



Skills Supplement 2016



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A young man with dark hair, wearing a green shirt under a tan flight suit, is sitting in a cockpit. He is looking upwards with a slight smile. The background is a bright blue sky with some white clouds. The image is taken from a low angle, making the man appear to be looking down at the camera.

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Publisher David Begg
Email david.begg@transporttimes.co.uk

Editorial

Transport Times welcomes editorial contributions – news, features and opinions – which should be emailed to the address below. The editor reserves the right to edit all contributions for reasons of length and style.

Unit 27, Beaufort Court,
Admirals Way,
London,
E14 9XL

Tel 020 7828 3804
Fax 020 7828 3803
Email editorial@transporttimes.co.uk

Editor David Fowler
Email david.fowler@transporttimes.co.uk
Associate Editor Adam Raphael
Email adam.raaphael@transporttimes.co.uk

Production Editor Rob Buckley
Email rob@robbuckley.co.uk

Advertising

Sales Director Isabel Poulton
Email isabel.poulton@transporttimes.co.uk

Tel 01236 739577

Sales Executive Ciara Corcoran
Email ciara.corcoran@transporttimes.co.uk

Tel 020 7036 8572

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Skills Supplement 2016



Transport and infrastructure are in line for record levels of investment in the coming years, with £70bn going into transport projects in this parliament alone. This will bring a demand for

thousands more experienced practitioners, graduates and apprentices. The DfT has set a target for 30,000 new apprentices in road and rail by 2020. The investment programme presents

a unique opportunity to transform the industry and increase its capabilities both in the UK and overseas markets. This supplement looks at how the industry is addressing the challenge.

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Closing the gap

As chair of the government task force on transport apprenticeships, Sir Terry Morgan has brought his experience with Tube Lines, Crossrail and elsewhere to bear in devising a strategy to make sure the industry has the high quality staff it needs

Concerns about a mismatch between supply and demand for skills have been a constant refrain in transport – and construction and engineering more broadly – for as long as most people can remember.

For 20 or 30 years there have been periodic warnings that the industry is not recruiting enough people to staff coming projects, or to replace employees set to retire. Diversity is another long-standing issue, with low representation of women and ethnic minorities meaning that the industry is unnecessarily restricting its pool of potential skills.

Crossrail chairman Sir Terry Morgan CBE has grappled with these issues both at his current project, and previously at London Underground upgrade consortium Tube Lines. But the Government's current emphasis on transport investment

has added a new dimension, and fresh urgency, to the problem.

Following Crossrail, projects such as High Speed 2, the continuing Tube upgrade programme and the five-year investment plans for road and rail will add to a voracious demand for skilled personnel of the highest quality. Last year, Sir Terry was asked by the Government to apply his experience to formulate a transport skills strategy.

His starting point is to stress that the industry faces a skills gap rather than a shortage – in time the market will balance supply and demand, he argues, but there are advantages to be gained in actively addressing the problem.

"My view is that the market over time will sort itself out," says Sir Terry, who was knighted in this year's Queen's birthday honours list. In common with a other companies and projects in transport he has in the past been obliged to recruit internation-

ally to find the skills needed. "You can find them. But for me that's a lost opportunity to look at the whole question about the benefits of infrastructure investment in a very holistic way." If the current programme of investment continues and the Government remains committed, "then I think industry has an obligation to make sure that we match that commitment with the appropriate skills to maximise the benefit".

What no-one wants, he argues, is a disorderly market, in which "employers are unable to meet demand because we are unable to maintain an orderly market in resources, numbers and cost. I think we have an obligation to make sure we play our part in maximising the benefits of the priority that's being currently given to infrastructure investment, particularly in transport."

This view is based on Sir Terry's experience not just at Crossrail but in

Above: the then Transport Secretary Patrick McLoughlin, Lord Ahmad and Sir Terry Morgan (back row l-r) launch the Transport Infrastructure Skills Strategy with students from TUCA in January

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Terry Morgan, apprentice

Sir Terry began his career himself as an apprentice. Do apprenticeships turn out inherently more practical people than degrees?

"As an apprentice you learn vocational skills which stood me in good stead. I felt even when I was doing my apprenticeship that I was being held back because I didn't have a degree, so I did a master's degree in order to try and take away an obstacle that was completely unnecessary. I think the way that apprenticeships are being placed at the moment, that doing a vocational programme does not prevent you from achieving your academic capabilities at the same time – giving young people on apprenticeships choices at certain stages to do a more academic route, and now some universities are offering apprenticeship degrees. The whole thing is starting to become much more ambitious in encouraging young people to go into apprenticeships without feeling it's limiting them to a pre-ordained career. There's lot of choice."

other sectors previously. "I've been involved in the automotive and aerospace sectors, both of which invested in their people, and I always say that they're great examples of how they've not only developed their home markets but developed export capability. We want to have that capacity in the transport sector."

At present, the sector's entire capacity is needed to meet the UK's domestic programme. "That to my mind is because we're not developing the broad sweep of skills that can be exported outside the UK economy. And we can only do that by making sure we have the capability within the supply chain companies that will be able to exploit those opportunities overseas."

Given the investment currently planned, with the potential to provide much-needed continuity of work for the supply chain, "I think this sector has a huge opportunity that it will be able to exploit not only for UK demand but for international demand."

He adds: "I think we're in a unique time and if we don't come up with a more balanced approach to how the projects are skilled, a different model from the one that we've got, then I think we're losing a great opportunity."

He says he is "very proud" of Crossrail as an example of a new approach. The project set a goal seven years ago to recruit 400 apprentices over its seven-year lifespan. "Today we're at 573 and still growing." He is also pleased with progress on diversity. Compared with a historic industry average of only 5% women employees,

in the last year an unprecedented 27% of Crossrail's intake were female.

Moreover, while over the apprenticeship programme for the industry as a whole one in five recruits is not in employment, education or training, two of every five Crossrail apprentices comes from such a background.

Now projects such as HS2 and the Thames Tideway tunnel have set an even more ambitious target of a 50/50 split in their recruitment of men and women.

Last year Transport Secretary Patrick McLoughlin asked Sir Terry Morgan to develop a strategy for transport infrastructure skills, in support of a government manifesto commitment to reach an overall total of three million apprenticeships by 2020, with a DfT target for 30,000 in road and rail. The initiative focused on apprenticeships, diversity, upskilling the existing workforce and on developing a network of specialist transport infrastructure skills colleges. It had strong industry support and participation from the DfT itself, TfL, Network Rail, HS2 and Highways England.

The resulting report, *Transport Infrastructure Skills Strategy: Building Sustainable Skills*, set a number of targets. These included the ambition that 20% of entrants to technical and engineering apprentices will be women by 2020. Other recommendations built on Crossrail's experience of using "procurement levers" to influence behaviour of suppliers and contractors, stipulating that any firm seeking a contract should employ one apprentice or someone currently unemployed for every £3-5m of contract value.

The report also called for the establishment of a new Strategic Transport Apprenticeship Taskforce (STAT) to oversee implementation of the strategy. Through STAT, employers will come together voluntarily to address skills challenges in a coordinated and collaborative way. HS2 chief executive Simon Kirby has been appointed chair of the organisation.

"It was something he wanted to do and it will make a huge difference," says Sir Terry. He is pleased to see that the other members of the STAT board are highly influential in the industry, and that it has strong support from ministers.

STAT will also work with the DfT and the Department for Business to support firms in making the best use of the new apprentice levy, to be introduced next year. Under the scheme companies with a pay bill of over £3m annually will contribute a levy of half a percent of payroll to a fund to support apprenticeships. They will then be able to claim back funds to support a programme of apprenticeship development.

"It requires employers to respond to the agenda. For me the three million apprentices target that's been set wouldn't be achievable without some form of big new incentive to take away some of the resistance that some employers have towards the cost of apprenticeships," Sir Terry says.

The influence of Crossrail and Tube Lines is also evident in the establishment of sector-specific academies.

"When I was at Tube Lines we did have a skills shortage and it was creating a disorderly market. We built a skills academy in east London, we doubled our apprenticeship programme and it was a terrific experience." As well as boosting the business's skills, it

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Above: the then rail minister Claire Perry meets women working on Crossrail last year
Below left: Zoe Conroy, technician engineer apprentice, at Tottenham Court Road station

also improved morale by showing the organisation was investing in people.

"It certainly gave us a much more comprehensive set of skills within the business, and when I came to Crossrail it was something I was keen to replicate. We had exactly the same issue with underground construction, so we built the Tunnelling and Underground Construction Academy, and that's been fantastically successful." Sir Terry chaired the National Skills Academy for Rail Engineering, which set up the National Training Academy for Rail on similar lines.

Crossrail, he says, is more than a railway – it is a massive investment that needs to be reflected in a legacy of skills. The same argument applies with even more force to high speed rail. "HS2 is coming along, huge investment, new skills needed: where are they going to come from?" So the national high speed rail college being established in Birmingham and Doncaster is "a really positive step".

"I'm really pleased that the work's started and we're now busy trying to put in place the curriculum, the building facilities and the resources to manage it." Ambitious targets have been set – for example HS2 is aiming for 2,000 apprentices to Crossrail's 400.

The colleges will complement and work in partnership with, mainly, colleges of further education, taking people who have completed NVQs from levels 1 to 3.

They will also allow existing industry employees to gain new skills. "New technology is going to change the industry quite significantly. It's important to make the best of those people who have got skills which may not be entirely in line with what high speed rail needs but have a capability to re-learn. It's important we give people that sort of opportunity," he says.

Asked about the importance of diversity, he repeats his view that though in the long term the market will balance supply and demand, "what a dreadful market we're in if we can only access half the population".

"We want to offer an opportunity to get to the very best people, irrespective of their background, and so for me it's just opening up the pool of people

who might be interested in working in transport. We should have ambitions to recruit the best, and that should not be predetermined by people being discriminated against before we even start a selection process."

The challenge is how to do this in practice. "It's a combination of trying to access young people to make sure they understand the choices, and to deal with prejudices both in school and with parents about young girls going into the railway industry. It's an understandable but nevertheless wrong perception about opportunities that young people should be given. That means going into schools." The Young Crossrail ambassador programme is very active in getting people into schools to talk about their careers. Many of them are young, often going back to the schools they came from. "Going back, talking in the language of young people is an important way of ensuring that the youngsters don't see this as just another careers talk," he says.

Crossrail has also sought to be open to people who want to change career. "Some of the great stories we have in Crossrail are doing just that. They're fantastic role models because very often these individuals recognise it as their last chance to do something they've always wanted to do, so they're very hungry. Their ability to influence an 18-year old is much greater than I could ever have."

Crossrail's Learning Legacy

A few months ago Crossrail launched a website covering a wide range of subject matter, particularly about "sustainability in its fullest sense" – economic, skills, employment, environment. It highlights what Crossrail sees as initiatives that ought to be thought about by other organisations – ranging from the use of levers by clients to prioritise skills development in the supply chain to the establishment of Europe's largest wading bird reserve at Wallesea Island, created using spoil from Crossrail tunnelling.

Information is being released in tranches and this month (September) the focus is on talent, resource management, and HR practice. It will include papers on the Young Crossrail ambassador programme – how Crossrail engaged with over 15,000 students.

<https://learninglegacy.crossrail.co.uk>



The road to a more skilled workforce

The £15bn road investment programme has created a golden opportunity to develop the workforces which are bringing it to fruition, says **Philip Ellis**

“We will only reach our goals by ensuring staff have the skills they need”

Good transport is crucial to help people get around and to drive economic growth, and at Highways England we are undertaking a £15bn roads investment programme which will increase capacity and improve the condition of our motorways and major A-roads. This will improve safety and journeys for motorists, commuters and hauliers up and down the country, ultimately making people's lives better.

The £15bn government investment in England's roads is the most significant since the 1970s. It is an investment not just in tarmac and concrete, but in people too. The programme has created a golden opportunity to develop the workforces which are tasked with bringing it to fruition.

Highways England is responsible for ensuring that the funding works hard for the public. By 2020 the whole programme is expected to ease congestion, improve safety and reduce journey times. In this fast-paced environment, it is vital that we identify skills and training gaps in the workforce to meet changing requirements, and in particular the increasing part played by technology. Highways England already un-

dertakes junction improvements and widening schemes, which demands a strong emphasis on skills in civil engineering. Looking ahead to the end of this roads period, we will have created £3bn worth of “smart motorways”. That's 286 lane miles of capacity which will have been added: not by building new lanes, but by upgrading and installing technology to monitor and smooth out traffic, and opening up the hard shoulder.

As part of a programme of investment in future skills, we must develop the existing workforce to meet new challenges and encourage greater diversity, including attracting more women into engineering. Both these goals are central to the growth of our business, and vital to its success.

Through the Strategic Transport Apprenticeship Taskforce, we are joining with others in a programme of investment in future skills, with the Government making a commitment to create 30,000 apprenticeships in roads and rail in the five years to 2020.

With a £15bn investment programme, we aim to work closely with our partners to ensure a consistent positive attitude to skills and training. Highways England has much to do,

but we will only reach our goals by ensuring staff have the skills they need and having positive working partnerships. Looking ahead, there is a huge amount to be done between now and the end of this investment period.

During 2016/17 we look to start work on a further four major infrastructure projects and invest £1.1bn in capital projects and around £700m in maintenance on the strategic road network.

The needs of motorists – and providing better journeys – are at the heart of everything we do. New technologies in communication and mapping help us understand their needs and provide what it is that people want, in a way that is least disruptive to those using our roads. We can now apply what we know, and provide useful information that allows people to take more control over their journey decisions.

Where does this all lead? Taking the motorway analogy: there may be many possible lanes leading to our destination, and variations in speed as we travel. But we will only reach our final goal if we take heed of the signs ahead, change direction where necessary and follow a clear road map – one that takes us to a better, more fulfilled and professionally skilled workforce.

Philip Ellis is capacity & capability programme manager at Highways England

Apprentices advance



Network Rail's apprenticeship scheme has been running for ten years and we are incredibly proud of what our alumni have gone on to achieve. Our former apprentices are living proof that with the right attitude and work ethic, you can reap the rewards. We want talented and capable people who want a job where you make a difference every single day as we continue to build a better, safer railway for now and for the future.

The three-year Advanced Apprenticeship scheme offers anyone over the age of 18 a chance to earn while they learn, while gaining valuable work experience, transferable skills and recognised qualifications along the way.

Our apprentices train in one of five specialist areas: track, signalling, telecoms, overhead lines and electrification plant. They spend the first five months of the three-year scheme at Network Rail's modern training and development centre in the West Midlands before moving to their local depots to learn through on-the-job training on the railway's front line, gaining knowledge and

Network Rail's popular and award-winning Advanced Apprenticeship scheme recruits apprentices nationwide to join the company's 20,000-strong orange army of front line engineers and technicians who maintain, renew and upgrade the railway across Britain and help to carry out the Railway Upgrade Plan. **Joanna Alexander** explains

vital skills from experienced team members. This is complemented by additional off-railway learning at our training centres around the country.

More than 2,000 people have joined Network Rail's Advanced Apprenticeship scheme since 2005. These include school and college leavers as well as those who were unhappy with their jobs, and chose to go back and into training to secure a more stable, long-term career. The majority of those coming through the apprentice scheme also progress their career with Network Rail, with 85% of those who started on the 2005 apprenticeship scheme still working for the organisation.

A survey of employees who had completed the scheme found that more than half were the first among

their friends to buy a house (52%). Almost three-quarters (71%) said they were the first in their friendship group to be promoted. Nearly half (43%) say they are on track for a senior management position within the next five years.

Apprentices are a vital part of the company's future. Bringing bright young talent with fresh thinking, enthusiasm and dedication to our 35,000-strong team is a critical part of how we will deliver our Railway Upgrade Plan and make our railway bigger and better as it becomes increasingly busy.

Further information on Network Rail's Advanced Apprenticeship scheme can be found at www.networkrail.co.uk/apprentices

Apprentices are a vital part of the company's future

Joanna Alexander is senior resourcing manager at Network Rail

A coordinated approach to put women on the fast track

Major transport infrastructure projects create the opportunity to change the game on gender balance in the UK with the support of women engineers from Europe, says **Flor Paniagua Clemente**



In Europe, rail clients have a high expectation of increased diversity

Investment in new railways over the next decade will put UK engineering firms and their engineers at the forefront of the global rail industry – just when \$1trillion is expected to be invested around the world building new lines to connect growing cities.

Fusion, one of the bidding consortia for UK high speed rail contracts (a joint venture between Morgan Sindall, BAM and Ferrovial Agroman), hopes to see the UK pick up the baton from Spain on rail innovation and technology. With a high speed rail network of some 3,100km, Spain is acknowledged as the European leader in the rapid construction of high speed rail.

That the UK will benefit from knowledge transfer is self-evident, something which Fusion is suitably positioned for via one of its parent companies, Ferrovial Agroman. But it is not the only bonus that can be gained from Spanish activity. Most of the consortia currently bidding for rail contracts in the UK have European experience at their heart, and with that will come an added boost for addressing one of the big problems within industry – the lack of women engineers.

There is first the simple issue of numbers. Only 9% of UK engineering professionals are women – the lowest in Europe – compared with 18% in Spain, 26% in Sweden and 20% in Italy.

In Europe many of the women are in leadership roles, something which the UK is now recognising and positioning itself to address. Rail clients have a very high expectation of increased diversity and expect to see an increasing number of women working on their projects.

In my experience, there is a difference between the UK and European understanding of the role of an engineer. In the UK, public perception of an “engineer” extends to a whole variety of roles, across industries. This has led to mixed interpretations of what it means to be an engineer.

Though progress is being made, collectively we must continue to establish the exciting career opportunities our industry offers. Together, we should be moving closer towards the European understanding of engineering as the design and creation of life-enhancing infrastructure, a career that I am sure our future female entrants will be keen to share and talk about.

Having a better gender balance on rail schemes that communicates the positive social contribution of infrastructure along with the technical complexities means projects can be used to open the eyes of everyone, including parents and teachers, to the career potential for women.

I feel incredibly privileged to have had the career I have had so

far, with exposure to role models, encouragement and support along the way. I feel it is my duty, and one that I wholeheartedly welcome, to get out to schools, to be an active STEM ambassador and also to work with the long-term unemployed. We are responsible for tackling the continuing issues of perception of engineering and opening up the world to those members of society who haven't previously considered engineering as a viable option for them.

There is a credible opportunity here for projects to be seen to be leading the way, offering clearer career paths and countering the imbalance of women to men, particularly in positions of leadership.

According to research from the Chartered Institution of Highways and Transportation, 90% of management roles and board positions in transport are held by men. These statistics demonstrate the need for change. The current practices for attraction and retention are in urgent need of revival.

Clients are putting down markers as to the seriousness with which they take improving gender balance, by placing accountability for equality, diversity and inclusion at board level.

There is potential, then, for initiatives to deal with systemic bias in promotions via leadership training for women and return to work programmes, with more visible flexible working policies and progression for part-time workers.

Equally, enhanced networking opportunities across industry groups, and focused award ceremonies celebrating the achievements of women and their mentors, such as WICE (Women in Construction and Engineering) are vital forums for us all.

With clients taking the lead, it is inevitable that they will expect suppliers working on their projects to be making the same efforts.

A co-ordinated approach across projects from the top of the supply chain all the way down the various tiers would have a powerful impact on how women engineers are perceived by industry, public and each other, while also making a real improvement in recruitment and retention figures.

The huge levels of planned investment mean results could be achieved at high speed – and so they need to be.

Flor Paniagua Clemente is a project director for Ferrovial Agroman, working within their joint venture, Fusion.

Valuable skills, lifelong knowledge

Garry Pratt, senior project manager on London Underground's Four Lines Modernisation programme, started his career as an apprentice. Here's his story...

“It all started when I went to my local careers office during the six-week holiday in 1998

after my first year in sixth form. I'd decided education wasn't for me at that time and I wanted to get into full-time employment. I wanted to get into an apprenticeship following a good chat with my Dad.

“They sent me off for an interview and test at the LU Engineering Training School at Acton. I was successful in both and they offered me a four-year Modern Apprenticeship scheme in Electrical and Mechanical Engineering with LU.

“I spent my first year at the training school with one-day college release where I learned all about the basic maintenance engineering disciplines. I struggled in the first year as it was like being back at school and I thought I knew better! From that experience, I can assure all new apprentices that the first year is the hardest and the one where the hard work pays off – but you need to stick at it!

“After that, the next three years are spent working across the LU network. In my case this included Transplant (Engineering Fleet), the Piccadilly Line Fleet and the Jubilee Line Fleet. College continues on a day release, where you build up your engineering portfolio and work towards your NVQ Level 3.

Measure twice, cut once

“My first line manager at Transplant (Lilliebridge Depot) once said to me ‘measure twice, cut once’. Sometimes I would rush jobs to look like I was quick and efficient; however mistakes often popped up... so he told me to take my time, quality over quantity... He then used the ‘measure twice, cut once’ quote. How often do we forget this one!

“My advice to apprentices is to work hard during this time as you have the added benefit of learning on the job, and having your work tested and approved by your team leader. Once you've ‘passed out’, as in completed the scheme, that's when the pressure comes – but I will say in a good way!

“After my scheme I extended my apprenticeship by six months to take on a commercial role looking at the new public-private partnership model. This gave me an excellent insight to how the PPP was going to operate.”



Life learnings at LU

“Since my apprenticeship, my roles have included support manager for the Piccadilly Line and a three-year stint as performance manager on the same line. I moved on to become a stations availability manager and emergency response unit manager, before joining the private sector with Ferrovial and gaining experience working in both Barcelona and Madrid. In the UK, I worked on Crossrail for three years before returning to LU in my current role.

“I really enjoyed my time as an apprentice. The skills you learn from

the teams in the depot and network are so valuable and the knowledge you gain stays with you for life! It certainly has for me. I look back at the scheme with great pleasure and one I would recommend to any school leaver looking to get into engineering.

“The LU scheme was excellent and I made a lot of new friends from various parts of London who I still bump into today, and I always try to stop for a quick chat on my travels. I cannot stress how important it is to keep in touch and have a good network in your business and wider field.”

“The first year is the hardest but the hard work pays off”



Culture change ahead

TfL's Dana Skelley explains how the organisation's intake of apprentices is set to soar, and how it is increasing diversity in transport roles

Transport for London will this month kick off its graduate recruitment programme for the coming year, with its apprentice programme following in January. And sweeping changes are afoot, with plans for a fourfold increase in the apprentice intake.

At the same time the organisation continues to work towards its aspiration "to represent the demographics of the city it serves", says TfL's Dana Skelley OBE. "We know that teams formed of diverse groups of people produce better results because they see different dimensions and understand the customers better."

Ms Skelley is director of asset management for TfL's surface transport division, and was also a driving force behind the 100 Years of Women in Transport campaign.

She says that over the whole organisation, TfL employs 24% women, but the figure varies between departments: from legal which is close to 50/50, while engineering has only 6% women.

TfL has a low attrition rate among its staff – people like working there and tend to stay with the organisation a long time. As a result, Ms Skelley says, "I've been working on graduates and apprentices, particularly trying to target women, trying to build up a base of young people in the organisation who grow with us."

She adds that in general: "I don't think the industry's image is one that attracts women particularly." It tends, she says, to be input-focused, exemplified by pictures of men in orange jackets standing alongside a tunnelling machine, "whereas actually it's all about the outcomes – enabling people to get to school or work, enabling London to cope with its increasing growth by building something like Crossrail."

The 100 Years of Women in Transport programme, celebrating the time since World War I when thousands of women took on a range of new roles for the first time, aimed to tackle that point.

It achieved "a massive global take-up" of techniques TfL has used to attract women and support them in their careers, such as reverse mentoring, in which people at the top of the organisation, who tend to be men, ask people lower down about their experiences and barriers in their work and what needs to be changed.

One of the biggest successes was the Schools Debate, a competition for schools in London on the motion "This House believes that women working in transport in the 2000s have a bigger impact on society than women who worked in transport in 1900s". The final was held in the House of Lords with transport minister Lord Ahmad and London

Assembly member (now deputy mayor) Val Shawcross as judges.

The aim was to get students to think about the industry and whether it had changed in the intervening years. The conclusion was that it hadn't, that not enough was being done to make people understand the important contribution transport makes to wider social and economic goals, to the overall way the world works. "I think that is what a lot of the girls were particularly interested in," Ms Skelley says.

TfL (including Crossrail) took on over 1,000 graduates between 2010 and 2015 in disciplines from civil engineering to finance, and the organisation consistently wins awards for encouraging diversity and scores highly in rankings of top employers, such as The Times Top 100 list for the best companies to work for as voted for by graduates. In 2016, says Ms Skelley, 40% of graduates joining will be female, 26% from black and ethnic minorities, and 4% declaring a disability. There will be a higher proportion of women than men on the general management graduate scheme.

One factor in achieving this is the approach to recruitment. The time-honoured method is a competence-based interview. "That's OK for people with experience," says



Top: 2015's apprentice induction
Above: the 100 Years of Women in Transport Schools Debate final
Photos © Transport for London

Ms Skelley. "It's not so good for graduates." Instead TfL has adopted a "strength-based approach", which uses situational strength tests to assess applicants' strengths and interests. "It attempts to identify people with strengths who might flourish in this environment," she says. The approach uses scenarios to ask the candidate "what would you do?" rather than "what did you do?" Initial trials have worked well and the technique is being introduced more widely through the organisation.

Ms Skelley also chairs a graduate and apprentice board for the whole organisation, with representatives from both groups. "We want to make sure that once they finish [training] they get in the right role," she says. Transport planners, for example,

I don't think the industry's image is one that attracts women particularly

will not just undertake specialist, high-level planning, but also experience road safety planning or other aspects where it is necessary to work in partnership with the boroughs. They will also work on a range of different modes. "There are opportunities to move laterally," says Ms Skelley, "so they understand about stakeholder engagement. We're very keen for graduates to be articulate and understand politics and the wider impact of policies."

On apprenticeships TfL works closely with suppliers. Contractual levers are used – for example in the London Highways Alliance contracts, there is a requirement to employ one

Below: Dana Skelley
Bottom: the TfL
2015 graduate
intake launch event
Photos © Transport
for London



This year's intake of 156 will have to rise to around 700 next year. "It looks as though we will have to start rebalancing graduates and apprentices in TfL in the future, to make best use of the apprenticeship levy that we will pay into," Ms Skelley says. "So the future is much more about vocational training." She believes this is a positive development. "It's important to realise that these apprenticeships could be from level 2 or 3 all the way up to 6 and 7. We've taken on graduates and apprentices for different types of roles up to now, whereas in the future that won't be the case. Most of our apprentices have been levels 2 or 3 and they are people who will be going out and fixing track, for example: learning practical engineering disciplines rather than transport planning or design. We're not training people who could design a cycle superhighway through apprenticeships at the moment – that's the big shift for us."

So alongside the general management programme for graduates TfL is working on an equivalent for people doing a management apprenticeship. The difference would be that the apprentices will be coming straight from school and learning on the job, with training typically one day a week, rather than having completed

three years of study, which will be a significant change for their colleagues.

Putting the programme in place is a significant task, and TfL is working in partnership with other employers, education providers, universities and STAT. The final numbers of graduates and apprenticeships the organisation takes on next year will depend to some extent on how quickly these programmes can be set up.

TfL will also be using apprenticeships to allow existing staff to gain new skills. Again it is working with education establishments on developing this. One area, on which it is working with the Chartered Institute of Management, is for a general management qualification, expected to be about level 5.

"It's a big cultural change in the way the industry trains its people," she says.

Meanwhile TfL is intensifying efforts to engage with schools and reach young students. With Network Rail, Crossrail, HS2 and the DfT it has launched a new transport career website on Plotr, designed to show the wide range of careers available.

Another initiative is Innovate TfL. This is open to groups of students in years 12 and 13 from schools, colleges and youth groups, in which the students are asked to come up with an innovative solution to a real TfL problem. This gets under way at the end of September; registration opened in the third term of the academic year but continues to 1 October.

TfL provides a teacher support pack for the programme which includes material for a launch event at the school, as well as "innovators" – engineers, graduates and apprentices to speak at the launch. Students have to produce a filmed five-minute PowerPoint presentation on their innovation, a 30-second "advert" for it using animation, infographics or any screen-viewed medium, and a model in any medium – physical, CAD, technical drawing or artists' impression.

Shortlisted teams are invited to a final in central London with senior TfL staff and stakeholders. All shortlisted teams win work experience at TfL. Examples of past winners have included a travel planning app for door-to-door journeys, and a "concertina bus" which would expand at peak times. Separately, there are also opportunities for teachers to shadow TfL staff.

One of the biggest barriers to girls in particular taking up apprenticeships and engineering careers remains parental prejudice, Ms Skelley believes. "A lot of people don't know what an engineer does, or that you can get degree apprenticeships," she says. "Innovate TfL is a really good way of helping people realise what's on offer."

apprentice for every £3m of contract value. TfL arranges for apprentices to gain experience on the client side as well as with the contractor.

TfL in conjunction with Crossrail and the London Transport Museum, which works with them on schools engagement, have together created over 6,000 apprenticeship roles since 2009 in TfL, suppliers, Crossrail and the museum.

Last year TfL took on 156 apprentices in a wide range of roles and levels, from track renewal and maintenance to commercial procurement, and this year for the first time in transport and town planning. Demand for apprenticeships has increased 400% since 2010.

Whereas in 2009 TfL took on apprentices in only two disciplines, now the areas covered range from project management and engineering to legal. In the past apprenticeships were mainly at practitioner level, NVQs level 2 to 3, but this is also widening. An apprenticeship in quantity surveying at level 6 has recently been introduced because of a severe shortage of graduate quantity surveyors.

TfL is working closely with Network Rail, the DfT and the Strategic Transport Apprenticeship Taskforce (where TfL project director for infrastructure George McNulty is a board member) on its response to the DfT target of creating 30,000 apprentices by 2020.



Dynamism through diversity

Widening what is considered the right pool of talent can be difficult and will often run up against a 'we've always done it like this' mentality – but it's worth the effort, says **Natasha Cleeve**



In hiring in your own image, you bring in no more inspiration of thought or experience than you already have



Natasha Cleeve is a partner at the **McLean Partnership**

Can a focus on diversity when recruiting staff change the employment paradigm of "we've always done it like this"? When it comes to diversity, where in the hiring process does it cease to become a genuine consideration and become a hindrance, stopping you from bringing in the people you want and becoming a frustration of having to hire outside the familiar; or having to consider applicants who don't fit the norm, have differing experiences and skills and have different perspectives from yours?

Embracing diversity isn't easy and has its challenges, but the benefits far outweigh the difficulties.

When you're looking down the shortlist of senior candidates presented by the headhunter today, it will be a different list from what you would have expected to see even a few years ago. Not just the ethnic or gender mix but differing skills, industry expertise, perhaps an interim or maybe someone from the third sector?

It is at this stage that the eye can drop down to the longlisted candidates – rejected by the headhunter for entirely valid reasons, but more familiar to you. Someone you know or know of, who will fit right in. You bring them into the shortlist and lo and behold, you have your man (it will frequently be a man). Does this sound familiar?

There are many scenarios of this sort – and who is to say that it is wrong? Unconscious bias is a major component in the formation of this kind of thinking. Subconsciously, every person has a tendency to draw on their hidden biases when making decisions about who they think will be the best candidate for a particular role or opportunity. They may favour people of their own industry background or they may favour a particular race, educational background, gender or individuals of a certain a personality type.

It's not difficult to spot. A quick glance at the leadership composition of an organisation can reveal pre-dispositions that they are inclined towards, and every industry does it – often including those that consider themselves the most diverse of all.

Ultimately it is not sustainable though, because the industry does not have enough professionally qualified graduates coming through from the UK alone to support demand; women outnumber men in attending university; the speed of technological advance makes it the domain of the younger generation and the collective conscience of social media ensures that respect for the differences of others is woven into the fabric of the youthful leaders of tomorrow.

The diversity of the talent pipeline will be balanced eventually due to the

law of supply and demand; but right now, there are a number of obstacles to genuinely embracing it and even more when it comes to implementing it – particularly in an industrial-led organisation. How do you attract diverse talent into your business when it is not respected, encouraged or even properly understood? And we're not just talking about gender or ethnicity here – but about valuing different industry expertise, variance on professional qualifications and respecting those, the breadth of skills independents can bring. If you don't welcome them, they won't come, and your competitors who understand this will have their pick.

In hiring in your own image, you bring in no more inspiration of thought or experience than you already have – no innovation, no challenge to the status quo. Diversity brings with it many challenges, without a doubt – culture, personality and background differences can erect social divisions between employees that need to be recognised and overcome, and this will always present difficulties as individuals learn to adapt.

But the advantages in having the dynamic tension created by a team made up of many different ways of thinking, seeing, doing and learning ensures the trap of tunnel vision is avoided, making inspiring outcomes become commonplace in your organisation.

Embedding excellence

Since Tube Lines set up a bespoke academy to provide hard-to-find skills, the idea has formed a template followed by projects and organisations such as Crossrail and HS2

Training and Underground Skills Academy



- **Where it is:** Ilford, East London
- **Opened:** 2011
- **Intake:** an average of 3,300 training units annually; 16,500 since September 2011
- **Training includes:** Pre-employment training to help local people gain construction jobs; Tunnel Safety Card/Tunnel Safety Training Scheme (mandatory for Crossrail) and similar schemes; NVQ Level 2 Tunnel Operations; NVQ level 3 Supervisory Management; Construction Plant Competence loco driver training; sprayed concrete applications; apprenticeships in a range of other tunnelling and construction related occupations. A leadership development programme recognised by the ILM, the Frontline Leadership Programme, is also available.

The Training and Underground Skills Academy was built and established by Crossrail in 2011 to meet the skills training needs of Crossrail and future projects for the construction industry in general. The £13m project was funded by Crossrail and the Skills Funding Agency, which provided £5m.

It is Europe's only specialist soft ground tunnelling training establishment, providing training in key skills required to work in tunnel excavation and underground construction.

Courses are designed for those who have some existing industry experience who are undertaking workforce development training, typically NVQ level 2 or above; and for people aged 19 or older and currently unemployed who can undertake a pre-employment training course which could include traineeships, introductory courses or programmes that could lead to an NVQ level 2 or 3.

National Transport Academy for Rail Engineering



- **Where it is:** Kings Heath, Northampton
- **Opened:** 2015
- **Intake:** Courses open to all organisations in the sector including train operating companies, train manufacturers and maintainers, equipment manufacturers and the supply chain. The curriculum includes technical training, apprenticeships, professional skills development, leadership and management, and the digital railway.

The academy is 50% funded by the DfT, the Department for Business, Innovation and Skills, the National Skills Academy for Rail Engineering and 50% by industry partner Siemens.

It opened last autumn and aims to increase UK expertise in rail engineering to plug a potential shortfall of 8,000 people in traction and rolling stock roles in the UK over the next ten years. This need arises from technological advances in rolling stock, an ageing workforce, and growth in the industry. The academy is located near Siemens' Kings Heath rolling stock depot and its capacity will be used 50% by Siemens and 50% by the rest of the industry.

National College for High Speed Rail



- **Where it is:** Birmingham Science Park, Aston and Lakeside Campus Doncaster
- **Opening:** 2017
- **Training will cover:** Technical knowledge, cross-functional skills and practical experience covering engineering principles, project management and asset management. Specialist training will be at NVQ level 4 and over. The college will be open to new entrants, the existing workforce, students studying for a foundation degree in rail engineering, mature entrants and career changers. It will cater for higher apprentice rail engineering students, students progressing from a level 3 diploma in rail engineering, and continuing professional development.

The college will be one of five Government-backed specialist national colleges designed to provide the higher level technical skills essential to the UK's rail industry. It will be the first completely new incorporated further education college in the UK for 20 years. The college will offer specialist vocational training to provide the engineers, skills and services needed for high speed rail in Britain.

There will be two sites: Doncaster will focus on engineering skills while Birmingham will concentrate on high-tech and digital skills.

Construction began with a ground-breaking ceremony in May this year. The college is due to open to students next September. It will work with employers from the sector to develop the curriculum and provide industry-accredited qualifications.

Specialist training will be at level 4 and over. The college will work with a network of other training providers in a "hub and spoke" model.

Alstom UK & Ireland



Alstom develops, supplies and maintains integrated rail solutions for the urban and main line markets



At Alstom we are investing heavily in attracting a new and diverse workforce while also upskilling our staff. The construction of our world-class technical facility and training academy in Widnes will provide training in engineering, manufacturing, project management and other vital transport sector skills



Nick Crossfield,
managing
director,
Alstom UK
& Ireland

The company

As a promoter of sustainable mobility, Alstom develops and markets systems, equipment and services for the railway sector. Alstom manages the widest range of solutions in the market – from high-speed trains to metros and tramways – customised services (maintenance, modernisation) and infrastructure and signalling solutions. Alstom is a world leader in integrated railway systems. It recorded sales of €6.9bn and booked €10.6bn of orders in the 2015/16 fiscal year.

Alstom has been a key part of the British rail industry for over a century. Today we employ 3,200 people over more than 12 industrial sites. Alstom built the Pendolinos for the West Coast main line and we maintain them for Virgin's 34 million annual passengers. Half the trains on London Underground are Alstom-built and we service over 100 trains a day on the Northern Line, used by nearly one million passengers daily. We recently completed the Nottingham tram extension, and we

do all this work with over 1,200 UK suppliers, contributing to local economies across the UK.

Training and career opportunities

The perception of engineers in oily rags is an out of date one. It's not all hammers and spanners when it comes to the rail sector. In fact, laptops and big data would be more appropriate. As a result Alstom is looking for employees with a broad skill set.

From events management to a proficiency in software engineering, employers need to demonstrate strengths across the board in order to recruit the diverse workforce that will provide the sector with the skills needed to prosper.

To build on our commitment to skills, training and apprenticeships, Alstom recently announced we had obtained planning permission for a new Technology Centre at Widnes in the Liverpool area (pictured), where we will build a world-class training

facility, the North West Transport Training Academy.

The Widnes opportunity

The academy is set to open in autumn 2017, catering to a diverse and vibrant part of the country. We are already advertising for the head of the facility. It will act as a UK centre for research and development, providing training in engineering, manufacturing, project management and other vital transport sector skills, upskilling the existing workforce as well as supporting apprentices and new graduates for the rail industry across the North West.

Close to Liverpool, Manchester, Chester, Preston and other rolling stock industrial bases, the new training academy and service centre is ideally located as a North West logistics hub, with access to ports, railheads, motorways and airports. Importantly, it offers access to the West Coast main line, which will make it easier to move trains and train parts to the site.

Atkins

ATKINS

Atkins offers wide opportunities for CPD in addition to strong support for graduates and apprentices

About the company

Atkins is one of the world's most respected design, engineering and project management consultancies. We build long-term trusted partnerships to create a world where lives are enriched through the implementation of our ideas.

Our strength lies in the breadth and depth of our technical expertise, which enables us to provide practical solutions to the most complex challenges for clients in a wide range of industries.

Atkins works in sectors including transport, energy, aerospace, defence, environment and information communications, employing some 18,600 people in the UK, North America, Middle East, Asia Pacific and Europe.

Training

Infrastructure projects are increasingly complex and challenging to deliver. With the demand for engineering skills expected to increase in the next decade, having a strong talent pipeline is essential to ensure the UK can implement the schemes required to keep the country moving forward.

But an ageing workforce coupled with skill shortages continues to put pressure on the engineering sector and finding ways to attract more young people into STEM careers remains a deliberated issue.

Disruptive changes to infrastructure design and delivery will significantly affect the architecture of the future workforce. Consequently, the need for businesses to take ownership of the skills agenda is even more pressing. Atkins believes in the importance of retaining and developing its staff. Employees are encouraged to take advantage of a wide range of continuing professional development opportunities, allowing the individual to progress his or her career and build new capabilities in developing innovative solutions.

Atkins appreciates the value of apprenticeships and graduate training. Within the UK, the company currently employs 251 apprentices and 834 graduates. As a member of the 5% club, an industry-led campaign which commits members to having a minimum



of 5% of their UK workforce on formal education schemes, Atkins demonstrates an unwavering support to advancing young people into the world of work.

It goes a step further and has been actively involved in crafting new apprenticeship programmes such as the Transport Planning Technician scheme – opening new doors to the industry for the next generation of transport planners.

With over 500 STEM ambassadors across the UK, the company has structures to facilitate engagement with schools and provide guidance, support and mentoring in the early part of young people's careers.

Most recently, the company has been shortlisted as the most popular graduate recruiter in the construction, civil engineering and surveying sector by TARGETjobs.

Diversity and Inclusion

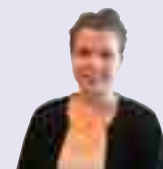
Atkins understands that diversity and inclusion builds better businesses, creating heightened performance and productivity.

Atkins embraces a progressive and inclusive workplace culture. We recruit from the widest talent pool and remain committed to fair and equal opportunity throughout the business. The company employs a range of initiatives that drives inclusivity such as flexible and part-time working.

By supporting campaigns such as Hire Me My Way, Atkins seeks to optimise talent attraction and retention. Atkins is a supporter of the WISE 10 steps campaign, and works with the Royal Academy of Engineering to promote gender diversity in the workplace and encourage a step change in the engineering sector.

Inclusive recruitment goes beyond the notion of tolerance to encouraging, embracing and celebrating different backgrounds. Through a strong leadership approach, Atkins strives to create an environment that fosters an appreciation of the values, skills and abilities each employee brings to the success of our business.

Since joining Atkins as a graduate I have worked on both strategic and international projects. The opportunity to be seconded to another office internationally, or to a client site, is a real and very exciting possibility. The graduate community is active and has great support from senior members of staff



Elise Nolan
Assistant
Engineer,
Transportation,
Atkins

BAM Nuttall



With a 150-year history, BAM Nuttall is committed to professional development for all staff



BAM Nuttall has been a force in civil engineering for the last 150 years. We believe that BAM Nuttall is a centre of excellence for the development of professional engineers, and surveyors and by offering the superb level of training coupled with the professional challenges that working on some of the world's largest projects brings, we can continue to build on that experience



Steve Fox,
Chief
Executive,
BAM Nuttall

The company

BAM Nuttall is a leading edge supplier of civil engineering services and is fully focused on delivering quality infrastructure projects on behalf of all its customers.

Able to draw on its position as part of the international Royal BAM Group it is committed to exploiting advances in technology.

BAM Nuttall fully embraces the concept of developing close relationships with customers at the earliest stage of the project life cycle and developing the optimum solution for project delivery.

The success of its dedicated Rail Division is pivotal to the success of the BAM Nuttall business with the division accounting for as much as 20% of the company's workload.

With a wide range of projects across the rail and transport sector BAM Nuttall continues to build on its 150-year pedigree as one of the UK's leading civil engineering contractors, and continues to focus on its mission to create a sustainable future by bringing engineering to life.

Training and career opportunities

Training and development is inherent to everything BAM Nuttall does. Last year everyone in the business received an average of 6.5 training days.

It sees itself as a centre of excellence with its key focus of offering professional development support for all employees at all levels of the business, including staff from trusted supply chain companies.

Throughout the recent recession BAM Nuttall ensured there was no dip in its training budget in a move that has safeguarded the quality of its workforce.

The company has its own in-house academy of technical experts who provide training to the workforce.

It has achieved over 7,150 NVQs to date at levels 1-6, with 2,000 of these in the supply chain, and 70 apprentices are currently working through a technical apprenticeship programme that is embedded for ICE and ICES membership. This comprehensive programme has a 96% retention rate.

Training schemes and support for university graduates

has been continually successful with 100 graduates passing their professional reviews in 2015.

Diversity and inclusion

BAM Nuttall has long been a champion of bringing greater ethnic, cultural and gender diversity into the workplace and recognises the benefit this can bring.

The wider construction industry has taken steps in recent years to help even out gender inequality and BAM Nuttall has been at the forefront of this move.

The company is dedicated to drawing more women through its structure and into senior management positions and has been looking at ways of achieving this through the Women in BAM steering group it has set up.

Changes in maternity/paternity conditions and the introduction of more flexible and part-time contracts for all members of staff are there to help those who may need greater independence.

A diverse and inclusive workforce makes perfect business sense but also perfect social sense. BAM Nuttall is committed to delivering that.

First Bus



Alongside apprentice and graduate programmes, First Bus has 50 Workplace Learning Centres

First Bus is one of Britain's largest bus operators with around a fifth of all local bus services outside London. A workforce of around 17,000 moves some 1.7 million customers every day in a huge number of communities, including 40 of the UK's largest towns and cities. First Bus can point towards a strong tradition of providing development and skills opportunities for all its colleagues. And through its graduate and apprentice programmes, First Bus is attracting the most talented young people in the transport industry.

Training and Development Opportunities

In 2006, First Bus opened the first of more than 50 of its trailblazing and industry-leading Workplace Learning Centres, in partnership with the union Unite.

The centres help colleagues develop and learn new skills: how to use a computer, the internet and email; or improve existing skills such as numeracy and literacy. More than 7,000 vocational qualifications have been awarded to date through the centres.

There are a host of other skills programmes designed to support various levels and functions that complement the Workplace Learning Centres. For example senior managers can benefit from courses designed to enhance leadership skills or build high performance teams. Many senior leaders are also supported by a network of leadership coaches. In addition, First Bus has worked with a skills company to improve the people management skills of engineering managers – it's been very successful with a number of colleagues gaining nationally recognised qualifications. First Bus is currently exploring options to extend the training across the business.

Apprenticeships

First Bus has a strong track record of employing and developing apprentices, particularly in the engineering function,



with many apprentices having gone on to senior positions.

Around 50 engineering apprentices begin their careers with First Bus each year. The apprentices are generally school-leavers, with an increasing number of women applying. They will spend around 70% of their three or four year courses on the job and around 30% in the classroom.

Unlike many other UK apprentice programmes, First Bus apprentices are actively encouraged and supported to continue their careers with First following the completion of their course – they are seen as a vital part of a successful business.

As part of its successful new driver training programme, First Bus has launched a driving apprenticeship scheme, which focuses on driving skills, safety and customer service. Once a new driver has acquired a PCV licence, they automatically undertake a year's apprenticeship and earn a nationally recognised qualification. This reflects First Bus' commitment to provide its customers with safe and customer friendly journeys.

Graduates

First Bus has recently introduced a dedicated bus graduate programme designed to attract the best candidates and provide them with a comprehensive learning experience. Successful graduates will spend two years gaining experience from almost every part of the business, even spending time on the front line driving buses. Around 70% of the programme is spent on the job, 20% is based on feedback and coaching from line managers, mentors and the graduate team, while 10% is formal training (e-learning, classroom, workshops).

The engineering graduate programme has also been hugely successful. Graduates are supported to obtain chartered engineer status and are mentored by senior engineering peers outside First Bus.

The company has recently embarked on a summer internship programme, whereby candidates experience the company for three or four months before potentially being offered the opportunity to progress on to the graduate scheme.

Many First Bus graduates have progressed through the programme and now enjoy senior positions. Indeed, in 2015/16 First was voted the "top company for graduates to work for" in its sector by the website TheJobCrowd.com

Culture

Neil Barker, Operations Director at First Bus, oversees training and development. He says: "We recognise that by investing in our people, we are investing in the future success of our business. We've successfully developed a culture at First Bus that embraces skills and development opportunities. We have a pipeline of talent coming through thanks to our graduate and apprentice schemes, while our Workplace Learning Centres in particular are upskilling colleagues right across the business.

"We're proud of our industry-leading approach to skills and development. However, we must not be complacent – the relentless approach to improvement will continue right across First Bus."



Thales

THALES

Initiatives to attract young people and new roles for existing staff are at the heart of the Thales approach

The company

A 2015 report by Engineering UK states that double the amount of qualified engineers need to be found in the UK by 2022 to satisfy demand. There are multitudes of statistics available that show the breadth of concern across industry. Whether it is the widespread lack of diversity in engineering teams, a significant untapped female engineering capability, too few apprentice or graduate opportunities, or organisations being rightly concerned about the decades of cumulatively gathered knowledge leaving the industry, the challenge is clear. So what are businesses doing to bridge the skills gap, encourage diversity and protect knowledge, and will it be enough to meet the growth demand?

Thales in the UK is no stranger to the challenge. A global technology leader for the aerospace,

transport, defence and security markets, Thales employs 62,000 staff in 56 countries, which gives it the unique capability to design and deploy equipment, systems and services to meet the most complex security requirements. Its exceptional international footprint allows it to work closely with its customers all over the world. Thales, like others in its markets, is seeing a rising demand for high calibre engineers across its entire portfolio. The solution to meeting that demand isn't easy. But a holistic approach to tackling it, with diversity at its heart, is key.

Diversity at the core of everything

A large and critical part of the diversity agenda for industry is the simple fact that there are far fewer women than men in engi-

neering, and Thales is working hard to close the gap from grass-roots apprenticeship level right the way up to the boardroom. Working closely with organisations such as The Stemettes and Where Women Work, Thales has undertaken a campaign of attractiveness, targeting potential female engineers and employees across its UK population. In what has, for decades, been perceived as a male environment, engineering as a function is changing, although at a slower rate than desired. Raising awareness of opportunities and flexible working options to suit all are two examples of initiatives that have been taken by Thales to encourage the sometimes untapped female workforce to take on roles that in previous years they might have ignored or avoided.

The effect of having children and raising families on female

employees' working lives is well documented. Thales recognises the need for flexible working options to allow a balance between family and career on return to work, actively encouraging women to make personal choices for working hours and working locations, in line with business requirements.

Of course, diversity isn't just about attracting more women into engineering: it is about creating a rich mix of skills and capability among an employee base that is varied in as many ways as possible.

Growing young talent

While there seems to have been a welcome explosion of graduate and apprenticeship schemes in recent years – to the point that every organisation in industry seems to have one – this is not

the ultimate or only solution. The Government too is playing its part, contributing funding to 3 million new apprenticeships by 2020. It is a helping hand in the right direction, but the responsibility to act remains with organisations, which will feel the squeeze on talent most acutely.

A key element in growing young talent is attracting the right people in the first place in a fiercely competitive market. Thales has done a lot of work in this area to increase its attractiveness as an employer, making it more desirable as a great place to work. From streamlining its application process and better articulating its impact across industry in order to inspire its target audience, to contacting potential applicants earlier and communicating with them via their chosen digital platforms, Thales is taking a more holistic approach to improving talent attraction. As a result of this and other initiatives, applications for graduate and intern positions within the company have risen from 2,900 in 2013 to 13,900 in 2015 – a notable increase which goes a long way to addressing Thales's skill development aspirations.

Some of the company's more direct approaches are also having an impact. In Thales's transport business, one of these is the "Classroom to Thales" outreach programme, an activity in which Thales employees visit young students in schools, and engage them in STEM-oriented activities. The benefits are twofold – it encourages students to explore the engineering opportunities open to them that they weren't aware of before, and increases their awareness of what Thales is, what it can offer and how the student can benefit if they come to Thales to build their career. Thales has engaged over 3,000 students since the scheme started in January this year, and the message is being enthusiastically received.

As well as visiting schools, Thales UK offered 24 GCSE students the chance to take part in a structured week of work experience, which involved working on a mini-engineering project. 40% of the applications for those places were filled by female students – another achievement in the company's attraction and diverse workforce effort.

Vicki Turner, HR director in Thales's UK transport business, believes that interacting with

the younger generation at school or college is fundamental in encouraging young people into the engineering field in general and, more specifically, in enabling the company to have a deeper understanding of how it can ensure that the number of women focusing on engineering roles increases. She says: "It's thinking about it in a different way: not being traditional and saying 'Here's the job spec, do you want to do engineering?' We'd rather ask 'Are you an analytical, inquisitive sort of person? You may well suit a career in engineering'. It's putting a different spin on trying to promote people coming into this industry."

Alternative approaches

Another strategy beginning to gather speed within parts of Thales in the UK is the sponsoring of school leavers going on to university, resulting in them joining the company post-graduation. It's a tactic that the transport business is now looking to adopt. It's a win for both: a career secured for the employee and a talented resource for the business. By employing people with the right skills and qualifications, Thales is increasing the engineering capability in the transport industry.

Attrition among the under-35 age group is a priority focus across the board in engineering. Many companies have a hard

time keeping employees who have learned and trained with them from moving on from the organisation looking for their next challenge. Thales is focused on providing that challenge. The retention rate for apprentices in the transport business is 97%, a great success and testament to the holistic approach in attracting and retaining talent in the transport industry. A cohort that recently graduated from the apprenticeship scheme is now ready to take on engineering positions within the organisation and is keen to inspire others to do the same.

Thales introduced the line manager development programme in July this year. This intensive training scheme equips managers with knowledge to develop teams, have continuing career discussions and facilitate meaningful and rewarding development action plans with their teams. This not only helps to develop the team but, by extending the responsibility held by the line manager, gives them the opportunity to develop themselves, increasing their engagement and satisfaction with the organisation.

Experience you just can't buy

Alongside ensuring the development of the next generation of engineers, Thales recognises the importance of a diverse, multi-skilled workplace and is

also keen to keep its growing and experienced employees engaged. Vicki Turner says: "Our people are highly valued for the skills and experience they bring to Thales – some that have been with us for over 30 years. We want to ensure that we support them in a meaningful career the entire time they are with us."

Employees with longer service are the ones holding the knowledge and multiple years of experience that cannot be replaced by classroom training. Mentoring schemes, internal mobility and secondment opportunities are just some of the tactics Thales is assessing or has implemented to ensure continued engagement from this highly valued group of talented employees. For an experienced mentor, teaching the next generation can be highly rewarding, both for mentor and mentee, and the business benefits from retaining critical knowledge. Internal mobility (developing existing employees for new roles within the business, rather than recruiting externally) is attracting an increasing number of employees at Thales. It presents a new opportunity or challenge for the employee, driving development and enriching skills, while reducing the need for the business to go to market – often a lengthy and expensive process. Internal mobility has increased from 42% at the end of 2015 to 55% at the half year and is on track for a 60% target at the end of 2016.

Vicki Turner explains: "When we've got opportunities in the transport business, we look across our own group in the first instance before going externally. We look at the development potential of individuals and can often say 'Let's give them the opportunity in the right, supported environment to help them grow and succeed in this role'. That's a real shift culturally and already we've started to see the benefits and positive outcomes that this kind of approach can bring."

Diversity is at the heart of Thales's strategy and is key to ensuring the company has a balanced mix of high calibre engineers in its talent pool today and in the future. A diverse and inclusive approach develops the right environment to attract, recruit and develop the best people. These people are key to creating a high performing organisation and a sought-after place to work: exactly what Thales is striving to be.



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- Bradford Schools for the Future (PFI)
- A8 Belfast to Larne (ECI)
- DBFO2 Northern Ireland (PFI)

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John Pepper
Human Resources Director,
Europe, Middle East & Australasia



"We have been in the UK & Ireland since 2002 on achieving our first contract, the M4-M6 Kilcock-Kinnegad motorway which was also the first Public Private Partnership (PPP) in the history of the Republic of Ireland. It was clear from the beginning that we had the perfect opportunity for continued improvement across the business – bringing best practice from our international operations and feeding back UK & Ireland best practice to our global organisation. Three significant areas where this was of clear benefit were skills, development and inclusion. Whilst focus on gender diversity in the industry has gained more momentum in recent years, it has always been a staple of how we work. The Spanish roots of the business are accustomed to twice as many engineering professionals being women as compared to the UK. This is embedded in our UK operations at all levels including apprentices and graduates, intake of whom has increased ten fold since the early days. Whilst we know we have come a long way since that first PPP contract, we do not want to get comfortable. Our Equality Diversity and Inclusion Leadership team are working with the EW Group to ensure we are pushing ourselves to achieve more and more. Of course, it is one thing to make these improvements at leadership level but quite another for your people to know, understand and be able to participate in discussions of this kind, thereby effecting change together."



PHOTO: Bond St. Tunnels, Image courtesy of Crossrail

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Morgan Sindall

At Morgan Sindall, we are committed to creating an inclusive working environment which attracts and retains a talented and diverse workforce. We see this as critical to the long-term success of our business.

**MORGAN
SINDALL**
**CONSTRUCTION
INFRASTRUCTURE**


TERRI SEEL joined us in 2008 via a scholarship through the Institution of Civil Engineers' QUEST programme. She has since completed a civil engineering degree and is now a section engineer.



ASHLEIGH HAWORTH began work at our head office as a receptionist and is now training to be a buyer on our Materials Desk.



MO AGGWANI started work with us through a two month placement before joining us full time. He is now on our graduate programme pursuing professional development and is a mentor for students.

Diversity of thought and ideas enables us to provide better services for our customers. This is why we aim to recruit from a wide talent pool, and create the best teams we can, with people from every walk of life.

We have recently been awarded the four-year Eastern Highways Alliance and a Network Rail contract to deliver part of the wider East Coast Main Line Connectivity Programme at Werrington and Huntingdon. Live transport projects include three Crossrail contracts, a three-year Heathrow Airport programme of upgrades and improvements and the A1 Leeming to Barton improvement scheme.

As part of joint venture, Fusion, Morgan Sindall is also bidding for High Speed 2 work, where we are committed to the Strategic Transport Apprenticeship Taskforce to address the skills gap in the transport sector and create 30,000 apprenticeships by 2020.

With a strong pipeline of work, it is imperative that we are proactive in developing and rewarding our existing workforce as well as seeking and encouraging the workforce of tomorrow. We recruit using a 'local first' approach, whereby opportunities are first offered to the community local to our project,

helping to support the local economy and bring additional benefits to the communities we are working in.

To encourage diversity, we are involved in a wide variety of initiatives to raise the profile of the construction industry and promote its value as a rewarding career choice.

These include:

We work with not-for-profit organisation **Women into Construction** to offer work placements to encourage candidates into the industry.

We are a member of the **5% Club**, a campaign established to create momentum behind the recruitment of apprentices and graduates. The target is that 5% of the UK workforce are made up of this group in the next five years – at Morgan Sindall, we are currently exceeding this target.

As patron of the **West Midlands Construction University Technical College**, we currently mentor six students as well as supporting students' team projects, hosting site visits and giving careers talks.

In addition, our **Construction, STEM and Inspiring the Future ambassadors**, of which we have 165, undertook over 150 careers related events in local schools, colleges and universities last year. We are working in partnership with organisations such as the **Department for Work and Pensions** where, in total last year, we offered 100 work experience placements to unemployed 18-24 year olds, as well as local **ex-offender schemes** and **BuildForce**, an initiative which aims to increase the recruitment of ex-military personnel into the construction sector.

We also offer several **sponsorship programmes** for students in full time education, including the MSC in Tunnelling and Underground

Space at Warwick University which our Tunnelling business was instrumental in developing. We also sponsor students on Loughborough University's Commercial Management & Quantity Surveying and Construction Engineering Management degrees and are keen supporters of the **ICE's QUEST programme**. On completion of their studies, sponsored students join our 30 month **graduate development programme** specifically designed to ensure that new recruits receive the best possible start and the skills they need to develop their careers.

We have a number of schemes designed to retain and develop all employees. These include structured professional development including support for the Engineering Council's initiative, **EngTechNow**, and structured career mentoring programmes.

Awards

First place for our sponsored degree programme in the national **AllAboutSchoolLeavers Awards**

For the fourth year running, voted into the Job Crowd's top **100 'best companies for graduates to work for'** – coming second in the construction sector's 'larger intake' category.

2016 in numbers

3,116 employees
56 school work experience placements
80 sponsored students
12 QUEST students
105 graduates
350 employees on route to professional registration
150 trained career mentors
165 Construction / STEM ambassadors

HS2: Phase One and Beyond



Keynote Speaker

Chris Grayling MP,
Secretary of State for Transport



Keynote Speaker

Simon Kirby,
Chief Executive, HS2 Ltd



EVENTS ARE MOVING FAST AS THE START OF CONSTRUCTION OF PHASE ONE OF HS2 DRAWS CLOSER WITH PRELIMINARY WORK DUE TO START NEXT YEAR.

FOLLOWING THE EU REFERENDUM, HS2 SUPPORTERS BELIEVE IT IS EVEN MORE IMPORTANT THAT THE PROJECT GOES AHEAD ON ITS CURRENT TIMETABLE, IN ORDER TO BOLSTER THE UK'S COMPETITIVENESS, ESPECIALLY FOR THE NORTH.

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A delivery partner has been appointed and shortlists announced for the main construction contracts. Rolling stock manufacturers are taking the wraps off potential train designs in anticipation of the start of procurement later this year, and a bill seeking powers to extend phase one to Crewe has been promised during this parliament. Next year, the National Academy for High Speed Rail will open its doors to its first students; it will play a vital role in helping to meet demand for the highly skilled engineers and technicians the project will need.

A detailed route for phase two, to Manchester and Leeds, is expected to be confirmed by Transport Secretary Chris Grayling by the end of the year; Scotland and the cities of the North and the Midlands are making preparations to maximise the benefits of HS2 to their areas.

With the new Secretary of State for Transport, Chris Grayling MP and Simon Kirby, Chief Executive of High Speed Two both confirmed as keynote speakers, this conference brings together key players, from political leaders from around the UK to key phase one contractors.

Book your place now to get the most authoritative view of what HS2 will mean for the UK.

Additional confirmed speakers include:-

- Anthony Smith, Chief Executive, Transport Focus
- Sadie Morgan, Design Chair, High Speed Two Ltd
- Sir Terry Morgan CBE, Chair, National College for High Speed Rail
- Henrik Anderberg, HS2 Director, Alstom UK&I
- Laura Shoaf, Managing Director, Transport for West Midlands
- Cllr Judith Blake, Leader, Leeds City Council
- Cllr Liam Robinson, Chair, Merseytravel
- Jim Steer, Director, Greengauge 21
- Elizabeth de Jong, Director of Policy, Rail Delivery Group

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