

THE SKILLS GULF

How the construction and infrastructure industries can tackle the crisis





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Introduction

The government's commitment to growing the economy, in part by speeding up the approval of big infrastructure projects, including a third runway at Heathrow, the much-anticipated Lower Thames Crossing, Sizewell C and the planned upgrades to our national grid as well as our ageing water sector, is an admirable goal. However, there is a glaring problem.

The UK doesn't have enough workers with the right skills to deliver complex projects like these, especially if the government is also committed to reducing the UK's reliance on foreign workers. Since Brexit large numbers of the workforce have returned to Eastern Europe.

The UK's construction workforce has also aged, while the pandemic saw an acceleration of retirements. And, at the same time, the sector has not attracted in enough young people to be trained to replace them.

Unless we address the skills shortage in the construction and infrastructure industries head-on, and with the upmost urgency, the UK's ambition to deliver improved growth and productivity through a major investment in infrastructure and construction is unlikely to succeed.

An immediate overhaul of education and skills training, as well as greater use of technology, is going to be needed if its plans are to be a success. This whitepaper explains the skills shortage issue, outlines how detrimental it is, and puts forward some proposals to help solve it.

At Hercules, we are trying to do our bit, having launched the Hercules Academy in 2024, and already trained 2,000 people since launch. However, the UK needs a new and urgent national plan.



Brusik Korkmaz
CEO

A handwritten signature in blue ink, appearing to read 'Brusik Korkmaz'.

Chapter One:

Understanding the skills shortage

The UK's skills shortage is no secret. There have been endless media reports, Parliamentary inquiries and warnings from business on it. But despite all of this attention, the issue still stubbornly persists.

Perhaps then it's better to phrase the phenomenon in a different, more impactful way: the problem is undoubtedly a handbrake on economic growth. A research paper in 2019 even estimated that the country could be missing out on £120bn per year by not addressing the issue¹.

And without improving the skills of the nation, we will simply continue to see low productivity, low pay and high-income inequality levels.

As Professor Lord Richard Layard of the London School of Economics told MPs in 2024², a major investment in skills should serve as a cornerstone to any growth strategy.

In other words, talk of technology is all well and good, but you simply can't overlook the need for human capital. This is something that the current government has recognised.

Ministers have launched a new body, Skills England³, in a bid to tackle the issue, provide job opportunities across the country and drive economic growth. In announcing the formation of the cross-sectoral organisation, the Prime Minister Sir Keir Starmer made an important admission.

"Our skills system is in a mess," the Labour leader declared, while the Education Secretary Bridget Phillipson described the current set-up as "fragmented" and "broken".

¹<https://learningwork.org.uk/resources/research-and-reports/local-skills-deficits-and-spare-capacity/>

²<https://committees.parliament.uk/writtenevidence/130729/pdf/>

³<https://www.gov.uk/government/news/skills-england-to-transform-opportunities-and-drive-growth>

The government has subsequently promised to bring central and local government, businesses, training providers and others together in a bid to alleviate England's skills shortage.

For now, the jury's out as to whether Skills England can deliver or not. We do know, however, that the skills shortage landscape – as we write today – is more widespread than ever.

Although it touches all sectors of the economy, it's particularly pronounced in the infrastructure and construction industries, where headwinds like Brexit, the Covid-19 pandemic and the Ukraine-Russian war have exacerbated the issue.

At least three major pieces of research have sounded the alarm on the lack of skills in these vital industries. The cross-party Public Accounts Committee warned in May 2024 that the lack of skills would mean that some major infrastructure projects – the total portfolio estimated at £805bn in March 2023 – would not be delivered⁴.

The trade body the Construction Industry Training Board (CITB) warned in the same month that 250,000 extra construction workers would be needed between 2024 and 2028, otherwise the building of private housing, infrastructure and repair and maintenance works would be impacted⁵. The final evidence comes from the latest Census of the British population.

With fieldwork conducted in 2021, during the Covid-19 pandemic and the difficulties that brought, the Office for National Statistics (ONS) is still producing its own analysis of the research.

Amongst the findings, the ONS said only half (52.5%) of employed adults in England and Wales had qualifications that matched the average for their occupation, while one in five (20.2%) employed adults were more qualified than average for their current occupation⁶. There is a clear picture here of a skills mismatch in the nation's labour market.

⁴<https://committees.parliament.uk/committee/127/public-accounts-committee/news/201373/uk-lacks-skills-and-capacity-to-deliver-major-infrastructure-pac-warns/>

⁵<https://www.citb.co.uk/about-citb/news-events-and-blogs/over-250-000-extra-construction-workers-required-by-2028-to-meet-demand/>

⁶<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/bulletins/understandingskillandqualificationsuitabilityinthelabourmarketuk/august2024>

So, what happens if the skills shortage is not addressed? Unfortunately, that outcome would be a bleak one. The growing gap between infrastructure projects and the workforce would continue, delays could persist, while the cost of labour would likely inflate, costing taxpayers extra due to project delays.

The vicious cycle would be further exacerbated by new entrants to the workforce deciding to leave the country in light of these issues to other markets where living and housing costs are proportionally lower.

Workers based in England searching for construction and infrastructure jobs in Saudi Arabia, for example, hit a record high in July 2023, according to Google Trend data⁷. Likewise, industry leaders have warned about a “brain drain” to the Middle East if the situation is not resolved⁸.

Before we proceed further it's worth analysing why we've got here in an attempt to first untangle these issues and then try to address them.



⁷<https://trends.google.com/trends/explore?date=all&geo=GB-ENG&q=construction%20jobs%20saudi%20arabia>

⁸<https://www.theguardian.com/business/2025/feb/02/can-we-build-it-no-because-britain-may-not-have-enough-workers>

Chapter Two:

How the skills shortage was created

There are at least three reasons why we face a skills shortage in the infrastructure and construction industries. We have an ageing workforce, the sectors are still effectively recovering from macro-economic impacts, including Brexit, the Covid-19 pandemic and the Russian-Ukraine war, and our current education system is failing to produce the workers we need. People tend to 'end-up' in construction rather than 'choosing' construction as a career.

Ageing workforce

When The Chartered Institute of Building (CIOB) recently surveyed⁹ construction workers it discovered a worrying demographic anomaly. Employees above the age of 60 were increasing more than any other age group in the sector.

Unfortunately, the study wasn't an outlier as the ONS' own analysis of the aforementioned Census data showed¹⁰ that only one age group in the construction industry had proportionally shrunk between 2011 and 2021 – that was 16 to 24-year-olds.

The older demographics, namely 50 to 64-year-olds and workers aged 65 and onwards, had grown. To point out the obvious, whilst also outlining the stark reality for the industry, the construction and infrastructure sectors are increasingly relying on nearly or soon-to-be retired workers.

Though there are some advantages to this – older workers bring a great amount of experience with them, for example – there are considerable downsides.

When this ageing workforce leaves the scene, they will not have been able to pass on their skills to a younger generation. Even for the dwindling few who might be able to replace some – 'some' being the operative word here – of the older workforce, a deficit will still exist.

⁹https://www.ciob.org/sites/default/files/CIOB%20research%20-%20The%20Impact%20of%20the%20Ageing%20Population%20on%20the%20Construction%20Industry_0.pdf

¹⁰<https://constructionmanagement.co.uk/constructions-ageing-workforce-where-are-the-next-generation/>

Workers also realised during the Covid-19 pandemic that working away from home for days and weeks at a time and travelling long hours were no longer desirable options, therefore chose earlier retirement.

The industry also has its own unique problems since jobs can be physically demanding, meaning although older workers can and should be reskilled, there may be fewer opportunities for them to stay in the industry.

Equally, closely related socio-economic factors to age should not be overlooked, namely the fact that a high proportion of the industry's workers are self-employed and the sector can suffer from high company insolvency rates (there was a 59% increase in 2022, for example) ¹¹.

Perhaps one of the positives from this phenomenon is that the industry is well aware of it. Returning to the COIB survey, a vast majority (76%) of respondents said they recognised the ageing population challenge. We will come on to our proposed solutions later in this paper.

Apprenticeship System

The other side of the labour market issue is the pipeline of workers coming into the industry. As it currently stands, there are simply not enough young people taking up apprenticeships in the industry. The CITB has estimated¹² that a three-fold increase in the number of people taking up apprenticeships is needed.

In the year to March 2024, the body found that 82,000 apprentices had enrolled on construction apprenticeships across the whole of Great Britain. The other issue was that only 21% of businesses employ an apprentice, and just 10% employ more than one apprentice.

Probably the most disruptive and impactful change for this form of further education has been the introduction of the apprenticeships levy in 2017. Across all industries, there was a “large fall” in the number of apprenticeships starts, according to records held at the House of Commons¹³.

¹¹<https://www.ons.gov.uk/businessindustryandtrade/constructionindustry/articles/constructionstatistics/2022>

¹²<https://www.constructionnews.co.uk/skills/citb-says-threefold-increase-in-apprenticeship-starts-needed-14-02-2025/>

¹³<https://commonslibrary.parliament.uk/research-briefings/sn03052/#:~:text=The%20apprenticeship%20levy&text=The%20levy%20is%20set%20at,are%20paid%20into%20the%20account.>

The levy introduced a 0.5% tax on employers with an annual pay bill of £3m or more¹⁴. The intention was to fund more apprenticeship training as employers would pay into a training fund with the monies from the levy.

In a damning 2018 report from the Education Select Committee, the then Conservative government and previous administrations were criticised for their approach to apprenticeships. “[Apprenticeships have been] mismanaged by successive governments, resulting in delay after delay and frustrating employers who invested much effort and enthusiasm trying to make apprenticeships better,” the group of cross-party MPs said¹⁵.

The last Conservative government under Rishi Sunak introduced another vocational qualification, T-Levels, two-year courses for 16–19-year-olds designed in collaboration with employers. Now, Sir Keir Starmer’s Labour government has promised to scrap the Apprenticeship Levy and introduce a new and more flexible Growth and Skills Levy.

These latest interventions in the apprenticeship system, which is male dominated¹⁶ are arguably partly solving a problem more entrenched in the system which was created more than a decade ago when the New Labour government said that 50% of all school leavers should go to university¹⁷.

The need for vocational education was thus devalued and deprioritised at a central government level, with similar signals being sent to local authorities, training providers and parents and their children throughout the country.

Today, young people (16 to 24-year-olds) are now facing their own jobs crisis, with almost one million of them not in education, employment or training (NEETs), according to official figures for the three months to December 2024¹⁸. The current apprenticeship system is overly complicated, takes too long to qualify, and companies struggle to access the apprenticeship levy.

In addition, the construction and infrastructure industries have their own particular demands of young people which are often overlooked, such as regularly travelling to and from sites, often using private transportation. This is another potential barrier to entry for young people.

Clearly, things need to change, and the construction and infrastructure industries could help alleviate this problem, whilst giving young people a job for life, with highly regarded skills.

¹⁴<https://www.gov.uk/guidance/pay-apprenticeship-levy>

¹⁵<https://publications.parliament.uk/pa/cm201719/cmselect/cmeduc/344/344.pdf>

¹⁶https://assets.publishing.service.gov.uk/media/5bcf1bbded915d433c04efb9/apprenticeships_in_England_by_industry_characteristics.pdf

¹⁷<https://www.theguardian.com/education/2010/mar/09/abolish-50percent-target>

¹⁸<https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/bulletins/youngpeoplenotineducationemployment-tortrainingneet/february2025#data-sources-and-quality>

Brexit, The Pandemic and War

The UK's split from the EU and the Covid-19 pandemic has seen the costs of materials and labour soar. The UK Trade and Business Commission (UKTBC), an independent body of experts set up to track the impact of Brexit, said the cost of materials increased by 60% between 2015 and 2022, while the cost of labour went up by 30% over the same period¹⁹.

The analysis of the Department for Business, Energy and Industrial Strategy data compliments research from the ONS. The construction sector saw the largest annual growth rate for total pay at 6.6% in 2024, the body said²⁰.

Brexit also led to tariffs on imported materials, longer lead times, and increased administrative burdens for the industry. Immigration rules also impacted the industry. Before the EU referendum, the proportion of foreign-born workers in the construction industry doubled between 2004 and 2014, to make up 12% of the 2.1 million workforce at that time, according to the National Institute of Economic and Social Research²¹.

This growth was mainly as a result of workers coming from new EU member states. With tougher immigration rules in place, the industry has had to try to source new workers from other parts of the world, including turning to home-grown talent.

On the impact of the pandemic, research from the University of Wolverhampton during the crisis found that many construction workers had been laid off or furloughed, further catalysing the skills shortage. But, as it stands, there is only one construction occupation on the government's skills immigration list – retrofitters²². "One of the interviewees admitted that 75% of their recruited staff had been laid off by employers and warned of an increased skills shortage issue in the workplace," the University of Wolverhampton report noted²³.

It is expected that the Pandemic will have a lasting impact on the industry, with a delay to site delivery and innovation.

¹⁹<https://www.theguardian.com/politics/2023/jan/24/brexit-uk-construction-costs-eu>

²⁰<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/december2024>

²¹<https://www.building.co.uk/focus/immigration-what-brexit-changed-and-how-construction-has-adapted/5131315.article>

²²<https://www.gov.uk/government/publications/skilled-worker-visa-immigration-salary-list/skilled-worker-visa-immigration-salary-list>

²³<https://committees.parliament.uk/writtenevidence/5656/pdf/>

And as the industry and wider economy recovered from Brexit and the Pandemic, the macro-economic situation worsened again thanks to the Ukraine-Russian war.

Turning to 2025, construction firms axed staff in March at the fastest rate since October 2020, according to the S&P PMI monthly survey of leading manufacturers²⁴ . “Elevated interest rates and worries about the broader economic outlook,” were leading concerns for the company.

As macro-economic headwinds persist and develop, namely the tariff regime imposed by the US and its aftershocks, the industry is expected to face future cost pressures, impacting labour and supply to major and minor projects.

The advent of generative AI and the UK government’s pro-construction and infrastructure positioning do, however, provide some positive technological and regulatory headwinds for the industry.



²⁴<https://www.bloomberg.com/news/articles/2025-04-04/uk-construction-firms-shed-jobs-at-pace-last-seen-in-pandemic?embedded-checkout=true>

A regional divide

Much like the rest of the country's economy and make-up, there is also a serious regional divide when it comes to the skills shortage. The South East, as ever, is leading the way on the skills agenda, while other areas of the country are falling behind.

This is an especially important problem to face head-on because many of our planned infrastructure and construction projects often fall outside of the capital and its surrounding region.

Our own company's operatives, for example, work on a section of HS2 next to Coventry and Birmingham, and our academy is also based in the West Midlands, while projects in the highways and water sector are situated across the country.

We increasingly seek to engage with local workers via our proprietary technology, but it shouldn't come as a surprise that major projects may have to source workers from parts of the country where they're not currently building.

To give an example, The Learning and Work Institute has recently found that 27% of adults in the West Midlands have qualifications below GCSE level, compared with just 9% in West London. "These inequalities contribute to inequalities between areas, holding back growth and opportunity," the report's authors warned²⁵.

Stephen Evans, LWI's chief executive, added: "This report shows a tale of two countries, with the magnetic pull of London drawing in talent from elsewhere. This has created a skills chasm between areas and has become a self-reinforcing cycle, with employers more likely to create high-skilled jobs in the south of England."

²⁵<https://learningandwork.org.uk/resources/research-and-reports/worlds-apart/>

Chapter Three:

How to tackle the crisis

Awareness

A 2024 report from The Institute for Employment Studies²⁶ found that those working in the industry have positive experiences of the sector and enjoyed the type of work they were exposed to.

“Construction workers were attracted to the industry by the interesting and practical nature of the work and opportunities to be creative and see tangible results of their work,” the study added.

But despite this positive feedback, there was a notable lack of awareness about the industry from potential new joiners. This could be a great opportunity for the industry to seize upon.

The private sector could band together to launch its own recruitment and marketing campaign, while central and local governments could work with industry on raising the profile of the sector.

There are also some straightforward tactics companies could deploy to boost awareness. Those could include hosting open days or visiting educational providers, sharing important updates across social media, where the workers of the future are²⁷, and engaging with the local community – from charity days, to sponsoring local sports and recreational teams and clubs.

We’ve seen firsthand how an engagement focus can demonstrate to local communities the positive impact of business. Most recently, we’ve seen this with our Boots2Roots initiative, in which the business is planting a new tree in the UK for every hire made on a project that Hercules is supporting.

²⁶https://www.employment-studies.co.uk/system/files/resources/files/Careers_in_Construction_Summary_Report_610.pdf

²⁷<https://www.ofcom.org.uk/media-use-and-attitudes/media-habits-adults/adults-media-use-and-attitudes/>

Technology

The advent of new frontier technologies, including virtual reality (VR), generative AI and the Internet of Things (IoT), as well as established technologies, such as video calling and smartphone apps, enables construction and infrastructure companies to deliver their training in new and exciting ways while upskilling their workforces.

Elements of courses could be delivered on VR, demonstrating what real-life scenarios look like, while the combination of IoT and AI can give employers and trainers real-time data and trends on how projects are running and what skills are needed.

Equally, on 'meeting new workers where they're at' employers and trainers could use this technology to engage with potential recruits. AI can help sift through job applications, identifying the best candidates for jobs. But the technology could also identify personas of workers who may be currently overseen by traditional recruitment tactics, address these issues and target a new demographic of worker.

This could be especially helpful in addressing the male-dominated nature of the construction and infrastructure industries. And the technologies could help refine training modules and courses, giving providers live engagement feedback and potential solutions to how to make their training more efficient and impactful.

Why should companies be interested in this work? The consultants McKinsey have predicted²⁸ that the deployment of AI and other frontier technologies could make the industry 20% more productive. This could have substantial impacts on companies' bottom-lines.

The rewards aren't just financial. The technology could also make sites safer alongside a much needed skills boost. Ultimately, and this is especially true for the construction and infrastructure industries, the most practical technologies will be deployed.

A local approach

The regional divide on skills, as outlined above, means that there are skills deserts across the country, where a large proportion of workers simply don't have the right level of training or qualifications to enter the construction and infrastructure industries.

²⁸<https://construction-today.com/news/the-rise-of-artificial-intelligence-in-construction/#::-text=A%20McKinsey%20study%20estimates%20that,project%20planning%20and%20resource%20management>.

We would urge the government to work with local authorities and the private sector to identify regional ‘hot spots’ where a skills boost is desperately needed.

A combination of interventions across all age groups would then be needed. Those could include short-term skills bootcamps or short courses (utility detection, working at height, overhead powerline awareness, highways, and other bespoke industry courses, for example), with the establishment of long-courses, eventually leading to more apprenticeships.

We would also urge the government to look at how Apprenticeship Levy monies are used, with additional tax incentives for the private sector to host and fund courses in skills ‘hot spots’. Likewise, all combined authorities across the country should have their own skills strategy and initiatives.

The Mayor of London’s Apprenticeship Programme, which was launched in 2009, is a good example, as is the Skills Advisory Panels SAPs. The initiative has been running since 2018 and brings together employers, skills providers and key local stakeholders to better understand and resolve skills mismatches at a local level. SAPs are part of Mayoral Combined Authorities and Local Enterprise Partnerships and there are 36 in total across England.

These SAPs have been supported with funding from central government to produce “high-quality analysis of local labour markets and publish Local Skills Reports, which set out the local skills strengths and needs and how the SAP proposes its area addresses its key priorities”.

We would also want combined authorities and regional mayors to fund their own skills agendas and put the issue at the forefront of their economic thinking. The Mayor of North East England, Kim McGuinness, for example, has promised to establish a Green Energy and Engineering Super Academy, a Green Construction Academy and North East Careers Hubs²⁹.

It is also important that all of this work is joined up with central government and Skills England, so there is some level of coordination between these initiatives.

²⁹<https://www.centreforcities.org/blog/what-are-metro-mayors-focusing-on-as-they-take-up-their-terms-in-office/>

Industry coalition and collaboration

Beyond central and local government interventions, Hercules recognises that the industry itself can seek to collaborate more on the skills shortage issue. Hercules acknowledges the need and use of apprentices is especially important to helping solve the skills shortage problem.

We would recommend a skills body be set-up within the industry which could be convened on a regular basis to establish agreed best practice policies for apprenticeships, after which voluntary industry guidelines could be produced and tracked to further incentivise the use of apprentices on important infrastructure and construction sites.

In particular, Hercules is interested in the link between Tier One and Tier Two contractors and the demand for apprenticeships here as well as Level Two and Level Three apprenticeships.

Even at the apprentice level, the UK is facing more and more international competition. Owing to a housing shortfall, the Canadian government has relaxed its immigration rules and is actively recruiting construction apprentices from the UK³⁰. Australia, meanwhile, has long been an attractive destination for young construction and infrastructure workers in the UK to migrate to.

But with a need for three million new homes in the UK and more than 150 infrastructure projects, there should be plenty of demand for these crucial workers.



³⁰<https://www.constructionnews.co.uk/skills/resist-the-lure-of-abroad-says-citb-chief-19-03-2025/>

Conclusion

The skills shortage is a handbrake on the country's economy today as well as future prosperity tomorrow. The construction and infrastructure sectors can provide high-quality and multi-generational jobs. However, to achieve this we need a strong and open collaboration between the Government and the industry.

We welcome the government's promise to review the Apprenticeship Levy as well as the establishment of Skills England, but we also need the industry to embrace new ways of attracting talent. This means boosting the reputation of the industry with young people, so they see construction as a career to pursue, and embracing technology to help recruitment and training. For too long, the industries have been a laggard on these issues, and that needs to end now.

Supportive quotes

Jodie Gosling, MP for Nuneaton, said: "It was fantastic to see the great facilities for intensive skills training. I welcome Hercules's commitment to supporting those not currently in employment, education or training. I am impressed by the encouragement that they are giving to Nuneaton residents to find well-paid and satisfying work."

Julie Venn Morton, HS2's Ltd's Senior Legacy Manager for the West Midlands region, said: "We welcome the arrival of the Hercules Academy, which will play an important role in upskilling local people ready for work in the construction sector. "In the months ahead, construction of the two new HS2 stations and the network control centre will really start to take shape, creating hundreds more local job opportunities."

Cllr Martin Watson, Warwickshire County Council Portfolio Holder for Economy, said: "It's fantastic news for Warwickshire that the Hercules Academy is now accepting students significantly boosting the opportunities for our residents to explore a career in construction.

"Hercules offer an impressive selection of courses which will complement the needs of the industry and our local businesses."

About Hercules Plc

Hercules is a leading tech enabled labour supply company for the UK infrastructure and construction sectors. Founded in 2008, Hercules has an established track record of profitability and fast-growth and has built a blue-chip customer base which includes Balfour Beatty, Costain, Kier, Skanska, Galliford Try and Volker Fitzpatrick.

The Company has been appointed to provide labour for a range of high-profile infrastructure projects, such as HS2, Sizewell C, AMP8 infrastructure upgrades in the water sector, and the UK's power transmission and distribution upgrades, due to its agile, innovative, digital first approach and complete service offering.

If you would like to learn more or get in touch, please email us at
communications@herculesplc.com



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