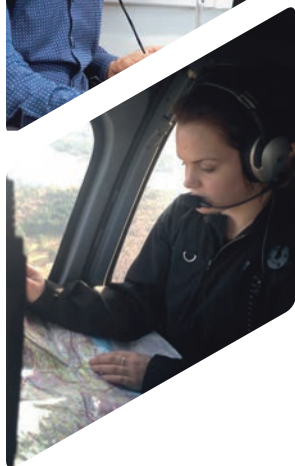


The Skills Intelligence Model: Understanding the scale of the need for skilled people



The Strategic Transport Apprenticeship Taskforce and the National Skills Academy for Rail



The Strategic Transport Apprenticeship Taskforce (STAT) commissioned the National Skills Academy for Rail (NSAR) to produce the most detailed skills forecasting tool the sector has ever had.

We now have a comprehensive picture of what skills we need, where they are required and over what time horizon across the rail and road sectors.



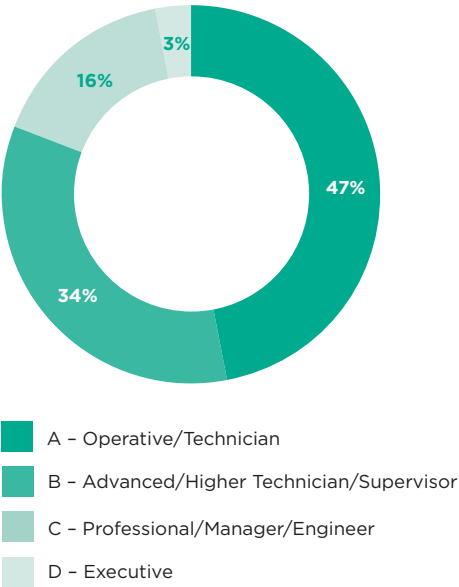
What is the composition of our current workforce?

Our model estimates that the current sector workforce comprises 220,000 people in rail and 48,000 people in road. The model includes delivery bodies such as Network Rail, Transport for London (TfL), High Speed 2 Ltd, train operating companies, Highways England, county councils, unitary authorities, metropolitan districts and also the transport supply chain.

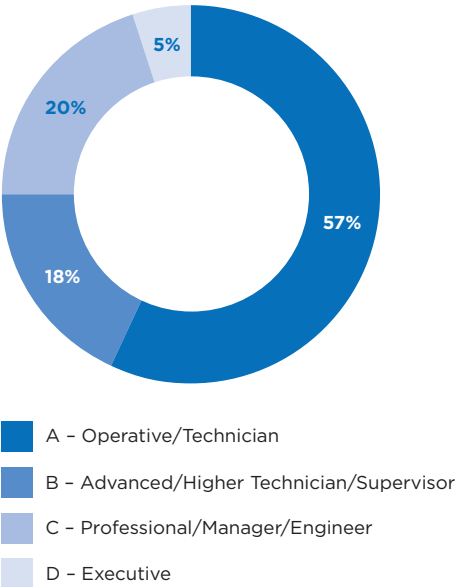
Our modelling shows that within rail, the proportion of higher and advanced technician level employees required will increase from 23% of the workforce in 2017 to 34% over our 5 year planning horizon¹.

Within the road sector, the requirement at operative level (levels 1 and 2) remains fairly constant at approximately 56% of the total workforce. (referred to as 'executive' in the charts below).

2022 Forecasted Skill Levels – Rail



2022 Forecasted Skill Levels – Road



¹ Ultimately, it will make sense to plan to 2024 for rail and 2025 for roads as these are the end of the next investment periods. But we will need to wait for funding levels to be agreed in order for us to be able to set this out with confidence.

How many apprentices will our sector require?

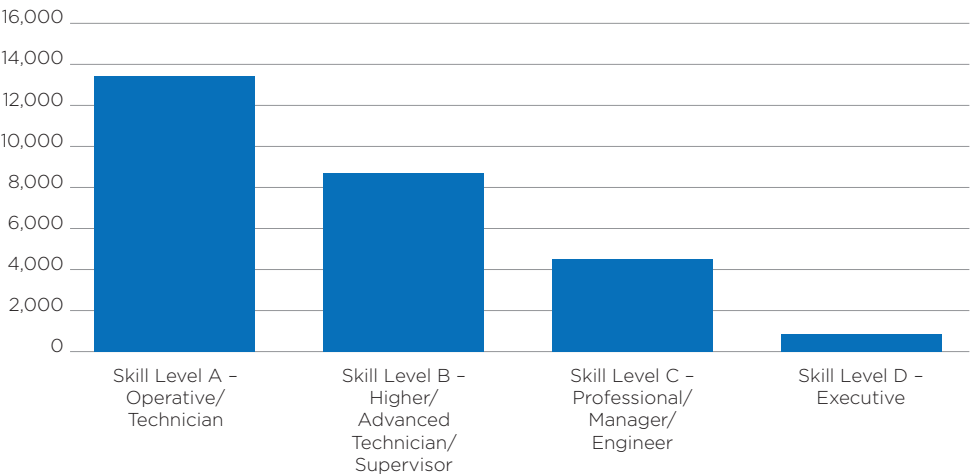
The model shows that in the coming years, we will require between 5,000 and 8,000 apprentices starting per year to deliver our ambitious pipeline of investment. Of critical importance will be building capability in new and emerging disciplines including cyber security, digital signalling and traffic management.

New apprenticeships will be key to replacing members of the workforce that are nearing retirement – our modelling suggests that more than 50,000 rail workers will reach the age of 65 in the next 10 years.

Approximately half the apprentice places will be required at ‘operative’ level – this includes construction workers, service staff and road maintenance technicians.

The remaining half will required at the higher skills levels, (levels 4-7) including rail engineering and rail systems technicians and engineers, including apprentices at Master’s degree level (referred to as ‘executive’ in the chart below).

Total number of apprentices required by skill level to 2021/22²



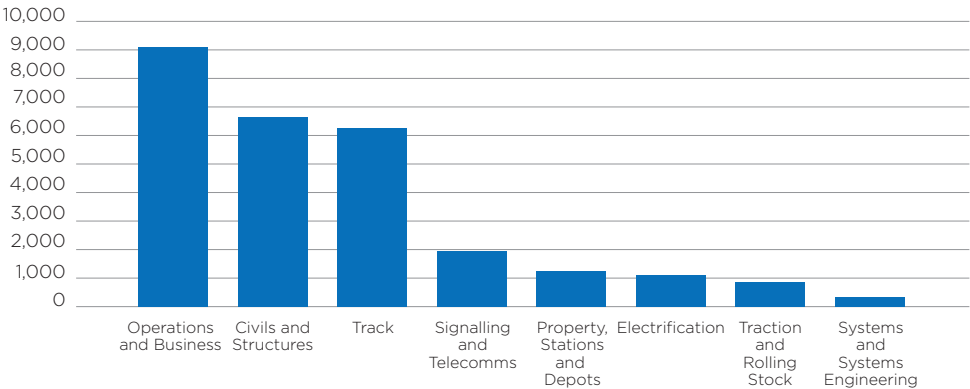
2 The need is 27 000 to 35 000 apprenticeship starts over the period. All charts show lower end of the range.

What skill sets will we require in the future?

We expect apprentices to be required across a range of disciplines and asset types. While a large number of apprentices are expected to sit

within operations and business management functions, the most critical skill sets required are in transport-specific disciplines including: signalling, electrification, and civil and structural engineering.

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



To deliver the pipeline of investment in rail and road, we will require additional skilled people to design, build, maintain and operate our infrastructure. This includes increasing our capability in a number of emerging disciplines including cyber security, autonomous control systems and intelligent infrastructure.

- New skill sets will be required to take advantage of new construction processes, including

greater use of 3D printing, as well as a shift towards modular, off-site fabrication in infrastructure projects.

- Intelligent infrastructure is currently being delivered, including digital railway signalling and ‘smart motorways’.



How will we use this model?

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

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

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

- educational institutions
- industry

about transport skills demand so that they can position themselves to meet it.

The Strategic Transport Apprenticeship Taskforce

The Strategic Transport Apprenticeship Taskforce is the cross-industry body responsible for delivering our stretching apprenticeship targets, improving sector diversity and promoting transport as a career to young people, parents and teachers.

STAT was established in April 2016 as a voluntary collaboration of transport employers and is chaired by Mike Brown, Commissioner, Transport for London. Members of the STAT are drawn from across the sector, including: Highways England; Network Rail; High Speed 2 Ltd; Transport for London; Heathrow; the Trades Union Congress; the Rail Delivery Group; the National Skills Academy for Rail and the Department for Transport. Maritime, ports and the road freight and logistics sectors have also been invited to take part.



The National Skills Academy for Rail

The National Skills Academy for Rail was established in 2010 to enable the sector to deliver a modern and efficient, world class railway through the development of a highly skilled and productive workforce. NSAR is the leading voice of the rail industry for people and skills and provides advice on a wide range of issues.

In 2016, NSAR developed the Skills Intelligence Model to understand the future skills requirements of the sector and improve workforce planning capability. The outputs of the model are supporting apprenticeship programmes through NSAR's national network of colleges, as well as STAT's work.



Case Study: Network Rail

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

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

The scheme involved a nine month residency at a training centre in the south of England, which allows me to develop my independence, ready for my new job position, as well as ten crucial qualifications that would help me through my career.

The next two years were spent working and training at a depot near to me, allowing me to learn my craft out on the track, and occasionally returning to the training centre to earn further competencies, all whilst still earning a wage.

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

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

Nichola Wright

Signalling Technician &
recent apprentice
Network Rail

