



Transforming infrastructure

Skills for the UK's megaprojects

May 2019

Balfour Beatty



Foreword



The construction and infrastructure industry is rapidly scaling up for some of the most ambitious infrastructure schemes in the UK's history: the third runway at Heathrow; HS2; the new nuclear power plant at Hinkley Point C; and the £6bn a year Highways investment programme. Meanwhile, the industry is losing workers faster than it is recruiting new ones¹. We simply do not have enough engineers, construction workers or new entrants coming into the industry.

The sheer scale of these schemes and the fact that they will be in construction at the same time means that they could easily compound the skills shortages which exist across the sector in almost every technical discipline. But with proper planning they could be used to address the skills gap and transform the industry for the better, for good, enabling us to export skills rather than import them as we do currently.

To reach that goal, the Government and the industry must be clear-eyed about the situation and what is required to fix it. We must pull together to tackle these skills shortfalls.

There is little doubt that the UK's domestic construction skills base needs strengthening as a priority. We must ensure that the army of skilled engineers and construction workers needed over the next twenty years to deliver these schemes simultaneously is ready – and that they are trained in the new skills that the industry is coming to rely on. All of us must work harder to update the image of the sector, redoubling existing efforts. We must do more to upskill and reskill those already in the industry. And, as outlined in the Construction Sector Deal², more must also be done to adopt innovative ways of reducing demand for on-site workers, learning from other industries including automotive and manufacturing.

Achieving this calls for a laser-like focus and improved industry-coordination on some of the things we should be doing anyway, such as improving the sector's diversity, increasing its productivity and making it as easy as possible for skilled workers to move between schemes. All available opportunities must be leveraged. But the Government must also play its part in making sure that the immigration system is flexible enough to allow the industry to access the skilled workers it needs to build these hugely complex, challenging schemes where there is a shortfall of UK workers – which there will be; that the way in which it procures schemes ensures a robust, viable construction industry; and that the Apprenticeship Levy is fit for purpose and delivering the future talent pool needed.

It looks devastatingly simple written down. But these complicated, interconnected factors must all be tackled head-on in order to ensure the delivery of these critical schemes without spiralling wage-costs or project delays.

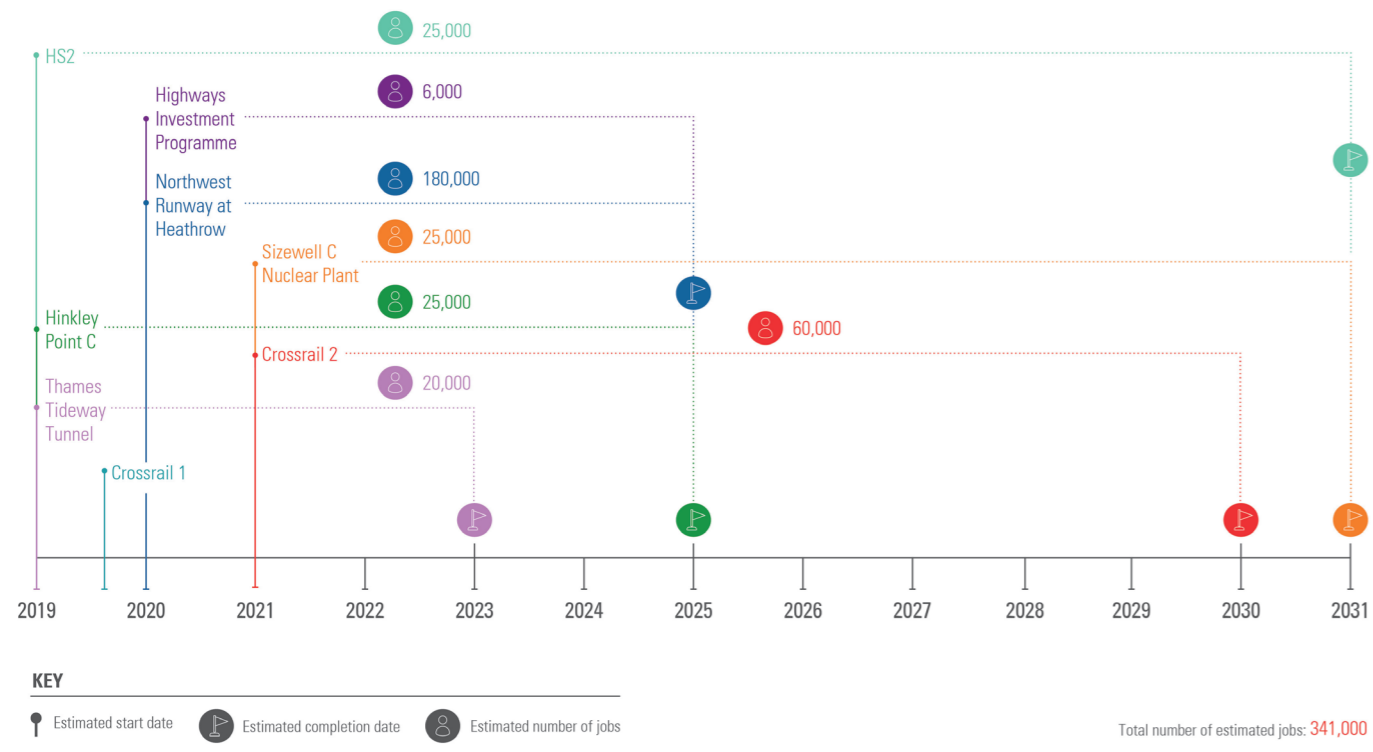
Leo Quinn
Group Chief Executive

¹ CIOB, The impact of the ageing population on the construction industry, December 2015

² Industrial Strategy, Construction Sector Deal, HMG, July 2018

Mega projects

Mega projects due to be constructed in the next decade, and the estimated number of workers required on each scheme



Key points and recommendations

1. While public perception is still that these mega projects are far off, the reality is that the industry is scaling up for them now, so we must speed up actions to address skills shortfalls.
2. To help ensure that the workforce is ready, decisions on large infrastructure schemes must be made more quickly and in a way which delivers certainty to companies and enable workforce planning and investment in training.
3. Specialist skills need to transfer to similar projects otherwise those skills will be lost as people move into other sectors, leave the industry or move abroad. Unscheduled delays such as that currently impacting HS2 will effect current agreements to phase work on concurrent mega projects. Mega projects should therefore be planned and sequenced by Government as a programme or pipeline of work to avoid 'feast & famine' in the supply of skilled labour.
4. Government and the industry must make it as easy as possible for skilled individuals to move between schemes, via a single, coordinated passport scheme covering the whole construction and infrastructure industry.
5. Apprenticeships can and should play a core role in addressing these skills gaps although this is not a short-term fix. However, the failure of the Apprenticeship Levy to drive the delivery of more apprentices has led to mounting frustration across the economy.
6. Government and industry agree that the Apprenticeship Levy is not working. Now that the Government has agreed to evolve the Levy, the reform must be swift and far-reaching to ensure that it works for the construction and infrastructure industry, and the economy more broadly.
7. We welcome the fact that the Government will consult on the £30,000 minimum salary threshold suggested in the Immigration White Paper, and encourage an approach which allows the construction industry to access the skilled workers it cannot source domestically.
8. There are many positions in the industry which do not command £30,000 salaries yet which face shortages, including many of the trades, which are essential on-site. The definition of "low skilled" is inaccurate in these cases, as many of these essential roles, such as electricians and plumbers, require specialist skills, training and experience.
9. The threshold is likely to prevent those talented, dynamic people starting out in their careers from coming to the UK. In many cases, it is precisely these people that the construction and infrastructure industry could benefit from as it modernises and transforms itself.
10. We encourage the Government to consider the need for a robust domestic construction industry when contemplating the nature of risks that can be reasonably transferred to the private sector in its review of the Government's guidance on risk which is due to take place this year.
11. In order to speed up the adoption of modern methods of construction, more must be done to educate and inform - both to build the evidence base about the benefits of offsite and modular building, and also to improve understanding about elements which are key to success, such as the need to aggregate schemes over a longer-timeframe rather than dealing with each scheme individually; and the importance of building in repeatability.



Context

These mega projects are at the heart of the Government's plans to improve the UK's connectivity and energy security, to maintain its competitiveness post-Brexit and to build on its impressive engineering legacy and develop its exportable infrastructure know-how. The industry is keen to deliver – the key question is whether it has enough skilled people to construct four of the most challenging projects in several generations concurrently, as well as delivering on other priorities such as addressing the housing shortage.

The skills gap the sector is facing is well-documented and getting worse across the country. The much-cited Farmer Report³ outlined the scale of the issue in stark terms. The report described the skills shortage as a "ticking time bomb", predicting a 20-25% decline in the available construction workforce within a decade.

With demand for workers outstripping supply, wages are likely to be driven up, something which is already happening in some disciplines. As the costs of Government-funded construction projects increase, it is the taxpayer who will carry the burden. This further impacts the ability to deliver schemes to budget and puts already stretched margins under strain. In some cases, a shortage of skilled labour puts the deliverability of schemes at risk.

Addressing these issues requires both industry and the Government to make a concerted, strategic effort. Industry must prioritise:

1. Attracting more young people to the industry who might not otherwise consider a career in the sector, especially those with the digital skills the high-tech construction and infrastructure sector needs;
2. Retaining older workers for longer with ways of working that suit their needs;
3. Increasing the industry's diversity in terms of ethnicity, gender and social background;
4. Upskilling the existing workforce and continuing training throughout careers;
5. Making it as easy as possible for skilled workers to move between schemes, using a single "Infrastructure Passport" as proposed by the Heathrow Taskforce⁴ and of which a version is already in use by HS2;

6. Significantly increasing the industry's productivity and efficiency, by moving more quickly to modern methods of construction and digital solutions;
7. Coordinating better and collaborating across the industry to ensure that we learn from each other.

The Government must prioritise:

1. Making sure that the Apprenticeship Levy is redesigned so it is fit for purpose and helps us to attract and train people in the skills the industry needs, rather than serving, as it currently does, as an additional tax;
2. Ensuring the immigration system meets the needs of an industry which has relied on EU workers to fill significant gaps which - due to record levels of employment, ongoing skills shortages and insufficient new entrants and young people taking up apprenticeships - are unlikely to be resolved from the domestic base for some time. There are simply not enough British workers to fill the positions and there are not likely to be for some considerable time;
3. Planning and sequencing mega projects as a programme / pipeline of work to avoid 'feast and famine' in the supply of skilled labour;
4. Acknowledging, as the industry's key customer, its responsibilities and ensuring it has a procurement model which strengthens, rather than weakens the industry;
5. Making it as easy as possible for skilled people to move to follow the work, by facilitating the "Infrastructure Passport" recommended by the Heathrow Skills Taskforce;
6. Supporting the industry's transformation by commissioning schemes which have modern methods of construction at their heart, to help the industry reach the tipping point needed to really embed innovation and new approaches;
7. Making decisions on large infrastructure schemes more quickly in order to provide certainty to companies and enable workforce planning and investment in training.

Ensuring that the UK has the skilled workforce needed to deliver these critical infrastructure projects requires a strong, integrated response from industry and Government.

Brexit and the domestic skills base

Brexit has sharpened the focus on ensuring that the UK is as competitive as possible and that our economy has the high-quality infrastructure needed to underpin strong economic growth. Making sure that the strategically important large infrastructure projects the country has planned are delivered, is now more relevant than ever in terms of ensuring the UK's place as a global economy outside the EU.

However, Brexit has also compounded the existing skills challenge by severely restricting, and maybe ending completely "freedom of movement" and therewith the UK's ability to rely on migrant labour from the EU to plug skills gaps: over 7% of workers in the construction industry are from elsewhere in the EU⁵ – 28% in London⁶. In an industry with existing skills shortages, a significant pipeline of infrastructure to deliver, and 50% of its workforce likely to retire or reduce time spent at work in the coming decade⁷, this poses a particular challenge.

These shortages have a different impact on different parts of the UK. Scotland, for example, which is less reliant on EU migrant workers, there is nonetheless likely to be a skills challenge stemming from Brexit in that the shortages elsewhere, compounded by the inability to access EU migrant workers, may drive wage increases. Teamed with the fact that these schemes have cachet, given their scale, complexity, their importance and the fact that there will be thousands of roles available, there is a strong possibility that they will attract workers from Scotland, increasing the skills gap there: if our reliance on EU migration decreases, economic migration within the UK is likely to increase.

The UK has not been producing the right skills in the right numbers for some time. Many sectors, including construction and infrastructure, have relied on EU workers to fill significant gaps which - due to record levels of employment, ongoing skills shortages and insufficient new entrants and young people taking up apprenticeships - are unlikely to be resolved from the domestic base for some time.

This is particularly the case, in our view, as the Apprenticeship Levy, which aimed to increase the number of young people choosing technical and vocational routes, has not done so. For example, with the Apprenticeship Levy now having been in place for a year, Balfour Beatty has not increased the number of apprentices it trains. Indeed, the numbers of apprentices our industry and others are taking on this year is lower than it has been in previous years.

Apprenticeships can and should play a core role in addressing these skills gaps although this is not a short-term fix. However, the failure of the Apprenticeship Levy to drive the delivery of more apprentices has led to mounting frustration across the economy. The time has come to look again at how the Levy is implemented. We therefore welcome the Prime Minister's announcement that the Government will be considering how to evolve the Levy.

Balfour Beatty has always put skills and training at the heart of our business. We have been vocal in our support of the Apprenticeship Levy in principle – with the caveat that it must deliver the large number of high quality apprentices the industry needs. To ensure it does so, it must be reformed in a number of ways. Key amongst these is the way we measure the Levy's success, which is currently by looking at the number of people starting apprenticeships. This must be overhauled: it is not the starts that deliver a skilled workforce, but how many people are completing their apprenticeship – this is where we must focus our efforts. Unfortunately, looking at number of completions paints an even worse picture of how we are doing in training the skilled workforce the sector needs for the future.

The ongoing issues with apprenticeship standards also need ironing out. Being able to use the Levy to train people for back-office and other disciplines is of course important, as is investing in upskilling our current workforce. But what the construction and infrastructure industry really needs is more new recruits to the industry in engineering and other technical roles. Not being able to fund the training for such people because the relevant standards have not been approved yet is galling for businesses which have been paying into the Levy since April 2017.

³ Modernise or Die, Construction Leadership Council, October 2016

⁴ Heathrow Taskforce, <http://mediacentre.heathrow.com/pressrelease/details/81/Expansion-News-23/10064>, September 2018

⁵ Office of National Statistics, Article: Migrant labour force within the construction industry: June 2018

⁶ Ibid

⁷ Fergus Harradence, Deputy Director for Construction at the Department for Business, Energy and Industrial Strategy, giving evidence to the House of Commons Business, Energy and Industrial Strategy Select Committee, 13 November 2018

The need for decisive action

Balfour Beatty's commitment to the skills agenda

Balfour Beatty believes that a strong and resilient construction industry needs a robust domestic skills base. As a British company with a hundred year legacy in the UK, Balfour Beatty is committed to addressing the skills shortages in the UK and investing in home-grown talent. We employ over 100 - 150 apprentices each year in the UK in addition to the 320 currently under training in a diverse range of roles across the business. We employ around 700 more young people on graduate and part-time higher education/degree schemes.

In order to promote careers in the industry, Balfour Beatty also undertakes a significant amount of outreach with young people. As part of this, we have engaged with around 22,000 students across the UK over the past three years, via a series of live interactive broadcasts, site tours and classroom visits to help increase awareness of the wide range of rewarding careers available to them throughout construction and engineering.

Specifically targeting students from different backgrounds and cultures, the scheme gives students a first-hand look at the roles they can play a part in. Students are given the opportunity to observe engineering works being undertaken from the top of a tower crane, ask questions of industry specialists and venture out on construction sites.

Balfour Beatty is also a long standing member of The 5% Club, an employer led organisation set up by our Chief Executive, Leo Quinn, over five years ago, that aims to address the skills gap by getting more young people into earn to learn opportunities, and to encourage businesses to take the lead on training and promote apprenticeships as a positive career decision.

We are also supporting our customers in delivery of their skills commitments. For example, Heathrow's commitment to provide 10,000 apprenticeships by 2030 including via the first airport-owned Shared Apprenticeship Scheme in construction, which Balfour Beatty is participating in.

Government and industry agree that the Apprenticeship Levy is not working. Now that the Government has agreed to evolve the Levy, the reform must be swift and far-reaching to ensure that it works for the construction and infrastructure industry and the economy more broadly. Balfour Beatty has set out its full recommendations on how the Levy should be changed in order to deliver the skills the construction and infrastructure industry needs in its recent paper: *"Building the future: Reshaping the Apprenticeship Levy"*⁶.

As there is unlikely to be the large increase in the amount of home-grown talent needed, in the time available, we believe that the UK must remain open to skilled workers, especially those equipped with the engineering and digital skills the high-tech construction and infrastructure needs. The industry therefore needs an immigration system which delivers for the construction and infrastructure sector.

The Government's Immigration White Paper⁹, published in December 2018, proposes the restriction of the number of lower-skilled EU workers (which includes many key construction and engineering roles) who could enter the UK after Brexit.

There are many positions in the industry which do not command £30,000 salaries yet which face shortages, including many of the trades, which are essential on-site. The definition of "low skilled" is inaccurate in these cases, as many of these essential roles, such as electricians and plumbers, require specialist skills, training and experience. While this impacts our supply chain more than it impacts Balfour Beatty directly, it is an issue for the whole industry given that 80-90% of the sector's headcount is employed in trades.

The threshold is also likely to prevent those talented, dynamic people starting out in their careers from coming to the UK. In many cases, it is precisely these people that the construction and infrastructure industry could benefit from as it modernises and transforms itself. Balfour Beatty is concerned that the proposals could therefore hinder the delivery of the significant schemes in the pipeline. We welcome the fact that the Government will consult the £30,000 minimum salary threshold during 2019 and encourage an approach which allows the construction industry to access the skilled workers it cannot source domestically.

Certainty about the pipeline

Ensuring the right skills are ready at the right time relies on certainty. For example, many large employers including Balfour Beatty have a long, proud tradition of recruiting and training apprentices, graduates and trainees. We plan our training needs based on workload visibility five years ahead. Greater, firmer visibility and consistency of the construction and infrastructure pipeline helps us to commit to more apprenticeships and other training programmes.

To help ensure that the workforce is ready, decisions on large infrastructure schemes must be made more quickly and in a way which delivers certainty to companies and enable workforce planning and investment in training.

Of course, this is a very challenging ask: corralling sufficient cross-party political backing, overcoming difficult planning decisions and legal challenges, and securing funding to build the schemes are all very difficult to achieve. But the "will they, won't they" approach the UK takes to schemes at the moment does not make for a robust skills pool. For example, Balfour Beatty has taken on a large number of employees in order to enable us to deliver the contracts we are proud to have won on HS2. However, the delays to HS2 mean that these people will now either have to be redeployed where possible, onto other schemes, or, where this is not possible, be made redundant. This situation is being replicated across the industry.

This stop-go approach is not only intensifying the loss of skilled engineers to other industries but also undermining the investment case for suppliers contemplating R&D, critical equipment and training programmes. Continuity and visibility of project flow are essential to the retention of existing skills.

In order to address this, we believe that mega projects should be planned and sequenced by Government as a programme or pipeline of work to avoid 'feast & famine' in the supply of skilled labour. Specialist skills need to transfer to similar projects otherwise those skills will be lost as people move into other sectors, leave the industry or move abroad. For example, experts on tunneling for Crossrail should be employed on HS2 and once Hinkley is finished, people should move across to Sizewell. Those responsible for the schemes have already agreed to phase their construction to ensure that they do not all need exactly the same mechanical skills at the same time, in order to relieve the pressure on the industry. But with unscheduled delays, such as that currently impacting HS2, some of it is out of their hands – and even so, with the numbers coming into the industry not even enough to replace those leaving it, there will still be a shortfall.

⁶https://www.balfourbeatty.com/building_the_future

⁹HMG, The UK's future skills-based immigration system, December 2018

A viable construction and infrastructure industry

The financial crisis followed by austerity, teamed with the industry's structural issues, have resulted in a construction sector which has, for over a decade, made only very slender profit margins¹⁰. Indeed, last year, the top 10 UK contractors made a combined margin of less than half a percent on turnover of £31bn¹¹. Meanwhile, labour and material costs have risen, particularly since Britain voted to leave the EU in 2016, leaving the industry squeezed on both sides. Furthermore, the industry faces a pressing need to increase its investment in skills and training and in innovation, digitisation and modern methods of construction.

Through austerity measures implemented during the financial crisis, the Government aimed to get more for less out of its suppliers. One of the key ways it has driven down on costs during the procurement process is in the transfer of the risks associated with infrastructure schemes by the client onto the contractor, even though the risks involved in these contracts are so large they could not normally be absorbed by a standalone company. As a result, this risk is then often shared amongst the supply chain and subcontractors.

This adversarial, transactional approach is one of the reasons construction costs can be so high in the UK, due to lack of free cash flow over the last decade for investment toward improving productivity, contractors having to price for inappropriate risk, and over reliance on and frequent recourse to legal action.

The Government is aware that things must change. There have already been positive developments such as the Construction Sector Deal¹² and the publication of *Transforming Infrastructure Performance*¹³. The Government has also stated that it will consider what constitutes appropriate risk transfer following the collapse of Carillion and that the Treasury "Orange Book", the Government guidance on risk, is also due to be reviewed in financial year 2018/19¹⁴. We encourage the Government to consider the need for a robust domestic construction industry when contemplating the nature of risks that can be reasonably transferred to the private sector.



Moving to modern methods of construction

Digital will play an increasingly important role in attracting new, young talent to the industry and increasing the sector's productivity. At the moment we are at risk of Millennials discounting construction as a career option because they are so well-versed in digital that, in many cases, the outdated image of the industry may not appeal to them: we have a generation of young adults for whom our industry is not seen to be as attractive as it needs to be. CITB and others in the sector must do more – and do it faster - to change this perception and to demonstrate that a career in construction and infrastructure provides exposure to the latest technologies while delivering some of the most important projects for a generation. It is incumbent on the sector to set out a clear vision for what type of work and skills are required for these schemes and how exciting they will be. Contractors and schemes which fully embrace technology will have an advantage in hiring and retaining workers.

Today, only 12% of construction involves offsite¹⁵. Despite a groundswell of recognition about its benefits, there has been the understandable inertia of a conservative industry with long project cycles and unaligned interests. Competition is so keen and margins often so tight that investing in new approaches have been seen as a lesser priority. However, the pace of change in the industry is now almost tangible. From predictive analytics, 4D virtual reality models, augmented reality, and the increasing use of offsite and prefabrication, to wearable technology which tracks where workers are on a site, monitors their vital signs and alerts them in real time of potential hazards, technology is transforming the construction industry, making it more efficient, safer and more productive.

The benefits of digitisation are clear to companies such as Balfour Beatty, which is already using them across the business and the projects it is working on. Projects can be delivered more effectively and efficiently by harnessing the power of cloud computing and enhanced mobile technology. Building Information Modelling (BIM) in the form of 3D digital representation of projects overlaid with 4D detail on scheduling and cost, together with augmented- and virtual-reality technology enables seamless interaction between offices and sites facilitating a "build right first time" approach. Drones allow teams to track progress safely, more efficiently and with increased accuracy, collecting data more frequently than

human surveyors. Telematics are tracking how our vehicles are used, ensuring that we are driving them economically, safely and sustainably. And we are using data analytics to begin to predict and prevent problems as they arise in infrastructure, rather than the slower, more expensive and less reliable "find and fix" model the industry has relied on for decades. We have therefore made it a core part of our strategy to reduce the amount of work we undertake on-site by 25% by 2025.

Key proposals by those responsible for the mega projects have real potential to help here. For example, the four logistics hubs proposed by Heathrow Airport to contribute to its proposed expansion would play an important role in driving the industry's use of offsite construction and in creating a modern construction industry focussed around the workforce the sector needs for the future. These hubs are planned to be spread across the country – for example, Balfour Beatty is on the longlist of potential sites with its Birch Coppice Industrial Estate bid, which is in the West Midlands. Heathrow Airport has also outlined that other national infrastructure projects should use these offsite construction hubs, which would multiply the benefits.

Many of those responsible for commissioning infrastructure remain cautious about trying innovative construction approaches. The fear of failing by trying something new is understandable when using taxpayers' money. The risk of trying something new is equally understandable when the safety of those using the infrastructure must be paramount. However, doing the same things in the same way will not lead to a more efficient or productive construction industry. The mainstreaming of industrialised construction methods must be client-led.

At Balfour Beatty, we believe that if we do not find a way as a country to commit more firmly to this agenda we will miss the opportunity to reap its game-changing benefits and allow overseas competitors - in many cases more advanced in this area than our domestic companies - to steal a march on us.

To address the existing barriers – from the reluctance of procurers to use it and the lack of capacity in the UK market to produce it - the time has come to move beyond traditional construction mind-sets and create a virtuous triangle – among designers/specifiers, customers and the construction supply chain.

¹⁰ Construction News 100

¹¹ Building, <https://www.building.co.uk/top-150-contractors-and-housebuilders-split-fortunes/5094846.article>, July 2018

¹² Industrial Strategy, Construction Sector Deal, HMG, July 2018

¹³ Transforming Infrastructure Performance, Infrastructure Projects Authority, December 2017

¹⁴ <https://publications.parliament.uk/pa/cm201719/cmselect/cmpubadm/1685/1685.pdf>

¹⁵ Construction, Building Services Engineering and Planning: Sector Skills Assessment 2012, UKCES, 2012

Balfour Beatty's Strategic Design Consultant Partnership

In 2017, Balfour Beatty formed a new collaborative UK Strategic Design Consultant Partnership with Atkins, Mott MacDonald and WSP in order to foster a new level of openness, collaboration and innovation.

The Partnership, which builds on Balfour Beatty's already longstanding relationship with these three companies, means Atkins, Mott MacDonald and WSP are prioritised for our design consultancy requirements over a five-year period, with standard terms and conditions. We only look beyond these three companies where they do not have the necessary capability.

A community of practice brings designers and engineers from the four companies together to find solutions in key areas such as health and safety through design, value engineering and the use of more cost-effective design resources.

Customers therefore benefit from earlier engagement with a co-ordinated collaborative team and improved, consistent working practices. This not only saves time in terms of the usually lengthy contractual discussions, but also ultimately reduces construction and programme costs.

More must be done to educate and inform - both to build the evidence base about the benefits of offsite and modular building, and also to improve understanding about elements which are key to success, such as the need to aggregate schemes over a longer-timeframe rather than dealing with each scheme individually; the importance of building in repeatability and the need for a more collaborative, less adversarial approach in commissioning infrastructure.

25 by 2025

While many companies are beginning to consider offsite and modularisation on a case-by-case basis for new schemes, Balfour Beatty has made it a core part of its strategy. We have committed to reducing on-site activity by 25% by 2025. Supporting the Government's 2025 strategy for lower cost, lower emissions and faster delivery, we aim to remove those activities we can from sites in order to free up our workforce's time to focus on delivery and reduce waste. This gives us the scope to create complex structures safely and efficiently offsite, assembling more quickly on-site. It not only saves time, but also reduces labour costs, improving overall efficiency compared with traditional methods of construction. The use of a range of different materials teamed with smart engineering and modern construction techniques helps us to deliver better against the construction requirements.

We believe that a new wave of innovation, coupled with a more efficient partnership model, will enable us to increase build efficiency and speed while driving down operational costs.

We expect our 25 by 2025 strategy to deliver:

- Enhanced health, safety and well-being in our workforce
- Productivity gains, by concentrating on improving how we work
- Reduced logistics costs
- Quality assured projects with reduced on-site rework
- Greater certainty of programme delivery
- Shorter overall construction programmes
- A 'design once, use often' mindset which discourages designing bespoke systems and components

Balfour Beatty not only aims to make continuous improvements to our products, services and processes. We are of course also keen to nurture and unlock innovation wherever possible, with the goal of improving the efficiency, safety and delivery of our work for the customer. Our suppliers are market experts and often have the specialist knowledge to enable us to invest in new products, materials and services. Innovation that helps to differentiate Balfour Beatty or make us more efficient, encourages growth and in turn provides more opportunities for our suppliers.

We want to encourage suppliers to generate new ideas and share them with us. Our "Innovation Gateway"¹⁶ is a tool that allows suppliers to put forward innovative ideas relating to products, materials and services, with a supplier feedback process in place that keeps suppliers informed. This could be a big, 'game changing' idea or something which brings about an incremental but important improvement in the way we deliver our projects. We evaluate the ideas and, if they are workable, we pilot them before making them available across our projects.

Our aim is to inspire, incentivise and support the experts in our supply chain to develop these innovations to our mutual advantage and to the benefit of our customers.



¹⁶ <https://www.balfourbeatty.com/how-we-work/supply-chain/supplier-innovation/>

Changing the face of the industry

It is possible that these schemes could be the making of the industry. They will do more than deliver physical assets – they will leave an engineering legacy for generations to come, developing skills for the industry for the future and enabling the UK construction and infrastructure industry to export our knowledge to other markets. Ideally, they will also change the construction industry, modernising it and transforming the makeup of its workforce.

There are also massive opportunities on the social value front, to bring people back into the workforce. We support the ambitions articulated by Government and by those responsible for the schemes, of making them exemplars for social mobility and

diversity. The industry must step-up its efforts to attract more young people who might not otherwise consider a career in the sector; retain more older workers; increase the diversity in terms of ethnicity, gender and social background. It must also maintain focus on the upskilling of those currently working in the industry, by ensuring that it is developing our own workforces and supporting our trusted supply chain partners in doing the same, so the benefits are felt sector-wide.

These changes must happen now, and they must happen more quickly. While public perception is still that these schemes are far off, the reality is that the industry is scaling up for them now.



Increasing the number of women in the construction industry

The construction and infrastructure industry knows that it must do more to improve the diversity of its workforce. The most obvious way in which it must improve is in attracting and retaining more women in the sector: while women make up 51% of the working population¹⁷, they make up only 14%¹⁸ of the construction workforce – less in site-specific roles.

The reasons behind the bleak statistics are many. Not all of them are within the control of the sector itself. It will therefore take a number of years before this imbalance is redressed. For example, the lack of young women taking STEM (science, technology, engineering and maths) subjects has a significant impact on the numbers coming into industries such as construction. Although there has recently been a small increase in the number of girls taking STEM subjects at GCSE¹⁹ and A Level, the increase remains very modest and the trend is not continuing beyond that point²⁰, for example at university. Taking one key example, Engineering is one of the key skills the construction industry relies on. Only 10% of UK engineers are women²¹. This is unfortunately unlikely to change in the near future, as only 15% of UK Engineering Undergraduates in 2017 were female²². This means that the talent pool the construction industry is recruiting from is currently, and will remain for the next few years at least, very male-dominated.

Furthermore, even if there were a significant increase in the next year's intake, of young women choosing to study relevant subjects at GCSE, it would still take more than a decade for those people to come through the system and begin to have an impact on the figures. We welcome the work that is underway to try and encourage more young people at school of all genders to study STEM subjects. However, we believe that more needs to be done and that it must be done faster.

Those issues that the construction industry itself is able to directly influence will require greater sector level collaboration and a range of more strategic approaches than have been used previously. To this end, we welcome the work that is underway via the Construction Industry Training Board (CITB), the Construction Leadership Council and the Sector Deal; and the National Retraining Scheme, which should begin to make a real difference.

Balfour Beatty is committed to playing its part in addressing the under-representation of women in the sector as well as in our own business. Our aim is to attract and retain the best people no matter what their gender or background to ensure we have a diverse, talented workforce. More than that, we strongly believe we need diversity of gender, experience, race, sexuality and background to be a high performing organisation.

At an industry level, we are working with the Government and with industry bodies to challenge the stereotypes about the sector and attract more women into the industry, and are partnering with schools across the country to promote careers in construction and ultimately Balfour Beatty as an employer. We are also engaging with organisations such as STEMNET to create a network of STEM ambassadors to encourage children in schools to take up STEM subjects.

In our own business, Balfour Beatty is implementing a robust plan to address those areas we as a company can change. Amongst other things, this includes a returnship programme, embedding unconscious bias training into management courses, benchmarking and improving our maternity policy, encouraging senior managers to develop and support high-potential women and reviewing recruitment processes. Our plan has executive level sponsorship and Chief Executive oversight.

Our priority is to improve the diversity of our workforce and specifically to increase the number of women in the company at all levels, in all parts of the business, especially in technical, operational and senior roles, rather than simply aiming to increase the number of women in the business. Although this will be even more challenging than trying to simply recruit significantly more women, we believe that it is the right thing to do and the only way to genuinely address the issue over the long term.

Balfour Beatty believes that it is only by both addressing the high-level issues, the sector's structural issues and by making the improvements outlined in our plan that we will successfully increase the number of women in Balfour Beatty and the industry more broadly.

¹⁷ Royal Academy of Engineering

¹⁸ <https://www.goconstruct.org/construction-today/diversity-in-construction/women-in-construction/>

¹⁹ <https://www.wisecampaign.org.uk/resources/2017/08/analysis-of-gcse-stem-entries-and-results>

²⁰ Unifrog, January 2018

²¹ Women's Engineering Society, January 2018

²² Women in Engineering, January 2018

Diversity and Inclusion

Diversity of people, perspectives and experience is essential to help Balfour Beatty address business challenges and perform for our customers. We believe in creating a safe and welcoming workplace with a supportive and fair culture that encourages innovative and fresh ways of thinking.

We aim to be the leading engineering and infrastructure company in our chosen markets, creating infrastructure, supporting communities and enabling growth. To deliver these, we have to aim to represent the communities in which we operate.

Our diversity and inclusion strategy²³ drives action to improve diversity in our organisation. It promotes high performance, engagement and makes Balfour Beatty a great place to work. The skills and diversity of our people and our supply chain are vital to the development and success of our business.

To support our diversity and inclusion initiatives, Balfour Beatty has created four employee-led Affinity Networks, including Gender Equality, LGBT, Multi-Cultural and Ability. By joining these groups as a member or an ally, employees can help support Balfour Beatty's overall diversity and inclusion strategy and in turn, create a fair and inclusive working environment.

This has seen us take steps, for example, to ensure that we are accredited to Level 2 of the Government's Disability Confident Scheme. As one of only three Disability Confident employers in the UK construction industry, Balfour Beatty is committed to ensuring that disabled people and those with long term health conditions have the opportunities to fulfil their potential and realise their aspirations.

With the support of its customers, Balfour Beatty is also recruiting from a large and more diverse pool of talent. For instance, in collaboration with Network Grid, our Power, Transmission and Distribution business provides opportunities for ex-offenders to get back into employment.

Balfour Beatty is a forces-friendly employer and a signatory to the Armed Forces Covenant. Many Armed Forces leavers have transferable skills which are ideally suited to the construction sector. We believe that the end of military service provides the opportunity for Armed Forces leavers to begin a new, fulfilling career in one of the diverse roles the construction industry offers. We support the British Forces Resettlement Services and its careers events, through advising service personnel on careers within the construction industry, and have a strong community of ex-Armed Forces employees who make a valuable contribution to our business.

Moving to modern methods of construction



We also must not take for granted the fact that skilled people will be happy to move to follow the work – this is less and less the case as people understandably desire a good quality of life and a strong work-life balance. Nor will they necessarily travel long distances to reach a different scheme if their specialist skills are required elsewhere - studies from the construction of Sizewell B in Suffolk suggest that construction workers will not normally travel more than 90 minutes to work²⁴.

Technological advancements will reduce the need for this to an extent, both in terms of reducing the number of people needing to be physically on-site, and in terms of the hubs centrally which may be shared between schemes.

However, recognising that relocation of lives and families is a big ask, Government and the industry must make it as easy as possible for these skilled individuals to move between schemes, to maximise the chances of retaining them in the industry. Recommendations such as that from the Heathrow Skills Taskforce to create a new "Infrastructure Passport" that will coordinate transferable skills amongst major UK projects and enable skilled workers to move easily between them²⁵ chimes with HS2 Limited's position²⁶, which is that, given the uneven year-on-year profile for the labour and skills requirements of these mega projects, every effort must be made to keep skilled workers within the industry and engaged as they are needed. This recommendation should be adopted as soon as possible through the development of a single, coordinated passport scheme covering the whole construction and infrastructure industry.

²³ <https://www.balfourbeatty.com/media/317138/di-brochure-feb18-print.pdf>

²⁴ EDF Energy, Draft Workforce Profile Report, February 2011

²⁵ Heathrow Taskforce, <http://mediacentre.heathrow.com/pressrelease/details/81/Expansion-News-23/10064>, September 2018

²⁶ HS2 Ltd, Skills, Education and Employment strategy, September 2018

Conclusion

To resolve these issues and deliver the mega projects the country and the economy need, the industry must increase productivity, demonstrate it is capable of innovation and attract a new generation of talent. Likewise, Government must play its part – firstly by acknowledging the scale of the challenge, then by ensuring that it is supporting the industry in training the next generation of talent and in accessing the talented workers we need where there are not enough in the domestic workforce to fill the roles available and to meet the challenges ahead.



About Balfour Beatty

Balfour Beatty is a leading international infrastructure group. With 15,000 employees across the UK, Balfour Beatty finances, develops, delivers and maintains the increasingly complex infrastructure that underpins the UK's daily life: from Crossrail and Heathrow T5 & T2b to the M25, M60, M3 and M4/M5; Sellafeld and soon Hinkley C nuclear facilities; to the Olympics Aquatic Centre and Olympic Stadium Transformation.

Balfour Beatty believes that a strong and resilient construction industry needs a robust domestic skills base. As a British company with a hundred year legacy in the UK, Balfour Beatty is committed to addressing the skills shortages in the UK and investing in home grown talent. Balfour Beatty recruits around 150 apprentices each year in the UK in addition to the over 300 currently under training in a diverse range of roles across the business. We employ around 700 more young people on graduate and part-time higher education/degree schemes.

Balfour Beatty is also a long standing member of The 5% Club, an employer led organization set up by our Chief Executive, Leo Quinn, five years ago, aiming to address the skills gap by getting more young people into earn to learn opportunities, encourage businesses to take the lead on training and promote apprenticeships as a positive career decision.



Veena Hudson

Head of Public Affairs and Policy | Balfour Beatty
veena.hudson@balfourbeatty.com
5 Churchill Place, Canary Wharf, London E14 5HU
+44 (0)20 7963 4235 | +44 (0)7790 340 693
www.balfourbeatty.com