub race Farnborough Air Show – Futures Day + launch Summer of Engineering LET open house Rail holiday clubs: station events: competitions HE open door events TfL open days	Royal International Air Tattoo Formula Student competition Silverstone London Transport Museum open days Rail colouring book competition and NR station events HE – 50th anniversary Spaghetti JCT lego exhibition	Electric vehicle summit and Cenex annual event Severn Bridge feature Elizabeth Line activity TfL acton depot open weekend Rail industry locomotion world record attempt Kings Cross	Rail week Future engineer exhibition National Rail Musem York 150th Anniversary St Pancras event 1851 Tech deck workshops World Space Week	Euro Bus Expo Tomorrow's Engineers national rail safety competition National Skills Show NEC	Opening of Elizabeth Line 150th anniversary first traffic light (replica for ltm) NR awards ceremony Thameslink programme work ends

6.13 Representation from maritime, road and rail organisations has been particularly strong. The rail sector has been very effective in co-ordinating its approach and has developed a shared activity plan. Maritime has established a co-ordination group for a new Year of Engineering-inspired campaign to encourage STEM outreach.

YoE engineering company partner breakdown



YoE Transport partner breakdown (107)



6.14 The Year of Engineering team is working to promote its message with transport partners at large set piece events across 2018 such as the opening of London Bridge station, Crossrail and the anniversary of St Pancras station.

6.15 Year of Engineering branding and themes are also being communicated by key partners such as HS2 and Highways England at large-scale events such as the Big Bang Fair, Farnborough Air Show, the World Skills Show and others to reach large numbers of young people and their families. There are also numerous open door events such as Crossrail's, Behind the Hoardings, and TfL's depot visits that highlight transport engineering careers.

6.16 A key part of the campaign is raising awareness amongst young people via schools engagement. The best educational resources developed by transport partners such as Gatwick Airport, British Marine, the Sea Cadets, British Tunnelling and the Rochester Bridge Trust have been incorporated into the schools section of the Year of Engineering website which is being promoted to 50,000 schools on a monthly basis.

6.17 The DfT Year of Engineering team is encouraging transport partners to build links with local schools to give young people direct experiences of engineering. Partners, including TfL and Highways England, provided case studies and role models for the website, social media channels and wider communications to promote inspiring stories of young engineers from the transport sector, particularly women and apprentices from diverse backgrounds. HS2 has created a video channel specifically for these stories.

6.18 The calendar of transport sector events shows the creative ways multiple employers across the sector are providing these direct experiences of engineering. 14,000 Sea Cadets around the country have access to mobile units, "pods", bringing direct and practical experience in marine engineering to their doorstep.

6.19 The six pods are supported by national charity, Seafarers UK, and visit schools and careers fairs across the country. Each pod comes equipped with specialist engineering equipment, learning materials such as lesson plans and trained instructors, who explain basic engineering principles and help young people to decide if engineering might be for them.

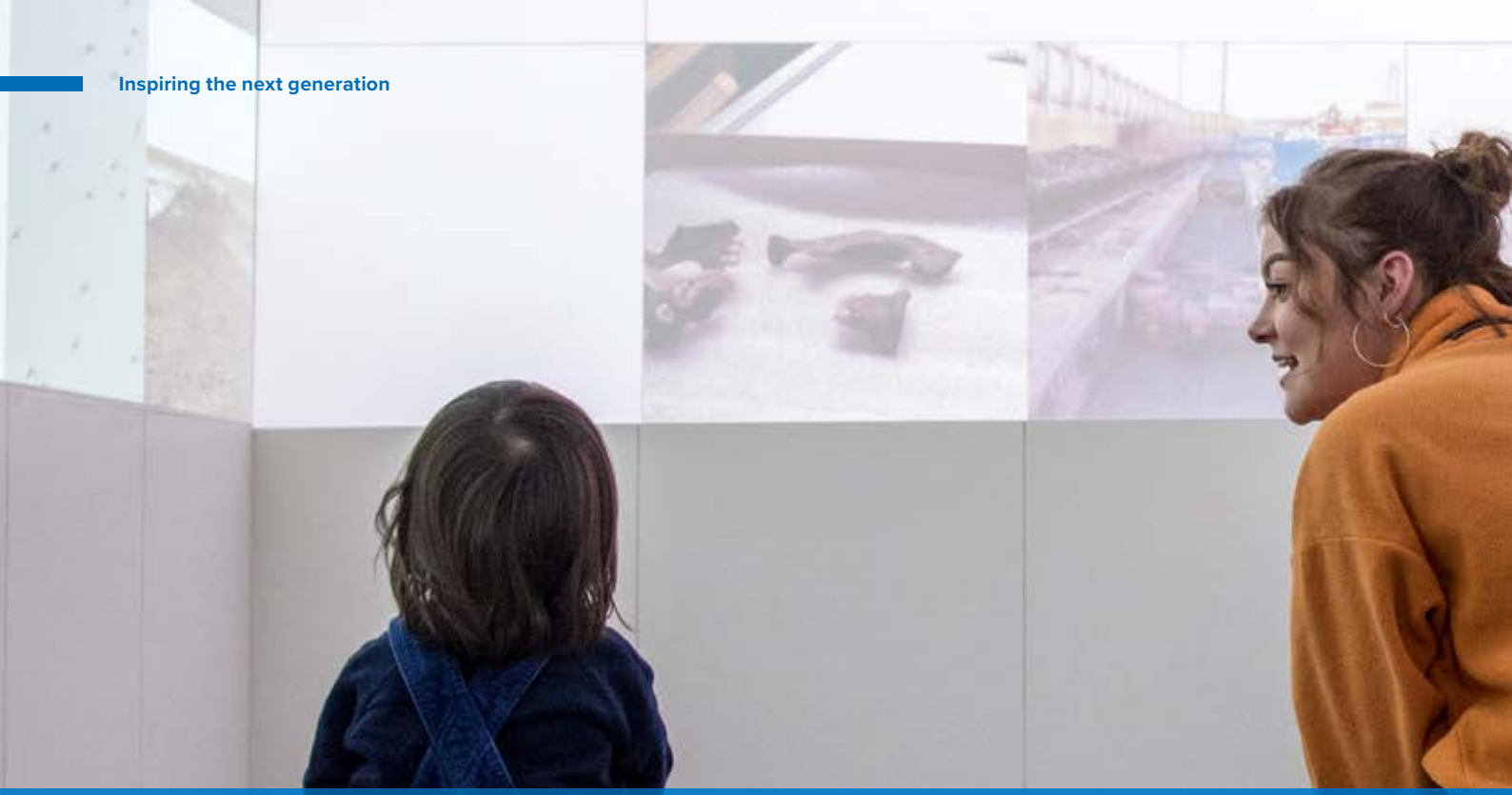
6.20 There is a three-year plan to reach 7,000 young people across the UK with information about careers in marine engineering. The project also involves training 30 volunteer instructors, ensuring the long-term sustainability of the project.

Photo credited – Seafarers UK and Sea Cadets

6.21 Employers have looked at creative ways to reach their target audiences with messages about engineering and the transport sector. A team from Amey used links with the Girl Guide Association and spent the last 12 months developing a unique engineering badge to raise awareness of engineering career options and bust myths that girls may hold.

6.22 The badge is specifically linked to the rail and highways sectors and the team has developed a leaders' pack with resources and activities the girls can complete to earn their badge. The pack is available to any Amey employee with links to the Guide Association across the UK, therefore giving a potential reach of up to 400,000 Guides, Brownies and Rainbows (5-14 years old).

6.23 A formal evaluation of the Year of Engineering including the transport sector's contribution and impact will be completed in early 2019. The process of identifying what has been most effective and establishing a longer term legacy for the Year is ongoing. Working with the transport sector, DfT's Year of Engineering team will review activity and set out a plan to build on momentum and capture best practice. This will be a helpful resource for employers and other organisations who are working on their own programmes of activity.



Sector engagement programmes

6.24 Beyond engineering, there are a number of engagement initiatives and programmes being run across the transport and construction sectors to encourage more young people to consider jobs and training in the industry. Examples below show the breadth of work taking place in this area.

6.25 The highway industry, led by Highways England, is delivering a number of key initiatives to support sector engagement. It is building sustainable relationships with schools in close proximity to the Highways England regional offices and using its current graduate and apprentice cohorts to deliver invaluable outreach work in schools, speaking with pupils about the life of an apprentice or graduate in the highways industry. This is accompanied by senior leadership from Highways England visiting students to share their career journeys.

6.26 The Merchant Navy Training Board's (MNTB) Careers at Sea Ambassadors are industry experts who work to inspire young people on the exciting opportunities available to them in the Merchant Navy. Challenges, opportunities, unforgettable moments and day-to-day activities are set out by trained Ambassadors who give a first-hand account of life at sea and beyond.

6.27 The Ambassadors visit local schools and colleges, delivering inspiring presentations relating to life in the Merchant Navy. Through school career open days, one-to-one group talks and careers events, ambassadors explain the various entry routes into a maritime career and the training courses available.

6.28 The rail sector is coming together to promote the sector and attract talent as one industry. It is currently in the process of setting up a promotion and attraction programme that will be supported by a campaign, a centralised web portal for careers in rail and any outreach activities in the regions and by encouraging rail businesses to join the programme.

6.29 In December 2017, Leeds City Council commissioned the Ahead Partnership to design a suite of high speed rail and transport infrastructure-related careers information to pilot in three local schools.

6.30 As part of proof of concept testing for the ambitions of the Leeds City Region HS2 Growth Strategy – Skills and Supply Chain. For the purpose of the pilot, it was decided that the materials would be implemented around the concept of a 'Station Design Challenge'.

6.31 Three schools in Leeds were invited to take part in the pilot, with 320 students in years 7 and 8 benefitting. The project was supported by volunteers from Arup, Ramboll, and Pinsent Mason.

6.32 Materials were developed for students and teachers to raise awareness of careers in HS2 and the wider transport infrastructure industry; to highlight career paths including qualifications and progression pathways and ensure a strong representation of young women.

6.33 Programmes like these not only help employers address skills gaps and shortages, but respond to the challenge to help young people understand more about the workplace and the skills they will use as part of their future jobs. They can encourage groups who are less well represented in the transport sector and in science and technical roles more widely to consider jobs and training in transport.

STAT's commitments

STAT will:

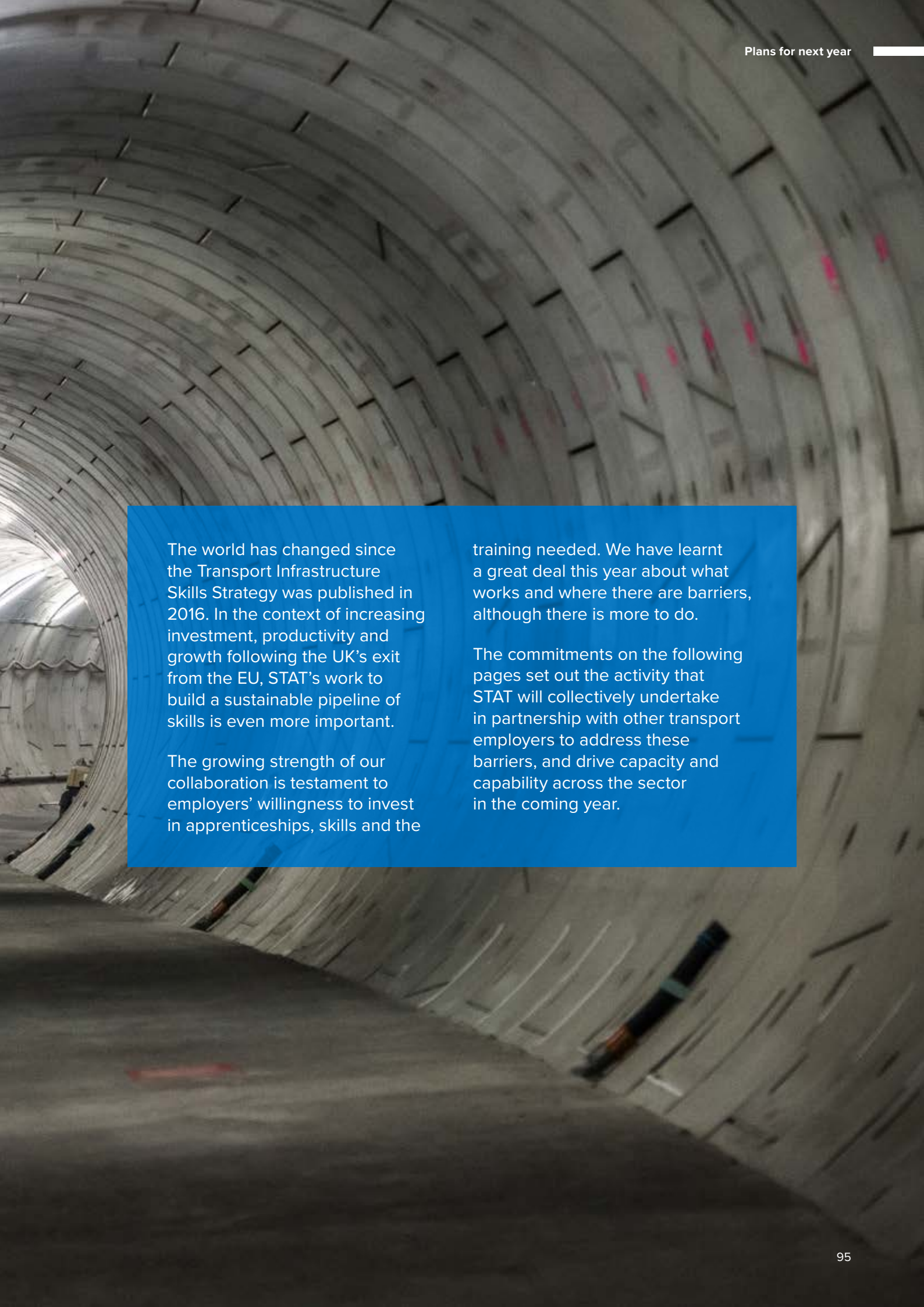
- ➔ continue to play an active role as part of the Year of Engineering and work being developed to evaluate its impact, to develop a picture of good practice for employers across the sector;
- ➔ consider how the momentum and enthusiasm in the industry can be maintained beyond 2018, to support better, sustainable promotion of transport jobs and training to young people in education; and
- ➔ encourage more people working in transport to volunteer to take part in outreach activity in schools, colleges and other educational establishments, to encourage more young people to consider a career in transport.

Photo credit – Ahead Partnership

7

Plans for next year

"Continuing its success to date, STAT will work to drive capacity and capability across the sector over the coming year."



The world has changed since the Transport Infrastructure Skills Strategy was published in 2016. In the context of increasing investment, productivity and growth following the UK's exit from the EU, STAT's work to build a sustainable pipeline of skills is even more important.

The growing strength of our collaboration is testament to employers' willingness to invest in apprenticeships, skills and the training needed. We have learnt a great deal this year about what works and where there are barriers, although there is more to do.

The commitments on the following pages set out the activity that STAT will collectively undertake in partnership with other transport employers to address these barriers, and drive capacity and capability across the sector in the coming year.

STAT's commitments for 2018/19

STAT will:

- continue to work with its member organisations and with government to support the wider strategy to increase productivity and growth underpinned by sustainable skills; and
- continue to consider the impacts of the UK's exit from the EU on the transport workforce and respond accordingly within its remit as the outcome of negotiations becomes clearer.

Capacity and capability

STAT will:

- keep its understanding of skills needs up to date through the NSAR forecasting model and consider how the model might reflect the wider sector; and
- continue to use our convening power to support the development of quality trailblazer standards where there are gaps; upskill the existing workforce, as well as to work to attract new entrants.

Photo credited – RDG

Investing in skills

STAT will:

- keep contractual requirements and reporting under review to ensure they remain appropriate and effective;
- through its shared apprenticeships steering group and facilitated by NSAR with Skanska, work with employers to develop pilots for appropriate model schemes. Pilots will be led by TfL and CECA with BAM Nuttall, Balfour Beatty and the HTMA;
- promote commercial models which support closer working with the supply chain as a way to facilitate collaboration on skills and increase productivity;
- work with other levy paying transport employers to make a strong case to government for levy funds to be used to support initiatives that will help to develop a pipeline of apprentices into the sector.
- continue to assess the impact of apprenticeship levy transfer rules on driving funding of apprenticeships in supply chain organisations, motivating for change where this would help smaller employers to invest more in skills and apprenticeships.

Future skills

STAT will:

- work to engender a greater understanding of the labour and skill levels required in order to support the government's presumption for offsite construction and the use of emerging technologies to support productivity. We will send a strong signal to market that it is important to gear up for these potentially transformational changes;
- work with others to develop and promote a client strategy for adopting modern methods of design, maintenance and construction. To support this we will:
  - encourage employers on trailblazer groups to develop apprenticeship standards which are future proofed, whilst recognizing the need to maintain skills for a legacy infrastructure;
  - use our convening power to bring together key representation across the sector, to support the development of skills in innovative technologies to improve productivity and efficiency; and
  - encourage employer engagement with FE, particularly in improving the quality and knowledge of trainers in this field, and to develop high quality programmes. We call for the CITB to review FE provision and to develop a train the trainer programme in offsite construction specifically.

Accessible, quality opportunities for all

STAT will:

- use its collective experience in driving social mobility forward, to develop and pilot a pre-apprentice scheme, with a longer term goal to develop a toolkit for use by other employers;
- seek to increase our understanding of BAME representation across the sector through a refresh of NSAR's diversity survey. Continue our progress in increasing BAME representation in our workforce and work towards greater representation of BAME candidates;
- work towards improving our understanding of how we retain apprentices and their career progression, within the industry; and
- recognise the need to do more to ensure we move the dial in regards to gender diversity. We will seek to roll-out collaborative approaches to drive improved diversity through our supply chains. Tracey Worth from the Institute of Couriers will be leading this work and will set out more detailed plans in the autumn.

Inspiring the next generation

STAT will:

- continue to play an active role as part of the Year of Engineering and work being developed in evaluating its impact, to develop a picture of good practice for employers across the sector;
- consider how the momentum and enthusiasm in the industry can be maintained, beyond 2018, to support better, sustainable promotion of transport jobs and training to young people in education; and
- encourage more people working in transport to volunteer to take part in outreach activity in schools, colleges and other educational establishments, to encourage more young people to consider a career in transport.

Annex A – Trailblazer Standards

The tables below show standards under development and approved since STAT's inception, where STAT member organisations have been involved in trailblazer committees.

New Trailblazer Standards approved for delivery
Level 7
Postgraduate engineer (degree) – industry wide
Systems engineering masters level – industry wide
Rail & rail systems principal engineer (degree) – rail
Level 6
Building services design engineer (degree) – industry wide
Chartered surveyor (degree) – industry wide
Civil engineer (degree) – industry wide
Civil engineering site management (degree) – industry wide
Digital and technology solutions professional (degree) – industry wide
Level 4
Associate project manager – industry wide
Building services engineering technician – industry wide
Commercial procurement & supply (formerly public sector commercial professional) – industry wide
Construction site engineering technician – industry wide
Cyber intrusion analyst – industry wide
Cyber security technologist – industry wide
High Speed Rail & infrastructure technician – rail
Passenger transport operations manager – rail / bus / coach
Project controls technician – infrastructure industry wide
Policy officer – government
Port marine operations officer – maritime
Rail engineering advanced technician – rail
Level 3
Boatbuilder – maritime
Civil engineering technician – industry wide
Engineering Technician (Automation Engineer) – infrastructure industry wide
Highways electrician / service operative – highways
International freight forwarding specialist – aviation
Marine engineer – maritime
Maritime operations officer
Train driver – rail
Rail engineering technician – rail
Railway engineering design technician – rail
Safety, health and environment technician – industry wide
Surveying technician – industry wide
Transport planning technician – transport

New Trailblazer Standards approved for delivery
Level 2
Able seafarer (deck) – maritime
Airside operator – aviation
Arborist – industry wide
Aviation ground operative – aviation
Carpentry and joinery – highways
Highways and maintenance skilled ops – highways
Highway electrical maintenance and installation operative – highways
Large goods vehicle (LGV) driver – highways / transport
Network operations – transport
Passenger transport station & on-board team member – rail / bus / coach
Rail engineering operative – rail
Rail infrastructure operator – rail
Scaffolder – highways
Steel fixer – highways
Structural steelwork fabricator – highways
Express delivery – Express sector

Trailblazer Standards in development
Level 7
Digital and technology solution specialist (degree) – industry wide
Ecologist (degree) – industry wide
Environmental manager (degree) – industry wide
Marine technical superintendent (degree) – maritime
Marine surveyor (degree) – maritime
Risk and safety management professional (degree) – industry wide
Level 6
Commercial airline pilot – aviation
Construction design management (degree) – industry wide
Harbourmaster – maritime
Construction quantity surveyor (degree) – industry wide
Cyber security technical professional (degree) – industry wide
Project manager (degree) – industry wide
Rail & rail systems senior engineer (degree) – rail
Transport planner (degree) – rail / bus
Express manager (degree) – express
Level 5
Air Traffic controller – aviation
Marine pilot – maritime
Rail & rail systems engineer – rail

Trailblazer Standards in development
Level 4
Construction surveying technician – industry wide
Level 3
Boatmaster (Tidal Inland Waterways) – maritime
Cabin Crew – aviation
Engineering construction erector / rigger – industry wide
Highways maintenance supervisor – highways
Maritime operations officer – maritime
Port plant machinery operative – maritime
Workboat crewmember – maritime
Level 2
Highways maintenance skilled operative – highways
Marinas and boatyard operative – maritime
Maritime electrical / mechanical mechanic – maritime
Port operative – maritime
Road surfacing operative – highways
Structural steelwork erector – highways
Structural steelwork fabricator – highways
Temporary traffic management operative – highways
Tramway (Light Rail) construction and renewals operative – trams
Passenger transport driver – bus / coach / tram
Express delivery / sortation operative – Express parcels

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Lizzie Ooi, Rail Delivery Group
Matthew Steele, Network Rail
Michelle Nolan-McSweeney, Network Rail
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Neil Robertson, NSAR
Nici Thompson, Department for Transport
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Poorvi Patel, Heathrow
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Ramz Islam, Department for Transport
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Glossary

ADD	Attention Deficit Disorder
AEC	Architecture, Engineering and Construction
AI	Artificial Intelligence
AMTC	Advanced Manufacturing Training Centre
APPG	All Party Parliamentary Group
ATA	Apprentice Training Agency
BAME	Black, Asian and Minority Ethnic
BAU	Business as Usual
BIM	Building Information Management
BTEC	The Business and Technology Education Council
CECA	the Civil Engineering Contractors Association
CEO	Chief Executive Officer
CIHT	Chartered Institution of Highways and Transportation
CITB	Construction Industry Training Board
CLC	Construction Leadership Council
CP6	Control Period 6
CSCS	Construction and Skills Certification Scheme
CV	Curriculum Vitae
CWA	College of West Anglia
DfE	The Department for Education
DfMA	Design for Manufacture and Assembley
DfT	The Department for Transport
EDI	Equality, Diversity and Inclusion
EU	European Union
FE	Further Education
FTA	Freight Transport Authority
GIS	Geographic Information System
GWR	Great Western Railway
HGV	Heavy Goods Vehicle
HM	Her Majesty's
HMT	Her Majesty's Treasury
HMP	Her Majesty's Prison
HR	Human Resources
HS2	High Speed Rail 2
HTMA	The Highways Term Maintenance Association
ICE	The Institution of Civil Engineers
IfA	Institute for Apprenticeships
IoC	Institute of Couriers
IoT	Institutes of Technology
IPA	The Infrastructure Project Authority
LEPs	Local Economic Partnerships
LGV	Large Goods Vehicle
PMO	Programme Management Office
MCA	Mayor's Construction Academy
MMC	Modern Methods of Construction
MNTB	The Merchant Navy Training Board
MTC	Manufacturing Technology Centre
NCHSR	National College for High Speed Rail
NEET's	Not in Education, Employment or Training
NPIF	National Productivity Investment Fund
NSAR	National Skills Academy for Rail
NVQ	National Vocational Qualification
PPM	Project Portfolio Management
REM	The Rapid Engineering Model
RIBA	Royal Institute of British Architects
RICS	Royal Institution of Chartered Surveyors
RMT	National Union of Rail, Maritime, and Transport Workers
ROC	Rail Operating Centre
SLNT	Strategic Labour Needs and Training
SMaRT	Support for Maritime Training
SMEs	Small and Medium Enterprises
SMP	Smart Motorways Programme
SST	Supplier Skills Team
STAT	Strategic Transport Apprenticeship Taskforce
STEM	Science, Technology, Engineering and Mathematics
TfL	Transport for London
TIES	The Transport Infrastructure Efficiency Strategy
TIP	Transforming Infrastructure Performance
TISS	Transport Infrastructure Skills Strategy
ToCs	Train Operating Companies
TSP	The Skills Partnership
TUC	Trades Union Congress
TUCA	Tunnelling and Underground Construction Academy
ULR	Union Learning Representative
UfI	University for Industry
UK	United Kingdom
UTC	University Technical College
VCA	Vehicle Certification Agency
WEF	The World Economic Forum
YoE	Year of Engineering

Photo credit – Ahead Partnership

Contact STAT

For any information in relation to the Strategic Transport Apprenticeship Taskforce (STAT) or the work undertaken please contact us via email at **STAT@dft.gov.uk**