

# Skills shortages in the UK economy

2024



# Introduction

The scale of skills shortages across the UK continues to grow as a result of persistent and challenging national circumstances: economic uncertainty, geopolitical instability and war, the ongoing repercussions of Brexit and the Covid-19 pandemic, the need to reach net zero emissions, and the consequences of the fourth industrial revolution.

It is essential that researchers, policy makers and frontline teachers, tutors and careers leaders all have access to key information regarding the size and scale of skills shortages and the changing labour market.

There is a huge amount of excellent research in this space. The Edge Foundation convenes key organisations and researchers to produce a regular series of Skills Shortage Bulletins exploring the changing labour market and key sectors of the economy.

In this summary document, we draw out succinctly the key messages from across the series. We hope this helps to aggregate and amplify the messages we have been hearing on skills shortages in the UK, and the changing shape of our economy and labour market, so that you can use them in your work.



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To see the full series of Skills Shortages Bulletins please visit [www.edge.co.uk/research/projects/skills-shortages-uk-economy/](http://www.edge.co.uk/research/projects/skills-shortages-uk-economy/)

**Key message 1:**

# Overall labour market conditions remain challenging

The last few years have been challenging for employment and the labour market. Difficult national and international economic circumstances and uncertainties, including inflation, recession, migratory issues arising as a consequence of Brexit, and international instability, exert considerable pressure on employers and unequally impact different demographics. The consequences of the pandemic still linger and those most affected continue to be the most vulnerable to other challenges.

Young people in particular face substantial challenges in entering the workforce.

- › Youth Employment UK's annual [Youth Voice Census](#), which we have featured regularly since 2018 (Bulletin 3) to their most recent census in 2023 (Bulletin 13), are a valuable indicator of these difficulties. They have found the cost-of-living crisis, the impact of the pandemic, and the uncertainty of political tensions have had a significant impact on young people. **The dual impact of disrupted education and a challenging initial entry to the labour market has accelerated social, emotional and mental health challenges and is contributing to the growing fears and feelings of isolation.**
- › Youth unemployment remained high long after its pandemic peak, in part due to a significant skills mismatch between the education system's focus and the future economy's needs ([House of Lords Committee on Youth Unemployment](#), Bulletin 10).
- › [The Resolution Foundation](#) shows the number of 18-24-year-olds not working due to ill health has almost doubled in a decade, rising from 94,000 in 2012 to 185,000 in 2022 (Bulletin 13).

**The absence of these young individuals in the labour market can 'scar' their future employment prospects, a phenomenon observed in other vulnerable groups**, including older, precarious, and lower-paid workers, especially in sectors like retail and hospitality. During crises like the pandemic, job loss rates differ between different ethnic groups, with some Black, Asian and minority ethnic communities particularly vulnerable to increased financial hardship ([Bulletin 8](#) and [Bulletin 9](#)).

[City and Guilds](#) found a third of Britons (34%) want to change careers, yet only 16% of respondents understand exactly how their skills would be useful in another career. Many Britons lack the confidence and know-how when it comes to recognising the potential of transferable skills as a route to changing careers (Bulletin 9).

Today, almost one-in-four workless young people are not working because of ill health, up from less than one-in-ten in 2012.

*Resolution Foundation*

The [CBI](#) reports firms were taking action to support employees on the cost of living, 46% of firms responding to a 2022 survey planned to bring forward or have additional pay reviews, and 36% awarded staff one-off bonus payments. However, 34% of organisations were only offering 'a general increase below inflation' at the next pay round, significantly higher than previous years. Just 29% were giving a pay increase in line with inflation, the lowest since 2012. 7% expected to provide a general pay increase above inflation.

Highlighting these challenges is not to say that improvements are not forthcoming, and that workers have not been able to return to work on better pay, better conditions, or in a new industry. Skills shortages in some sectors have led to growing competition for talent between recruiters, according to [Robert Half's 2024 salary guide](#). This has increased starting salaries and led employers to begin to prioritise employee experience including flexible working, upskilling and career development opportunities, greater conscientiousness around the morality of employment particularly around the environment and equality, diversity, and inclusion.

We increasingly see initiatives to measure and generate data on skills shortages nationally and locally.

- › The Unit for Future Skills (UFS), an analysis and research team established in 2022 within the Department for Education, aims to enhance the quality of jobs and skills data for the skills system to provide appropriate training for good jobs and higher productivity. Key outputs include the publication of the Local Skills Dashboard, and ongoing projects related to AI exposure, STEM skills, and future job projections (Bulletins [11](#) and [13](#))
- › In England Local Skills Improvement Plans (LSIPs), set out in the Government's [2021 Skills for Jobs White Paper](#), aim to address skills shortages, with 38 plans led by Chambers of Commerce. They focus on aligning technical skills training with local employers' needs, especially in the new and net zero economies.
- › Other initiatives include the [North East Local Enterprise Partnership's](#) analysis evaluating the matches between the skills supply and demand different sectors in the North East, where 4 in 10 of the region's 16-24 year olds are 'economically inactive', while North East firms are struggling to fill labour-intensive and high- and medium-skilled roles (Bulletin [13](#)).

The Unit for Future Skills will support a better understanding of what skills are needed throughout the country, and how our skills system is responding. This will ensure our skills reforms are responsive to employer needs and contribute to key government priorities including improved productivity, net zero and levelling up.

*Unit for Future Skills*

Key message 2:

# Profound changes to patterns of employment are intensifying

The years since national lockdowns have continued to see trends of **emerging professions adopting new technologies**. Data even in 2020 from the [World Economic Forum](#) (Bulletin 8) highlighted that **over 80% of employers reported that automation has accelerated their work processes**.

- AI is finding the broadest adoption among the Digital Information and Communications, Financial Services, Healthcare, and Transportation industries, while the Government and the Public Sector industry shows a distinct focus on encryption specifically. Equally, such shifts have engendered the difficult reality of decreasing demand for some jobs. [QS in their Global Employer Survey 2022](#) highlight that **in the medium term to 2030, AI will predominantly increase workplace efficiencies and threaten lower-skilled jobs including clerical or routine manual roles**.
- There has been a greater demand from green economy and digital sectors in particular – for example, increasing the call for roles such as AI and machine learning specialists; digital transformation specialists; project managers; robotics engineers, and machine repairers.

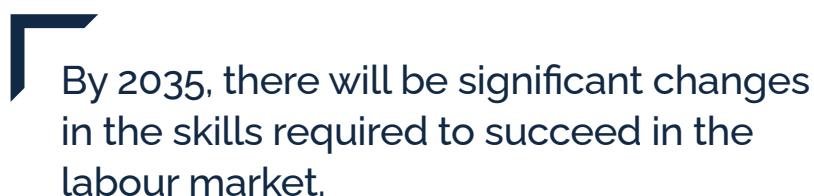
As we look to the future, the picture is summarised by the acronym VUCA – volatility, uncertainty, complexity, and ambiguity.

*World Economic Forum*



The consequences of the adoption of these new technologies on the labour market and the skills required will be profound. However, committed action to foster a dynamic and responsive skills system will enable the workforce to make the most of the new opportunities that arise.

- › The [National Foundation for Educational Research](#) (NFER) indicate the growth in higher skills jobs and healthcare roles will offset the loss of many jobs displaced by the adoption of automation and AI in the workplace. Elementary administration and service occupations are anticipated to experience the largest employment declines by 2035, with a decrease of 0.52 million jobs. Following closely, secretarial and related occupations are projected to see a decline of 0.20 million jobs. Job losses are expected to be focused among largely male dominated, blue collar manual occupations, especially in areas where automation is possible (Bulletins 12 and 13)
- › We now need to see policies putting into place a ladder that allows workers of all ages the skills and capacity to learn, progress and retrain throughout their working lives. Government initiatives include the ['Skills for Life' campaign](#), the introduction of the new [Lifelong Learning Entitlement](#) from 2025, and the announcement of [£200 million](#) for training opportunities in key industries.
- › [The Institute for the Future of Work](#) emphasises that preparing the labour force to meet changes in skills demands should focus on 'good work' - where employment promotes dignity, resilience, and fosters future prospects. Their survey of managers in 1000 UK companies found that, nearly 80% of firms have adopted automation technologies for a physical or cognitive task. The net impact on jobs and level of skills within jobs was found to be net positive (Bulletin 13).



By 2035, there will be significant changes in the skills required to succeed in the labour market.

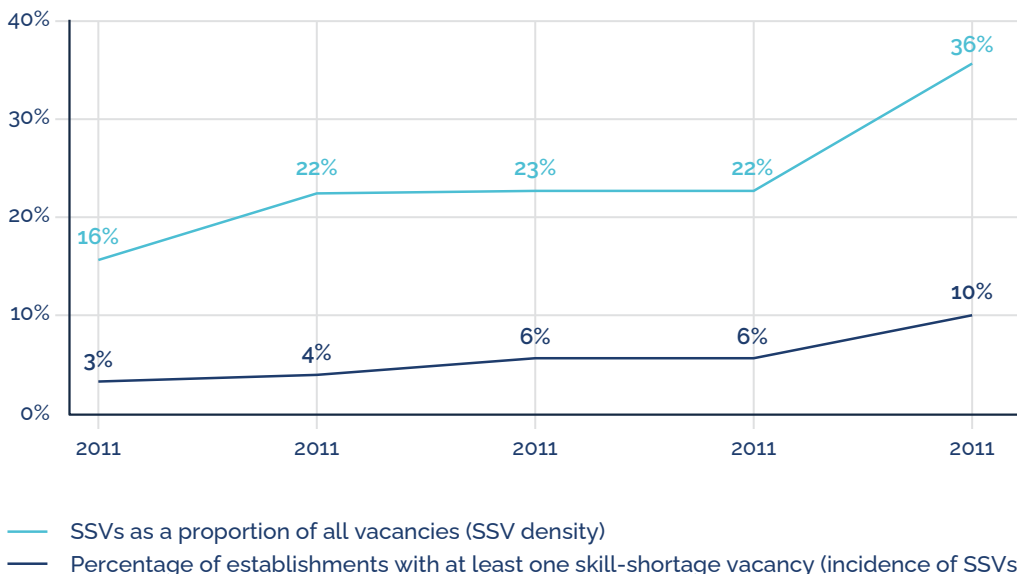
*National Foundation for Educational Research*

Key message 3:

# Skills shortages are numerous and have grown significantly

The Department for Education's (DfE) Employer Skills Survey 2019 (Bulletin 8) and 2022 highlighted that **nearly a third of all vacancies were skills shortage vacancies** (which cannot be filled because the employer cannot find the skills they need), up from 22% in 2017. **Numbers of skills shortage vacancies doubled between 2017 and 2022 to 531,200.** Skill-shortage vacancies were most prevalent in Health and Social Work, Business Services, and Wholesale and Retail, with Construction, Information and Communications, and Manufacturing sectors exhibiting higher proportions of skill-shortage vacancies relative to overall vacancies. Shortages are growing most sharply among employers with 250 or more employees.

Figure 3-4 incidence and density of skill-shortage vacancies at UK level, 2011-2022



Source: Employer Skills Survey. Base: 2022: 72,918; 2017: 87,430; 2015: 91,210; 2013: 91,279; 2011: 86,522 (all establishments)

...11.7 million people aged 15+ across the UK lack the 'essential digital skills' needed for day-to-day life online...

Lloyds Bank Group / IPSOS MORI



This gloomy picture is echoed by other research:

- › The Open University's annual Business Barometer, which we have featured from 2017 to 2023 (Bulletin 1 to 13), highlighted that **61% of organisations in 2021 believed they have a skills shortage in their organisation. This had grown to 73% in 2023.**
- › The consequences are even more pronounced for SMEs. [The Federation of Small Businesses](#) found **80% of small firms faced difficulties recruiting applicants with suitable skills** (Bulletin 11).
- › The [Industrial Strategy Council](#) (Bulletin 7) identified at least 2.1 million workers likely to be acutely underskilled in at least one core management area (leadership, decision-making or advanced communication) and 1.5 million likely to be acutely under-skilled in at least one STEM workplace requirement. By 2030, **7 million additional workers could be under-skilled for their job requirements** – this would currently constitute about 20% of the labour market.
- › Research from [Lloyds Bank Group / IPSOS MORI](#) argued **that digital skills are of particularly acute shortage**, emphasising that around **11.7 million people aged 15+ across the UK lack the 'essential digital skills'** needed for day-to-day life online (Bulletin 8).
- › The [Learning and Work Institute](#) (Bulletin 11) identified 9 million working-aged adults with low basic skills in literacy or numeracy, including 5 million who have low skills in both. However, **the number of adults participating in programmes to boost such skills had dropped by over 60% since 2012.**

Skills shortages are exacerbated by a number of factors.

- › [City & Guilds](#) report just a quarter of UK workers are interested in key worker roles, citing concerns around low pay, inflexible working conditions and a lack of opportunity to progress as deterring factors (Bulletin 10).
- › The [Resolution Foundation](#) notes that many roles in vital industries, such as transport and storage, manufacturing and domestic services, have proportionately relied on EU workers who are mostly ineligible for a skilled worker visa under the new system (Bulletin 10).
- › Other challenges are sector specific. In nursing, a sector with severe skills shortages with 50,000 nursing vacancies in the UK, there are fears that abolishing BTECs in 2024 and 2025 will damage the NHS in England's efforts to recruit.

Apprenticeships are a viable solution to bridge skills gaps, but many employers would like to see a broadening of the Apprenticeship Levy to enable more flexible skills training ([Bulletin 10](#) and [Bulletin 11](#))

...nearly three-quarters (73%) of UK organisations are currently experiencing skills shortages...

*The Open University*

#### Key message 4:


## The rate of skills investment is in decline

Surveys and analyses have repeatedly suggested that employer and public investment in training for existing workers is low, while [ReWAGE](#) indicate it has been falling for 20 years.


- › Findings from the [Learning and Work Institute](#) (Bulletin 12) found **that government spending on skills in England will still be £1 billion lower by 2025 than in 2010**, and that employers spend comparatively less in this area than their international counterparts.
- › Similarly, [ReWAGE](#) argues the UK lacks government leadership and necessary investment to provide opportunities for the development of intermediate skills which drive productivity growth and sufficient incentives to influence employers' choices (Bulletin 12).

Meanwhile, the [DfE Employer Skills Survey](#) indicates a **continued decline in employer investment in training. Total training expenditure in 2022 prices fell from £58,188m in 2017 to £53,620m in 2022**. The proportion of employers arranging or funding training continues to decline, down to just 60% of employers in the previous 12 months in 2022, compared to 61% in 2019 and the lowest proportion since 2011. **The total number of training days also continues to decline**, from 118 million in 2015 to 114 million in 2017 and 108 million in 2022. Investment per person adjusted for 2022 prices has dropped by a quarter, from £4,014 in 2011 to £2,952 in 2022. [CBI](#) (Bulletin 8) highlighted that **Small and Medium sized Enterprises (SMEs) face more barriers preventing them from increasing investment in training compared to large organisations**, such as a lack of scale, high fixed costs of training and lack of capacity.

[Hays and Go1](#) in 2022 have identified that **while 82% of employers say they provide learning resources to their staff, just 54% of employees agree**. 82% of employees felt they were responsible for their own upskilling and reported a lack of time during work hours, while employers only sometimes perceived new skills being applied in work.



Higher inflation wipes out £200 million of planned spending rises in real terms and means that government spending on skills in England will still be £1 billion lower by 2025 than in 2010.



*Learning and Work Institute*

A key question therefore is how to incentivise **'shared responsibility'** and co-investment in skills from the state, employers, educational institutions, and individuals, to drive the kind of lifelong learning revolution necessary to support future economic success and social prosperity for all.

- > The **Learning and Work Institute** (Bulletin 11) have shown that basic skills not only improve productivity but lead to positive social outcomes in adults.
- > The **Recruitment & Employment Confederation** (Bulletin 11) calls for business and the government to see skills as an investment and to recognise the 'ever increasing importance of inclusive workplaces contributing to their growth, productivity and revenue'.
- > **Edge has convened workshops** stressing the need for clear, long-term thinking, up-to-date data, clarifying the purpose of training, and proposing solutions such as accessible guidance and aligning skills policies with firms' environmental, social, and corporate governance strategies.

Businesses must play their part on the skills agenda by putting the “people stuff” first and seeing skills as an investment rather than a cost. Equality, diversity and inclusion is another area that we need to get right.

*Recruitment and Employment Confederation*



**Key message 5:**

# Skills shortages have significant costs for UK businesses, the economy, and the environment

The alarming scale of skills shortages has substantial economic and social costs and jeopardises national policy priorities including climate goals.

As a consequence of a lack of available skills organisations reported reduced activity or output (42%) and reduced long-term growth plans (40%), the Open University reports in their [2023 Business Barometer](#) (Bulletin 13).

As a result, there has been an increase in the amount spent by businesses to find, secure and develop talent as identified for example by [Robert Half's Salary Guide](#). **Employers are increasing expenditure on recruitment fees, increased salaries, temporary staff, and training** to upskill those hired at a lower level, which the [Open University in 2020](#) calculated totalled **£6.1 billion per year** (Bulletin 8)

These shortages are anticipated to have significant and damaging consequences for the UK economy. The [Recruitment & Employment Confederation](#) (Bulletin 11) estimates that **if labour shortages are not addressed the cost to the UK economy will be £39 billion a year from 2024 through to 2027**. They call for the creation of a future workforce strategy including policies for skills, immigration, and regional investment, and for businesses to appreciate skills as an investment and prioritise equality, diversity, and inclusion initiatives to recruit and retain best talent.



With a 10% surge in demand for staff across the economy, and the labour market restricted by shortages, we could see a 1.2% fall in expected GDP and productivity by 2027 – costing the economy anywhere between £30 billion and £39 billion every year.

*Recruitment and Employment Confederation*

Beyond the immediate economic cost, national policy priorities including achieving net zero goals are imperilled by skills shortages.

- Achieving net zero carbon emissions by 2050 involves, for example, installing 600,000 heat pumps annually by 2028. **There are currently only around 3,000 trained heat pump engineers in the UK, but Nesta estimate around 27,000 will be needed** to meet installation targets.
- Shifting to **electric vehicles requires training 25,100 additional technicians by 2030** to service and maintain the new fleet ([Bulletin 12](#)).
- Apprenticeship policy needs to prioritize green jobs to help meet demand and address shrinking, undiversified, aging workforces, but [New Economics Foundation](#) have found that existing policies and investment are insufficient to support the workforce transition needed for a low-carbon economy ([Bulletin 13](#)).

In the lead up to the expected 2024 general election, both Labour and the Conservatives have recognised the significant costs of skills shortages and have sought to make the skills agenda an integral part of their economic strategy to grow the economy.

We are falling short of potential capacities to secure and generate jobs throughout the economy. There is still little and poor integration between skills initiatives and the needs of the green transition.

*New Economics Foundation*

## Key message 6:

# Employers prize work experience and broader transferable skills when recruiting

Of all the messages from the research captured in this series of bulletins, this is probably the most often repeated and reinforced. Our very first article on the DfE's [Employer Perspectives Survey](#) (Bulletin 1) showed that almost two thirds (65%) of employers rated relevant work experience as significant or critical when hiring, compared to less than half (46%) for academic qualifications.

This was reinforced by CBI/Pearson's [Educating for the Modern World](#) (Bulletin 3), which showed that **over half of employers (60%) value broader skills such as problem solving and nearly three quarters (75%) say they prefer a mix of academic and technical qualifications** or that they view all qualifications equally.

The post-Covid-19 skills landscape looks particularly interesting as the data from the [Skills Network](#) (Bulletin 8) showed that the top 5 skills sought by employers in the UK are: **Auditing; Nursing; Accounting; Business Development and an understanding of Key Performance Indicators**. Research also found that technical skills such as programming, coding, and software development are in extremely high demand, with technological roles growing by 7.3% each year. This accords with the findings of other research suggesting that both 'high-tech' and 'high-touch' roles are experiencing significant demand.

...the top 5 skills sought by employers in the UK are: Auditing; Nursing; Accounting; Business Development and an understanding of Key Performance Indicators...

*Skills Network*

In addition to 'technical skills', the same report also analysed those general skills most required by employers and found that the ability to display **general skills like management, leadership and planning** is crucial for candidates.

- › [Kingston University's 'Future Skills' campaign](#) which further identified **problem solving, communication and analytical skills, resilience, and initiative** as some of the top 10 skills that the labour market will demand in the near future.
- › [LinkedIn's Global Talent Trends 2019](#) (Bulletin 5) found that **92% of employers said that so-called 'soft skills' are equally or more important than hard skills**, with creativity highlighted as being of particular value.
- › [The Edge Foundation](#) has found that communication skills, in their broadest sense, were seen as the most important skill to develop from the viewpoint of learners (Bulletin 12)



The [NFER](#) predicts that radical **changes to the labour market in by 2035 will increasingly require the education system to provide young people with higher level communication, collaboration, creative problem solving, and comprehension skills.** These employment skills will be even more in demand across the workforce by 2035, with **almost 90% of the anticipated 2.2 million new jobs in England requiring higher levels of these skills**, particularly in professional and associate professional occupations (Bulletin 13).

The Labour and Conservatives parties have highlighted to the need to develop young people's essential skills through the education system.

- › [Labour](#) have pledged to review of the curriculum, stressing oracy, creativity skills, and 'real-world' maths and financial literacy.
- › Meanwhile, the DfE's proposals contained in the consultation document for the [Advanced British Standards](#), including subject content for English and Maths to 18 represents a shift towards a more skills-focused agenda.

Edge's partners at [Skills Builder Partnership](#) have an excellent model summarising important key skills and how young people can develop them:



## Key message 7:

# Young people lack confidence in their future ability to meet skills requirements

Youth Employment UK's annual [Youth Voice Census](#) details young people's perspectives of how far the education system prepares them for work (Bulletin 13).

- Just **two in five agreed their school supported them sufficiently to develop the skills they needed for the future**. 44.6% of respondents think they understand the skills employers are looking for, a reduction in confidence of 12.4 percentage points on last year's scores (Bulletin 12).
- The [Edge Foundation's](#) research into 14-18-year-old's understanding of employability skills development however indicates that young people still need help to articulate how their educational experiences are developing valuable skills (Bulletin 12).
- But there seems to be some improvement in young peoples' perception of careers education. The Youth Voice Census indicated that while **29.7% of young people rated the career advice they had received in secondary school so far as 'good' or 'excellent' in 2022, this had risen to 37.3% in 2023**.

Although academic qualifications are still discussed with students more frequently than vocational qualifications, **we are seeing a positive change in the number of young people hearing about vocational opportunities in school**. According to the Youth Voice Census, 83.5% of young people had apprenticeships discussed with them and 83.9% of those in apprentices through they had made the 'right' career choice. However, large proportions of young people reported that other vocational options such as traineeships (67.1%) and T Levels (56.9%, though down from 72% in 2021) were never discussed.

Political, environmental and economic challenges, the ongoing impact of Covid-19, and the deteriorating situation in schools and colleges **contributes to a growing sense of uncertainty and isolation among young people**. Disruptions in education are widespread, with 55.1% of young people noting learning interruptions, an increase in 3 percentage points increase from the previous year. The Census also reveals **ongoing mental health challenges among young people**. 51.7% of young people looking for work thought their anxiety was a barrier to accessing work, while 38.6% faced mental health challenges.

Any spell out of the labour market at a young age can have scarring effects on future employment prospects, but young people who are workless due to ill health are especially hard hit.

*Resolution Foundation*



Young people's place and identity had a strong relationship with their confidence and attitude to work, and there is little confidence in employer support especially as they approach working age.

- **30.7% reported that there were no jobs where they lived, and just 12.4% of young people feel confident that they will be able to access quality work experience.**
- The **Resolution Foundation** has identified that in 2020-2022, 1.8% of 18-24-year-olds in London, and 2.0% of 18-24-year-olds in other core cities, were not working due to ill health. This contrasts with 3.4% of 18-24-year-olds living in places dominated by small towns or villages (Bulletin 13).

**Anxieties about work opportunities were most acute in underprivileged demographic groups.** Asian, Asian British, Black, African, Black British or Caribbean respondents reported 'lack of work experience', 'anxiety' and 'having no contacts' and 'racial discrimination' as the biggest barriers to them gaining work and were 8 percentage points less likely to have undertaken in person work experience. **Transgender respondents were 20% more likely to lack confidence.**

Between 2021 and 2023 the number of young people reporting they believed it was **'Important' or 'Very Important' to take part in social action and extracurricular activities rose from 65% to 76.9%**. Such activities can support the development of transferable skills sought by employers. **However, opportunities for extracurricular activities fell in the wake of the pandemic and continue to fall.** Just 20.6% of respondents felt there were enough opportunities to share their views on important issues in their local area. The survey also indicated low awareness of green jobs and skills.

The anxiety, worry and loss of control young people felt has largely gone unsupported making way for fear and isolation. This year we have heard, at length, from young people that this has left them feeling disconnected with a growing sense of disenfranchisement.

*Youth Employment UK*

**Key message 8:**


# The education system struggles to respond to skills needs and is under-resourced

Despite the clear evidence from employers, the skills and attributes required to address skills shortages have in some cases been deprioritised by current education policy.


- › Indeed, the **OECD** (Bulletin 8) has said that one of the biggest risks to national education systems today is that **traditional ways of educating are losing currency and relevance** and are not adapting quickly enough to the needs of a dynamic economy.
- › We highlighted in research from **JCQ** (Bulletin 3) that between 2010 and 2018, with the introduction of the EBacc, there was a **fall of 154,000 (57%) in entries to Design and Technology GCSEs and a reduction of 77,000 (20%) in entries into creative subjects**. In computer-based subjects, there was a fall between 2016 and 2018 of 17,000 entries. These are subjects that support the development of key skills and competencies that employers seek, such as creativity, team working and digital skills.
- › This decline has persisted, with **Design and Technology declining in total 70% between 2010-21** (Bulletin 12).
- › Worryingly, Edge has found that a quarter of students said digital skills were not being developed in school (Bulletin 12).



Edge and Education & Employers' [Joint Dialogue](#) (Bulletin 4) highlighted that some teachers feel qualification reforms are negatively impacting their ability to teach the skills that employers are looking for. **Nearly half (47%) of teachers surveyed believed that they have fewer opportunities to develop employability skills since the introduction of reformed GCSEs and A-Levels in 2014**, a third stating that the new syllabus required a focus on rote learning, leaving less space for developing creativity.



... the national curriculum ... is too narrowly focused to ensure that it prepares all young people for the modern labour market and the essential, technical and creative skills it requires, in particular for the creative, green and digital sectors.



*House of Lords Youth Unemployment Committee*

Meanwhile, the UK **faces a severe teacher recruitment and retention crisis, with a 93% increase in teaching vacancies in 2022-23**. Teachers continue to experience heavy and poor-quality workloads. Their pay has fallen 12% in real terms since 2010/11, and trends such as increases in remote-working further undermine the attractiveness of teaching as a career. The declining capacity to attract and retain talent is affecting education quality. The consequences of the deteriorating situation are unevenly felt across the social spectrum with those schools in the most disadvantaged areas most affected. Median pay for Further Education (FE) college lecturers rose just £1,500 between 2010 and 2019 to £32,500 ([Bulletin 13](#)).

Funding per learner has deteriorated across education, undercutting institutions' capacity to innovate and invest in staff, students, and resources.

- › School **spending per student in England fell by 9% in real terms** between 2009–10 and 2019–20, and remains below 2010 levels, representing the largest cut in over 40 years [according to the IFS](#).
- › **Funding per student aged 16-18 in FE and sixth-form colleges fell 14% in real terms** during the same period.
- › The **value of domestic student fees for higher education has dropped from £9000 in 2012 to less than £6000 in 2023 in 2012 prices**. Funding per student is at its lowest level in over 25 years, [PwC indicate](#).
- › There is considerable debate as to whether the apprenticeship levy requires greater flexibility for employers and [what reform might look like](#), as Edge has explored.

There is groundswell of consensus in public opinion and throughout local and national government that **more significant changes are required in the education system to meet the needs of employers**, including The Times Education Commission, the House of Lords' 11-16 Education Committee, and the Laidlaw Foundation. Edge is involved in initial development of the [Manchester Baccalaureate at the Greater Manchester Combined Authority](#), and the case for change in assessment as one way to drive these changes is set



out clearly by the [Rethinking Assessment movement](#) that Edge helped to found.

The case studies highlighted throughout the bulletins show that despite wider policy, **some schools, colleges, and universities are focusing explicitly on developing the skills employers are asking for.**

- › Cardiff University's [National Software Academy](#) (Bulletin 2), the [Edge Hotel School](#) (Bulletin 3), and [Ada](#), the National College for Digital Skills (Bulletin 8), all provide robust examples of integrating rich employer engagement and workplace experience to prepare students for the world of work.
- › The [British Academy's SHAPE](#) (Social Sciences, Humanities and Arts for People and the Economy) skills campaign evidences the utility of these disciplines which facilitating the development of valuable skills, while over half of the UK's leading startups have been founded by SHAPE graduates (Bulletin 12)

Other alternative interventions include, for example, [Techcentre Training's](#) (Bulletin 10) collaborations with charities and housing associations to address educational deficiencies experienced by young people in local communities, strengthening their digital and communication skills and preparing them for employment.

The gap in real earnings growth between teachers and similar graduates has widened significantly since the pandemic.

NFER

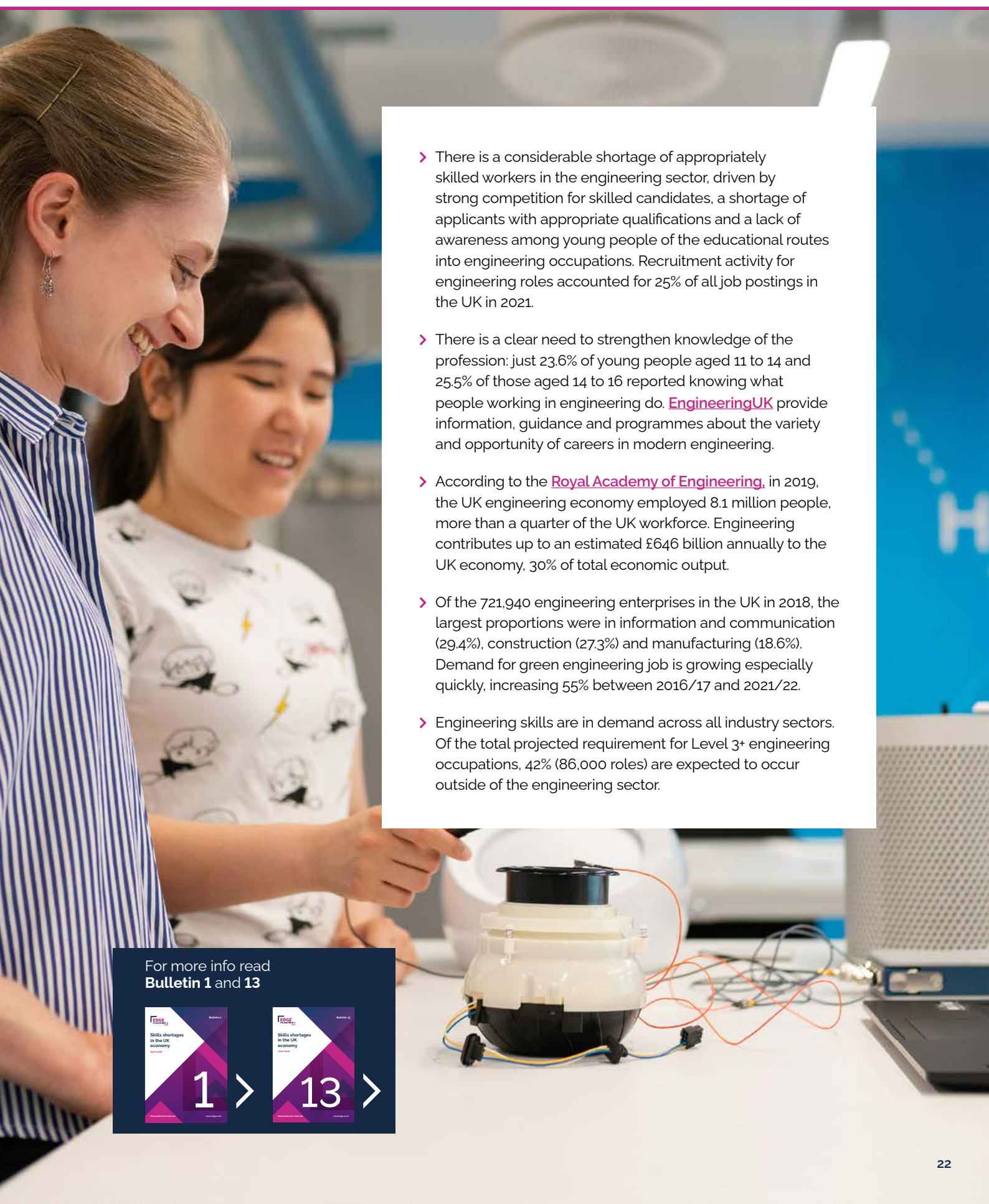


# Sector summaries

Skills shortages and challenges vary across different sectors of the economy. In this second part of this report, we highlight key messages in the Bulletins by sector.



# Engineering



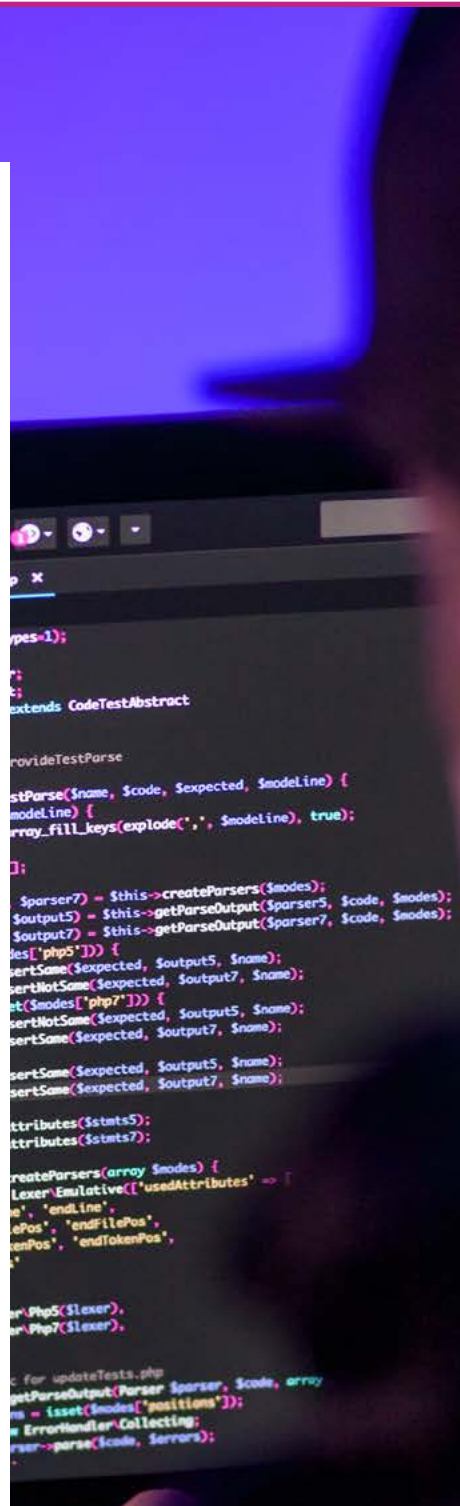
- There is a considerable shortage of appropriately skilled workers in the engineering sector, driven by strong competition for skilled candidates, a shortage of applicants with appropriate qualifications and a lack of awareness among young people of the educational routes into engineering occupations. Recruitment activity for engineering roles accounted for 25% of all job postings in the UK in 2021.
- There is a clear need to strengthen knowledge of the profession: just 23.6% of young people aged 11 to 14 and 25.5% of those aged 14 to 16 reported knowing what people working in engineering do. [EngineeringUK](#) provide information, guidance and programmes about the variety and opportunity of careers in modern engineering.
- According to the [Royal Academy of Engineering](#), in 2019, the UK engineering economy employed 8.1 million people, more than a quarter of the UK workforce. Engineering contributes up to an estimated £646 billion annually to the UK economy, 30% of total economic output.
- Of the 721,940 engineering enterprises in the UK in 2018, the largest proportions were in information and communication (29.4%), construction (27.3%) and manufacturing (18.6%). Demand for green engineering job is growing especially quickly, increasing 55% between 2016/17 and 2021/22.
- Engineering skills are in demand across all industry sectors. Of the total projected requirement for Level 3+ engineering occupations, 42% (86,000 roles) are expected to occur outside of the engineering sector.

For more info read  
**Bulletin 1** and **13**



# Digital

- In 2020, UK tech employment had grown by 40% over the last 2 years, accounting for 9% of the national workforce with 2.93m jobs created.
- **Tech Nation** shows that there have been rapid recent increases in demand for roles resulting from Covid-19; from June to August 2020 digital tech saw a 36% increase in vacancies. Of all roles advertised, Cambridge and Belfast had the highest proportion of digital tech roles at 26%.
- In 2018, there were over 130,000 software developer vacancies - the most in-demand tech position across all clusters in the UK. This was still true in 2020, the most advertised digital tech role across the UK cities was Software Developer (6% of all advertised digital tech roles).
- Over the past several years, demand for roles containing AI, cyber and cloud skills have all increased. Between 2018-2019 AI and cyber grew by 44% and 22% respectively year on year.
- Data centres provide the core digital infrastructure that underpins our modern economy by transmitting, receiving, storing, processing, and managing digital data securely and efficiently. Data Centres require complex skills needs, from network design to air conditioning, from energy management to generator maintenance. In the UK, this sector cannot currently meet its skills needs with domestic talent.
- **Ada**, the National College for Digital Skills, offers a Sixth Form and higher level (level 4) and degree (level 6) apprenticeships for those who are passionate about tech. **01Founders** is an innovative coding school which offers those wishing to reskill free education and a job guarantee. Their unique model is based on peer-to-peer and project-based learning. Both of these provide a pipeline of talent straight to the UK's tech industry, with a key focus on improving diversity and equality within the sector.
- Cardiff University's **National Software Academy** offers a BA in Applied Software Engineering. It works closely with industry, teaching with problem-based learning and real-world examples to ensure graduates are highly employable and meet the needs of local employers.



For more info read  
**Bulletin 2 and 8**



# Creative



- ▶ Creative occupations include many jobs in the creative industries including writers, film makers and game designers, but also include people performing creative roles in other industries such as designers working in manufacturing companies. Furthermore, the creative industries also include many important roles within the wider sector termed 'noncreative occupations', for example hospitality staff working in museums. However, 88% of employers in the creative sector struggle to recruit high-level skills.
- ▶ The sector includes as many as one in eight businesses across the UK and accounted for £115.9 billion, almost 6% of the UK's entire Gross Value added in 2019, a contribution that exceeds that of 'the aerospace, automotive and life sciences industries combined' ([House of Lords Communications and Digital Committee](#)). Activity rebounded quickly after halts in production during 2020 due to the impact of Covid-19, and production continued to rise in 2021 and beyond.
- ▶ However, the future of work will be underpinned by jobs that demand both creative and technical skills, for example: web design and development professionals; programmers and software development professionals; IT business analysts, architects and systems designers; Information technology and telecommunication directors.
- ▶ Between 2010 and 2018, there was a fall of 154,000 (57%) in entries to Design and Technology GCSE and a reduction of 77,000 (20%) in entries into creative subjects.
- ▶ The [London Screen Academy](#) offers a broad and balanced curriculum, not only offering range of subjects for working in the screen industries but also providing opportunities to learn creatively across all subjects through crosscurricula project-based learning with industry input and to develop professional behaviours.



For more info read  
**Bulletin 3, 9, 11 and 12**





# Health and Social Care



- The NHS is England's largest employer, with around 1.1 million full-time equivalent (FTE) staff in hospital and community services.
- Even before the pandemic, the workforce struggled to cope with shortages; in 2018, NHS hospitals, mental health and community providers had a shortage of more than 100,000 FTE staff. In July 2022, a report from the House of Commons Health and Social Care Committee found that England is now short of 12,000 hospital doctors and more than 50,000 nurses and midwives, leading to one of the worst workforce crises in the history of the NHS.
- Partly due to Brexit, challenging working conditions, and other factors, the level of shortages looks set to worsen, with shortages of nurses alone set to rise to 100,000 within ten years. In January 2021, the UK adopted a points-based immigration system and there is concern that 'care worker' is not listed as an eligible occupation on the eligible Shortage Occupation List (SOL). This will likely exacerbate the skills shortage crisis.
- Work needs to be done to improve the dropout rate during nursing training, as well as changes in the system of financial support for student nurses to provide cost of living grants and cover tuition fees. Alternative entry routes into the profession, such as the Nursing Degree Apprenticeship, are gaining popularity and the degree apprenticeship mode is expanding. Medical Doctor Apprenticeships are likely to open for pilot schemes in September 2024.
- [South Yorkshire Region Education and Careers](#) (SYREC) and their Schools Engagement Team use targeted outreach and teacher resources and CPD to bridge young people's knowledge gaps about health and social care roles and address skills shortages in the sector.

For more info read  
**Bulletin 5, 10 and 11**



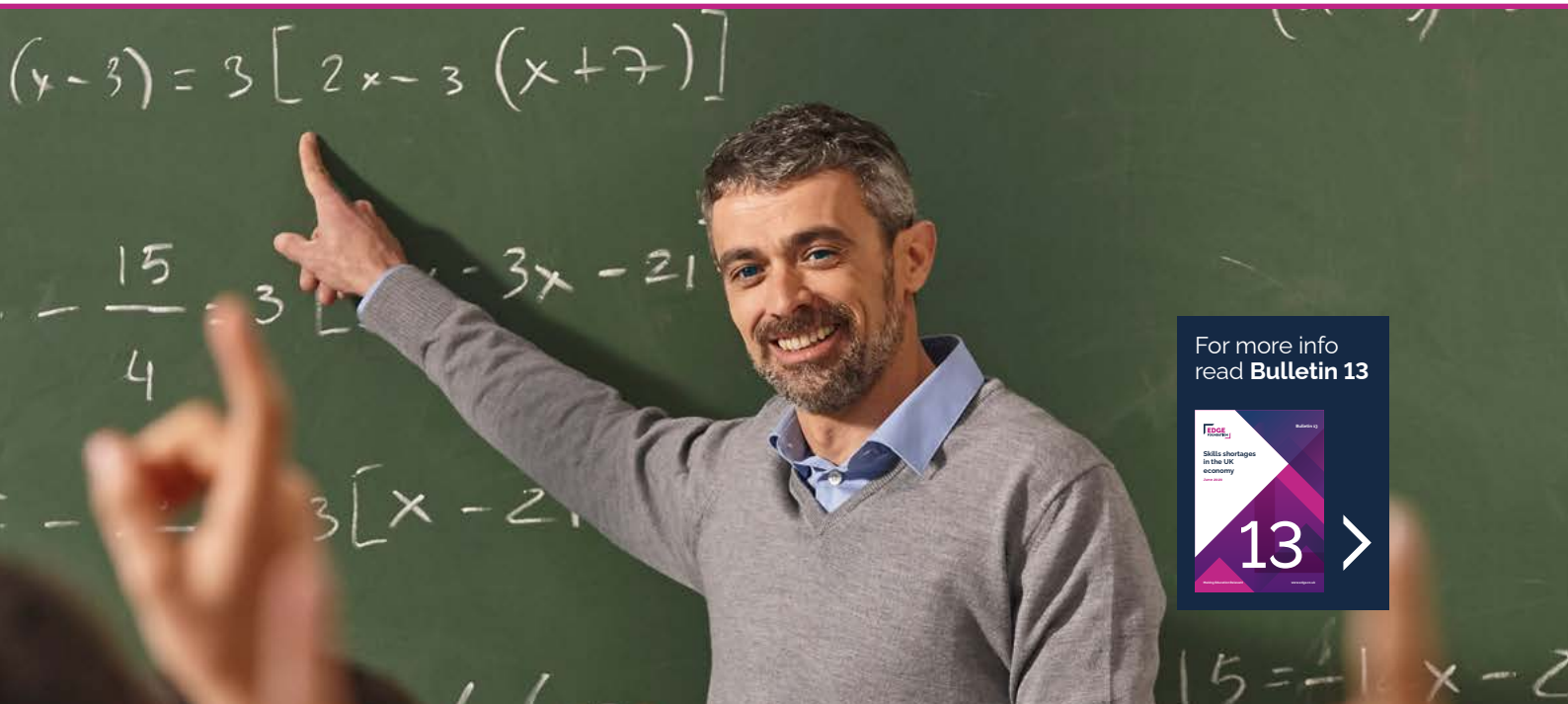
# Construction

- There is a growing demand for the sector, yet a lack of applicants with the necessary skills, as well as insufficient industry training. Meanwhile the sector has higher than average reliance on workers born in the European Economic Area, causing more issues post-Brexit.
- Bricklayers specifically represent the most severe shortage within the industry. Shortages amongst steel fixers, concreters and scaffolders have been reported.
- There has been a historic lack of training within the industry, and trade associations and construction organisations need to work together and with the Government to develop a strategy for tackling skills shortages, alongside increasing quality and standards. There are additional needs for updating training with regards to energy efficiency measures. There must also be a co-ordinated effort to remove the barriers to SMEs training more apprentices.
- The construction sector (building) is one of the key industries highlighted in the 2021 [Green Jobs Taskforce report](#) to enable investment in sustainable, low energy buildings and high-quality homes; renewable and affordable energy; and low-carbon transport infrastructure, highlighting the pressing skills challenges facing the Construction sector.

For more info read  
**Bulletin 6 and 10**



# Teaching



For more info  
read **Bulletin 13**



- ▶ The teaching profession faces major recruitment and retention difficulties, especially in secondary schools where recruitment was just 59% of the target in 2022, and Further Education (FE) colleges where vacancy rates have doubled to 8-9%. Vacancies were up 93% in 2022-23 and the situation appears likely to continue. In 2022-23 recruitment to initial teacher training was 20% or more lower than before 2020.
- ▶ The competitiveness of teaching versus other similar graduate jobs is in decline. Pay in 2021/22 was 12% lower in real terms than in 2010/11. Real earnings growth since 2010/11 was 11 percentage points lower for teachers than for similar graduates and 17 percentage points lower than the wider labour market.
- ▶ Teacher workload remains 4.5 hours higher, and is of greater intensity, than similar graduates. Teachers feel they spend too much time on administrative tasks at the expense of delivering teaching, and accountability measures have had negative effects on teachers' mental and physical health. Teaching also lacks opportunities for flexible working.
- ▶ Retention also represents a major challenge. Just 58% of teachers reported they would choose to become a teacher again if given the chance, down from 71% in 2019. Just 59% of teachers expected to still be teaching in three years' time, down from 74-77% before the pandemic.
- ▶ The situation disproportionately impacts the quality of delivery and teacher and student wellbeing in disadvantaged areas. Of all factors influencing recruitment and retention in disadvantaged schools, by far the strongest was the financial incentive. 40% of secondary leaders appointed poorly qualified candidates, and 80% of deprived schools had disrupted GCSE classes.
- ▶ In FE colleges, shortages of 'dual professionals' delivering teaching in areas like robotics, and a lack of capacity to offer competitive pay packages, hampers technical education. FE has seen the greatest decline in per-pupil funding of any education sector since 2010.
- ▶ Urgent action is required to address relative pay competitiveness. In the long term, an effective retention and recruitment strategy will be required to realise plans such as the introduction of the new Advanced British Standard to address low skills levels and skills shortages.'

# Green



For more info read  
**Bulletin 8, 9, 10, 11, 12 and 13**



Policy attention is turning towards the concept of a Green New Deal to drive economic recovery, including local job creation through investment in sustainable, low energy buildings and high-quality homes; renewable and affordable energy; and low-carbon transport infrastructure. Considerable shifts in the labour and skills markets will be necessary to meet the UK's climate goals.

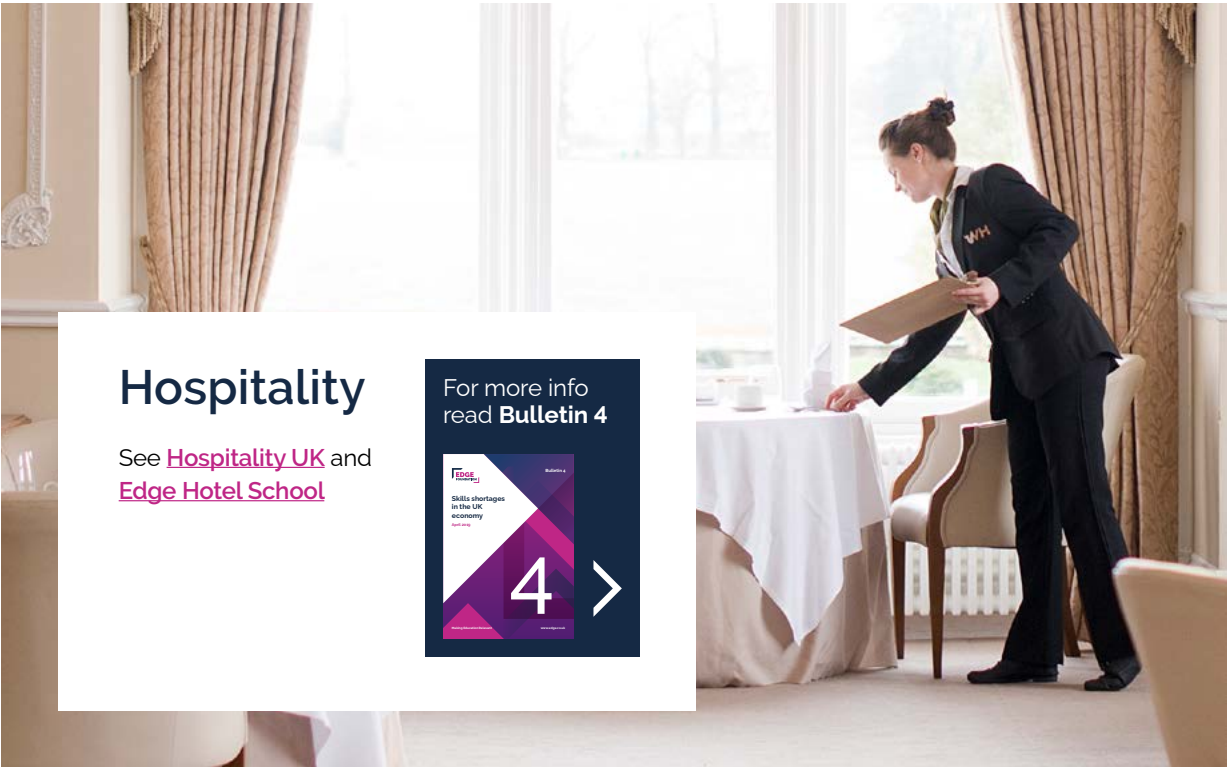
- ▶ Green skills and green jobs are increasingly embedded across the economy. In [engineering](#), for example, postings requiring 'green skills' increased by 48% from 2018-2022.
- ▶ The [Institute for Public Policy Research](#) suggests that as many as 200,000 jobs could be created in energy efficiency by 2030 – offshore wind being a major portion of this.
- ▶ Decarbonising the UK's housing stock, through renovation and construction work, is set to create 100,000 jobs annually over the next decade, with most jobs created in the services and the construction sectors ([Energy Efficiency Infrastructure Group](#)).
- ▶ [Green alliance](#) argues that national priorities for 'levelling up' and combating low productivity must be married with promises to deliver a net zero economy by 2050. They argue that ambitious transformations in reuse, repair, and remanufacturing could create over 450,000 jobs by 2035 distributed across regions of the UK.
- ▶ [The Economy 2030 Inquiry report 'Net Zero Jobs'](#) cautions that transitions out of, and reskilling and upskilling of 'high carbon' jobs will likely require extra effort from organisations, the Government,

and workers, while the [New Economics Foundation](#) indicates that existing policies and investment are insufficient in supporting the workforce to adapt to a low-carbon economy. The effectiveness of interventions will vary between places, sectors, and demographic groups and necessitate targeted action, the [RAND corporation](#) highlights. [Nesta](#) research has indicated that changes in the language framing green skills training did not meaningfully increase interest, but the availability of financial support did so substantially. Grants increased interest in green skills training by 39.5 percentage points.

- ▶ The need for green technology deployment leads to a focus on technical skills linked with specific emerging technologies. However, good communication, leadership skills, professional integrity, general business and administrative skills are also required along with systematic CPD.
- ▶ A comprehensive climate change education across the curriculum, raising awareness of opportunities within green sectors, needs to be a priority. Youth Employment UK evidence indicates 74.7% of young people have not heard of green jobs. But [SOS-UK](#) found that 71% of school pupils are interested in learning more about the environment and over 60% of university students want to learn more about sustainability. High numbers of teachers, young people, and employers report that more should be taught through education about the issue, but lack faith in the capacity of existing education provision to facilitate necessary understandings or foster important skills.

# Other sectors


In previous editions of this summary document, we have also featured several additional sectors. For information on skills shortages in these sectors, see:



**Hospitality**

See [Hospitality UK](#) and [Edge Hotel School](#)

For more info read **Bulletin 4**



The image shows a woman in a dark suit setting a table in a bright room with large windows and curtains. A white box is overlaid on the left side of the image, containing the text 'Hospitality' and 'See Hospitality UK and Edge Hotel School'. To the right of this text is a small image of the cover of Bulletin 4, which features a purple and white geometric design with the number '4' and a right-pointing arrow. The cover text includes 'For more info read Bulletin 4', 'Skills shortages in the UK economy', and 'April 2019'.



**Logistics**

See [Chartered Institute of Logistics and Transport](#) and [Tees Valley Logistics Academy](#)

For more info read **Bulletin 7**



The image shows a worker in a yellow safety vest operating a yellow forklift in a large warehouse with high shelves. A white box is overlaid on the right side of the image, containing the text 'Logistics' and 'See Chartered Institute of Logistics and Transport and Tees Valley Logistics Academy'. Below this text is a small image of the cover of Bulletin 7, which features a purple and white geometric design with the number '7' and a right-pointing arrow. The cover text includes 'For more info read Bulletin 7', 'Skills shortages in the UK economy', and 'November 2019'.



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