Department for Education

Skills England: Sector evidence on the growth and skills offer

June 2025

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Executive summary

A skills system that is fit for the future and aligned to the forthcoming Industrial Strategy is essential to delivering all five of the Government's missions: growing the economy, securing an NHS fit for the future, creating safer streets, breaking down barriers to opportunity, and making Britain a clean energy superpower. Skills England plays a crucial role in achieving these missions by providing authoritative assessments of skills needs across the country and identifying how skills provision can help meet these diverse needs. The new Growth and Skills Levy, introduced by the Labour government, will be a key tool to develop the workforce capabilities required across all mission areas.

As a first step towards these ambitions, Skills England produced a report in September 2024, *Driving growth and widening opportunities*, which outlined how skills can drive UK growth, along with an initial assessment of skills needs in the economy. Skills England has now developed this by providing an assessment of skills needs across a range of priority sectors. This document brings together a wealth of evidence, including economy-wide central projections, data from across government, and comprehensive bottom-up insights from employers. It summarises key insights from Skills England's engagement[1] and analysis on the new growth and skills offer and identifies key gaps in the current apprenticeship skills system, along with potential ways to address them. Our engagement focused on the skills system within England, but the accompanying analysis draws on UK wide data.

Summary of key findings

Our engagement was mainly centred around employers' experiences with the existing apprenticeships system and how this could be improved and expanded by introducing the new growth and skills offer. Through this engagement, we learned that most sectors, even those where apprenticeships are currently meeting skills needs effectively, have identified challenges in building their future skills pipelines. Across all sectors, businesses highlighted that:

- Apprenticeship standards do not respond quickly enough to rapid changes (e.g. the pace of new technological development). Standards should be developed and defined in ways that can cover both new developments in technology and processes as they are adopted by business.

- Content and delivery frameworks can be too restrictive (e.g. in their duration, delivery of off-site learning, or curriculum content). Standards and delivery need to be more adaptable to meet employer's specific skills challenges.

[1] During this engagement process and the drafting of this publication, Skills England was set up in shadow form within the Department for Education (DfE). Skills England - GOV.UK

- Small and Medium Enterprises (SMEs) face particular challenges in accessing apprenticeships due to their limited capacity to deal with administrative requirements, making it difficult to commit to longer programmes.

Our engagement showed that there was considerable appetite amongst employers for a broader training offer that supports the transition into employment. Further, employers discussed the importance of developing employability and transferable skills for those that are entering the workforce.

It was also clear that employers were interested in shortening the duration of apprenticeships to give greater flexibility where skills and competence could be developed in less than 12 months. This would be suited to areas where training could be compressed to align with the normal cycle of the labour market, or where learners have substantial prior learning.

This feedback supports the government's aim to introduce shorter apprenticeships and foundation apprenticeships. Beyond foundation and shorter duration apprenticeships, employers identified several other areas where they would like to see further changes:

- Increase the reactivity of training routes to keep pace with rapidly changing technologies and skills needs across sectors.

- Develop 'bolt-on' training to supplement prior learning and attainment, particularly across AI and digital skill areas, and in transferable skills such as management and leadership to drive growth across priority sectors.

- Build on the success of existing programmes, such as Skills Bootcamps[2], to provide levy-funded accelerated training programmes in skill areas relevant to priority sectors. This includes AI and cloud-based development in the fintech industry.

- Reduce the administrative tasks and complexity of the current apprenticeship system for employers.

[2] Skills Bootcamps offer free, flexible courses of up to 16 weeks, giving people the chance to build sector-specific skills with an offer of a job interview on completion.

Introduction

The Department for Education is developing a comprehensive Post-16 Education and Skills Strategy, setting out a long-term vision for the skills system and how it will contribute to the government's missions and the delivery of the Plan for Change. The Growth and Skills Levy announced by the Prime Minister will be an important part of this approach, allowing for new foundation and shorter duration apprenticeships that meet the needs of learners and employers.[3]

To inform how the growth and skills offer could drive economic growth and opportunity, Skills England held a series of engagement events throughout November 2024. These consisted of 17 sector-specific events, nine non sector-specific events, and smaller roundtable discussions with 743 attendees spanning across employer representative bodies, employers, education provider networks, education providers, Strategic Authorities (SAs), other government departments (OGDs), young people and other stakeholders.[4] This engagement was centred around employers' experiences with the existing apprenticeships system and how this could be improved and expanded by introducing the new growth and skills offer.

The evidence set out in this document is based on both the insight gained from this engagement and further analysis of available data. Our analysis uses government data on skills, training and the labour market, as well as data from industry bodies where this is the best evidence available for specific sectors. The structure of the document is as follows:

- Section 1 and the accompanying sector skills needs assessments, combines findings from Skills England's engagement and detailed analysis of each sector. These provide a comprehensive overview of the skills landscape for each sector. The assessments identify recurring themes and similarities across each sector in relation to priority jobs and skills, training routes (with a particular focus on apprenticeships), and the steps necessary to secure the future workforce.
- Section 2 summarises key insights from Skills England's engagement and analysis on the new growth and skills offer. It identifies key gaps in the current apprenticeship skills offer and potential ways to address them.

The topic of migration is not directly discussed in this report. However, its high-level impact is covered in a number of the sector skills needs assessments including advanced manufacturing, health and adult social care, and construction sectors. Skills England will

[3] Prime Minister overhauls apprenticeships to support opportunity, gov.uk (2024)

[4] Annex 1: Skills England Engagement

continue to work with the Migration Advisory Committee (MAC) to develop the evidence base in this area.[5]

Skills England has chosen to focus on ten priority sectors: the eight growth-driving sectors identified in the government's Industrial Strategy Green Paper and, in addition, the construction sector and the health and adult social care sector.[6, 7] Construction was included due to its importance in meeting the government's housebuilding targets and the substantial skills shortages in the sector. The health and adult social care sector was selected as it faces persistent skills shortages and growing demand driven by an ageing population.

Skills England will continue to work with these priority sectors to tackle the issues raised during our engagement. This includes supporting the development of the Industrial Strategy sector plans for the eight growth-driving sectors.

[5] Invest 2025: the UK's modern industrial strategy, DBT (2024)

[6] Advanced manufacturing; Clean energy industries; Creative industries; Defence; Digital and technologies; Financial services; Life sciences; Professional and business services

[7] Invest 2025: the UK's modern industrial strategy, DBT (2024)

Section 1: Summary of skills needs across sectors

This summary sets out key skills trends and challenges from across the ten priority sectors, drawing on the analysis in the accompanying sector skills needs assessments and findings from Skills England's employer engagement.[8]

Addressing the skills challenges outlined in the skills needs assessments will be critical to securing the future workforce in priority sectors. Skills England will work closely with employers to help improve alignment between skills demand and supply. This needs to happen alongside addressing wider employment issues (e.g. pay and conditions), where relevant, to secure the skilled workers needed for growth.

Local Skills Improvement Plans (LSIPs), and the designated Employer Representative Bodies (ERBs) that develop them, provide a key source of employer intelligence to Skills England. Skills England will oversee the development of future rounds of LSIPs, including engaging with ERBs and Strategic Authorities (in areas where they exist), setting the parameters for LSIPs' content via statutory guidance, and approving the plans on behalf of the Secretary of State.

Skills England will also continue to establish and strengthen strategic relationships with key bodies, such as the Strategic Authorities, on a national and local basis. These partnerships will ensure alignment on national priorities, such as addressing skills shortages, supporting long-term industrial growth and support for regional priorities. Through this collaboration, Skills England will coordinate efforts across England, fostering a unified approach to skills development. These relationships will enable us to align employer needs with workforce policies, enhancing the impact of our initiatives

At the time of writing, definitions of the eight Industrial Strategy growth-driving sectors are still in development. Our analysis uses the best available definitions and evidence, setting out what we already know and where further work is needed to understand the skills landscape within these sectors. The forthcoming Industrial Strategy Sector Plans will set out analysis of the highest growth potential subsectors.

While historic workforce trends indicate areas of likely job growth within the priority sectors driving skills needs, new government priorities and ambitions are likely to alter these trends. We will continue to work with industry bodies to assess emerging trends feeding skills demand, and to better quantify these needs.

Some key themes are already emerging:

- Technological change is a major driver of changing skills needs across sectors, indicating a substantial and growing demand for digital and wider technology skills.

[8] Annex 1: Skills England Engagement

- Long-standing skills shortages in non-technical areas continue to affect multiple priority sectors and will continue to be a key driver of skills needs over coming years.

- There are areas of gender inequality in multiple priority sectors[9]. These point to opportunities to fill skills gaps by building a more diverse workforce.

- Demand for degree level training and above, particular in STEM and related subjects, will continue to dominate some priority sectors. There is a pressing need for technical skills at levels 4 and 5 in some priority sectors, which can be addressed through Higher Technical Qualifications (HTQs). There is also demand for L2 and 3 in critical sectors such as construction.

- All training routes will need to meet the need for cross-cutting, essential skills for employment and facilitate required upskilling/reskilling throughout workers careers.

- Excellent careers advice, linked to education and training choices, will be vital for both younger people and those in work to match individuals to opportunities.

Employment growth

UK employment is growing; projections produced in 2021 as part of the Skills Imperative 2035 projected an increase of between 1.4m and 1.7m new jobs between 2024 and 2035.[10,11] However, these projections are based on historic trends and do not take account of new priorities and ambitions introduced by this government. Skills England is working with government departments to develop a more accurate assessment of employment future trends and skills needs in response to current policy.

[9] Based on available data. Data on other characteristics does not exist, or is incomparable across priority sectors.

[10] The Skills imperative 2035 is a research programme to identify the essential skills people will need for work by 2035.

[11] Labour market and skills projections: 2020 to 2035, DfE (2023) comparing 2024 to 2035 under the baseline (1.7m) and alternative scenarios (1.4m)

Skills Imperative 2035 projections: overview

To date, Skills England (and previously, the Unit for Future Skills) has largely relied on detailed employment projections produced as part of *The Skills Imperative 2035*: *Essential skills for tomorrow's workforce* research programme.[12] This programme investigates future skills needs, gaps and solutions and is being delivered by a strategic research partnership led by the National Foundation for Education Research (NFER) and funded by the Nuffield Foundation.

These projections provide detailed estimates of the shape and composition of the future labour market in the UK in 2035. These are not precise predictions but represent one possible trajectory based on data available at the time of publication in 2022. Due to the inherent uncertainty in predicting the future, projections were produced for a range of scenarios.

Baseline projections assumed existing technological trends and environmental transitions continued at a similar pace, whereas *Alternative Scenarios* considered other possible futures, including faster adoption of technology, a greater focus on the environment, and better care services to support the ageing population. In this report, we use the *Baseline projections* unless otherwise stated.

If historic trends were to continue, substantial job growth would be expected in many industries which are key to the priority sectors.[13] However, new government ambitions, including the Industrial Strategy and the five missions, are likely to substantially alter these projections. In some sectors, policy has already been announced which will have a clear impact on demand.

- In construction, the government's commitment to deliver 1.5m homes over this Parliament (a 50% increase on the previous 5 years) will increase demand. Prior to this new commitment, the construction skills network predicted that 251,000 extra workers would be required to meet UK construction demand by 2028.[14]

- The new Clean Power 2030 Action Plan will increase demand for multiple roles in the clean energy sector, such as the workers required to build more clean power projects.[15] Based on an assessment of external reviews, the Climate Change Committee estimated that the transition to net zero could create between 135,000-725,000 net new jobs in low carbon industries by 2030.[16]

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[12] The Skills Imperative 2035, NFER (2022)
[13] The priority sectors do not all align with established industries for which data is available, sometimes spanning multiple Standard Industrial Classification (SIC) categories
[14] CSN Industry Outlook - 2024-2028, CITB (2024)
[15] Clean Power 2030 Action Plan, DESNZ (2024)
[16] A Net Zero workforce, Climate Change Committee (2023)

- The AI Opportunities Action Plan aims to leverage AI to drive economic growth and improve living standards. Private leading tech firms following the AI Action plan have announced new developments including a new tech hub in Liverpool creating up to 1,000 AI-related jobs over the next three years.[17]

Table 1: Projected job growth for five industries which will be key to the priority sectors and are projected to grow over the next 10 years, 2024 to 2035, UK

Industry	Related priority sectors	Jobs 2024 (thousands)	Jobs 2035 (thousands)	Change (%)
Arts and entertainment	Creative	1,023	1,119	9%
Information technology	Digital and tech	1,186	1,296	9%
Construction[18]	Construction	2,400	2,583	8%
Health and social work	Health and adult social care	4,682	5,078	8%
Professional services	Professional and business services	3,291	3,532	7%
Whole economy	**-**	**35,833**	**37,568**	**5%**

Priority sectors do not align exactly with industries and these figures do not take account of new government ambitions discussed above.
Source: Labour market and skills projections: 2020 to 2035, DfE (2023)

The extent and direction of job growth across different industries will shape future skills needs. To support a growing economy and government's wider missions, meeting these future skills needs will be of particular importance across the ten priority sectors. The rest of this summary sets out key themes identified across sectors which help to understand future skills and training needs beyond job projections. Further work is needed to quantify the scale of these future needs.

The impact of technological change

Skills England's first report identified advances in AI and automation as a megatrend driving the direction of job growth at both industry and occupational levels.[19] Our latest sector analysis confirms its central role in the future of the ten priority sectors, providing clear areas of future skills needs.

[17] Prime Minister sets out blueprint to turbocharge AI, DSIT (2025)
[18] Figures do not account for the governments commitment to deliver 1.5m homes this parliament.
[19] Skills England report: driving growth and widening opportunities, DfE (2024)

Technological change sectors case studies

AI and automation are integral to the digital and technology and advanced manufacturing sectors which are centred around advanced technologies. In addition, our sector analysis identifies this trend as an important driving force for changes in demand across all the priority sectors. To fill technological skills gaps, an increasing number of industries will be competing with the information and communications industry for skilled digital professionals, which is already reports a high percentage of vacancies due to skills shortages (43%).[20]

Creative

The creative industries are undergoing a transformative shift driven by skills that blend technological competence with creative thinking. Over two-thirds (69%) of employers in the creative industries said they expect their employees will need to upgrade their skills, with the most frequent driver being the introduction of new technologies or equipment and the development of new products and services.[21]

Life sciences

The rapid adoption of new technologies such as AI is revolutionising fields like bioprocessing, personalised medicine and continuous manufacturing. To respond, the life sciences sector will require employees with a blend of digital skills and traditional scientific skills, both at advanced levels (level 6+).

Finance

Finance employers are expecting substantial increases in AI and cyber security roles. To adapt to automation, the financial sector will require advanced technical skills in areas such as cloud-based development, DevOps[22] and machine learning, alongside more traditional contextual and regulatory understanding.

Professional and business services

Alongside finance, the professional and business services sector is projected to be the most automation-disrupted sector in the UK. In professional and business services firms, up to 584,000 new jobs could be created by 2040 as a result of this disruption,

[20] Employer Skills Survey 2022, DfE (2023)
[21] Giles, L., Carey, H. and O'Brien, D. (2025) 'Skills Mismatches in the UK's Creative Industries'. Creative PEC State of the Nations Research Series.
[22] DevOps is a methodology that combines software development and IT operations to improve the process of delivering software.

providing opportunities for growth.[23] These new roles are expected to require higher-level skills than displaced jobs.

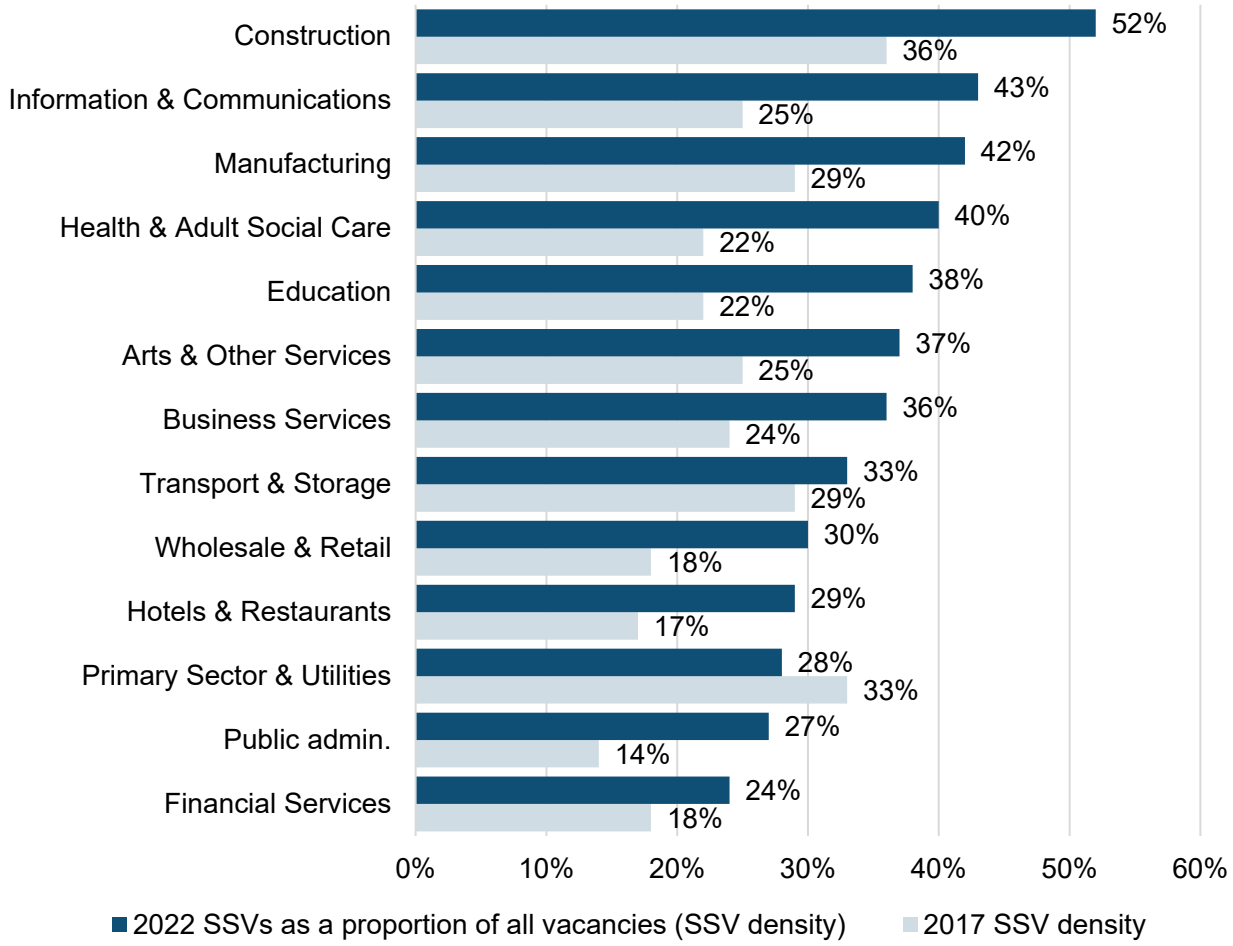
Training opportunities will need to support the development of blended specialisms. As illustrated in the examples above, the new skills required as a result of technological change are often highly specialised and blended with more traditional sector knowledge. For example, during our engagement, life sciences employers identified digital-focused apprenticeships as a successful route to developing these blended skills, building on more traditional sector knowledge. Examples of specialised digital apprenticeships include the Artificial Intelligence (AI) Data Specialist and the Digital and Technology Solutions Professional. Alongside this, there will be more demand for basic digital skills and awareness of AI, to allow employees at all levels to interact with the new technologies being introduced in their sectors.

Addressing persistent skills shortages

In addition to emerging cross-industry trends, the priority sectors are affected by some of the largest and most embedded skills shortages in the economy which will continue to impact skills needs over the coming years. The Employer Skills Survey[24] found that 52% of vacancies in construction were unable to be filled due to a lack of skills, qualifications or experience among applicants (skill-shortage vacancies, SSVs) in 2022, up from 36% in 2017.[25] Manufacturing was the third highest industry in 2022 for skills-shortage vacancy density (42%), and is important to multiple priority sectors, including advanced manufacturing, defence, life sciences and digital and technology. Health and adult social care had 40% skills shortage vacancies in 2022, almost double compared with 2017 (22%).

[23] Skills for Future Success, Professional and Business Services Council (2021)
[24] The Employer Skills Survey is a survey of 72,918 businesses,
[25] Employer Skills Survey 2022, DfE (2023)

Figure 1: Skills Shortage density by industry, 2017 and 2022, UK



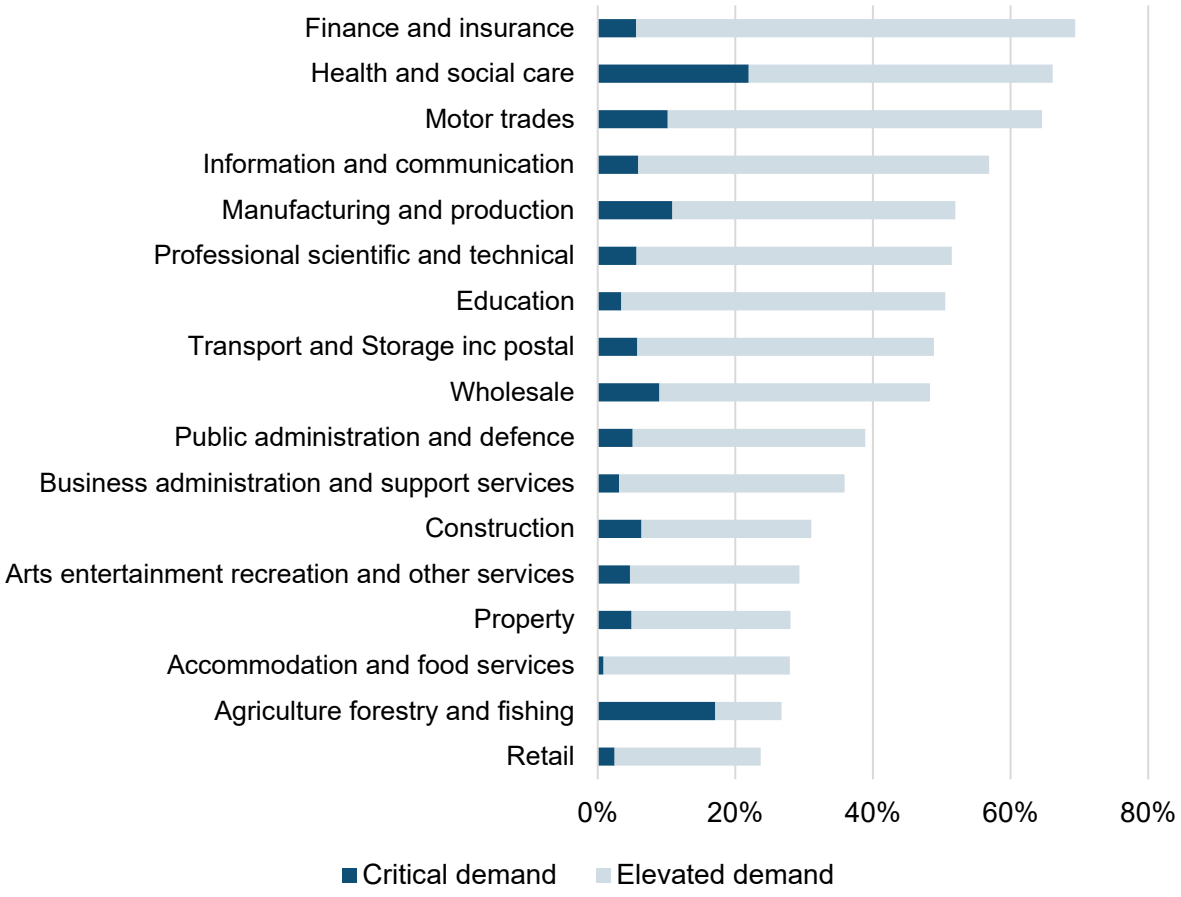
Source: Employer Skills Survey 2022, DfE (2023)

These skills shortages are also evident in our analysis of occupations in critical or elevated demand. This analysis is a composite index of seven indicators (including visa applications, online job adverts and wage growth) looking across the Office for National Statistics (ONS) standard list of around 400 occupations (SOC2020 4-digit level) to identify which are currently seeing high levels of demand in the UK labour market.[26] Industries with high volumes or rates of in-demand occupations are key to the priority sectors (Figure 2):

- **The finance and insurance industry** has the highest proportion of the total industry workforce in demand occupations (69.4%).
- **Health and social adult care** has the second highest proportion of the total industry workforce in demand occupations (66.1%) as well as the highest total number of workers in demand occupations (3 million).

[26] Occupations in Demand, DfE (2024)

Figure 2: Proportion of workers across industries (SIC) working in occupations that are in demand



Source: Occupations in Demand, DfE (2024)

Embedded skills shortages, particularly where there is competition among sectors, will be priority areas to fill. For example, welding professionals are required in advanced manufacturing, defence and construction; engineering professionals across defence and digital and technology; construction professionals across clean energy and the wider construction sector. Additionally, the priority sectors will also be competing with demand in the wider economy. A number of roles, such as electricians and accountants, are vital for maintaining businesses across the economy and will be sought after by a wide range of sectors.

Tackling inequalities

Our analysis of the skills pipeline in priority sectors identifies the role of demographic disparities in skills shortages. These inequalities point to areas where skills shortages may be driven in part by a lack of opportunity for sections of the population. Women are

substantially underrepresented in over half of the ten priority sectors.[27] Additionally, the financial sector projects a shift towards fewer women, driven by a small decline in primarily administrative roles, which have historically been disproportionately filled by women.[28] However, employment projections from Skills Imperative 2035 predict most of the new jobs created by 2035 will be taken by women, based on the gender mix of sectors where jobs are predicted to be created or displaced.[29] These projections also show that jobs most vulnerable to automation are currently mainly held by men.

Another key area of inequality is socioeconomic status. For example, 26% of the creative workforce are estimated to be from lower socio-economic backgrounds, compared with 38% across all industries.[30] The Tech Talent Charter highlights that 9% of Tech employees are reported to be from lower socioeconomic backgrounds.[31]

The demand for highly qualified workers

Historic employment and qualification trends show that the workforce has been shifting to more highly qualified workers, and this trend is predicted to continue over the next ten years.[32] Projections from Skills Imperative 2035 estimate that by 2035, 48% of the workforce will hold a degree level qualification or higher, compared with 39% in 2024.[33,34] As a result, the higher education system will also play a significant role in meeting the skills needs of the future workforce. However, in 2023, 26% of graduates aged 21 to 30 and 21% of those aged 16 to 64 were in employment that was not high-skilled.[35]

Several of the priority sectors have a large demand for these higher-level skills. For example, creative, digital and technologies, financial services and life sciences sectors have a higher than average proportion of workers qualified at degree level or above. The availability of professionals qualified to degree level will also be essential across the other priority sectors in specific occupations (e.g. town planners and architects within construction and engineers within clean energy). Parts of the professional and business services sector (such as solicitors and accountants) and many regulated professions in health and adult social care require ongoing compliance with professional standards in addition to high-level entry qualifications.

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[27] Advanced Manufacturing, Clean Energy Industries, Construction, Creative industries, Defence, Digital and Technology.
[28] Labour market and skills projections: 2020 to 2035, DfE (2023)
[29] Occupational Outlook – Long-run employment prospects for the UK, NFER (2022)
[30] Social mobility in the Creative Economy, Creative industries Policy & Evidence Centre (2021)
[31] Diversity in tech report 2024, Tech Talent Charter (2024)
[32] Occupational Outlook – Long-run employment prospects for the UK, NFER (2022)
[33] Labour market and skills projections: 2020 to 2035, DfE (2023)
[34] Annual Population Survey Jul 2023-Jun 2024, ONS (2024)
[35] Graduate labour market statistics, DfE 2024)

STEM skills

Many of the priority sectors will be competing for the same highly qualified candidates where there is an overlap of skills needs. This is particularly the case for degree level STEM skills.

Degree level STEM skills were identified as a core training route by advanced manufacturing, clean energy industries, defence, digital and technology, financial services, life sciences and professional and business services. The reliance on higher education was particularly notable for areas of the digital and technology sector. In occupations most important to quantum and AI, 67% and 72% of early career workers respectively held higher education pathways, compared with 40% across all occupations.[36] As discussed in the technological change section above, digital and technologies qualifications, such as software developer/engineer, are becoming increasingly sought after across priority sectors.

STEM training at degree level or above, whether through university or apprenticeship routes, will continue to be a key route to meeting growing skills needs. Due to competing demand, employers will need to consider graduates in the widest range of subjects that may meet their skills needs. Employers may need support from education providers and government to understand the skills that these different subjects teach.

The rise in demand for degree level skills is a gradual continuation of current trends and this pipeline is well established for developing traditional academic and cognitive skills.

Higher technical skills

There is acute demand for technical skills at level 4 and 5 – the levels between A levels/ T levels and degree qualifications. Just over a third (35%) of workers in occupations in critical demand require a level of skill equivalent to qualification levels 3 to 5.[37] The need for skills at levels 4 and 5 was specifically identified by advanced manufacturing employers within our engagement activities, and the skills needs of this sector overlap with other priority sectors including defence and clean energy.

For skills needs at level 4 and 5, Higher Technical Qualifications (HTQs) provide the route into many relevant occupations for priority sectors, including engineering and manufacturing, and are an established route for digital skills. Current HTQ routes include:

- Digital;

[36] Jobs and Skills dashboard, DfE (2024)
[37] Occupations in Demand, DfE (2024). The occupations in demand index uses seven labour market indicators to rank the demand for each occupation across the UK labour market.

- Health and science;
- Construction and the built environment;
- Business and administration;
- Education and early years;
- Engineering and manufacturing;
- Legal, finance and accounting.

Further routes will be available from this year in care services (of relevance to the health and adult social care sector) and creative and design (of relevance to the creative sector).[38] These routes will be important to meeting the need for a highly qualified workforce in more technical fields and in cases where degree level training is not required or as well suited.

It is important that colleges are able to adapt their provision and ensure this additional demand for training in these areas can be met.

Developing a skills pipeline at all levels

Our analysis of priority sector needs emphasises that a strong training pipeline at all levels is vital to the future workforce. For example:

- Advanced manufacturing roles span all skills levels, with particular difficulties accessing talent at levels 4 and 5.
- Clean energy reports high demand in a range of roles with training requirements that span all skill levels.
- Adult social care relies on a large direct care workforce where the most common qualifications are at levels 2 and 3, in addition to more highly qualified professionals.

Skilled trades

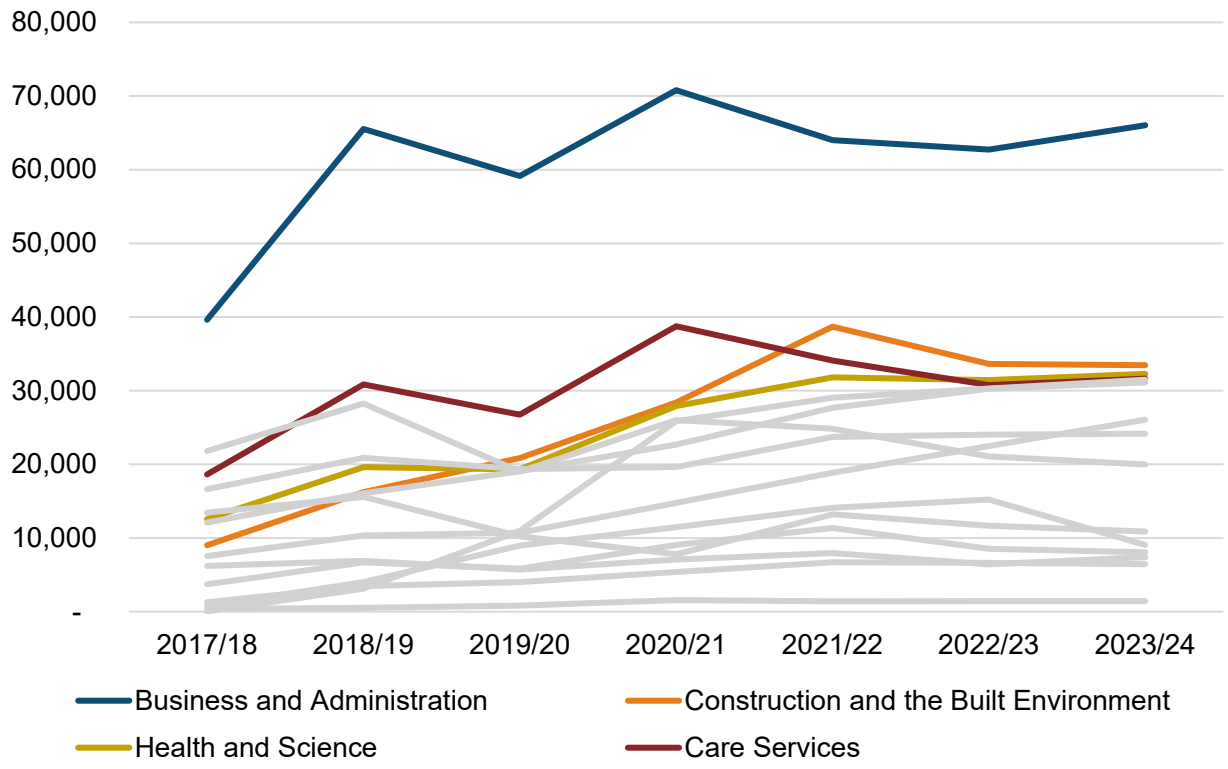
Skilled trades include a wide range of occupations requiring technical training to perform practical, hands-on tasks, many of which require skills at levels 2 to 4. As with higher level skills, training at these levels is in competing demand across sectors.

Skilled trades were the main skills shortages identified within advanced manufacturing and construction sectors, with many skilled trades also in demand within the clean energy sector. In particular, welding trades was identified as a gap in all three sectors. Practical, hands-on skills and experience were also highlighted as particularly valuable within creative industries including live events, film and theatre.

[38] Approved Higher Technical Qualifications, IfATE (2024)

Apprenticeships are able to respond to skills needs at all levels, but their uptake currently varies widely by route (Figure 3). Business and administration routes have consistently seen approximately twice as many apprenticeship starts compared to any other route. This route is particularly relevant to the finance and professional and business services sectors, although the high numbers of apprenticeship starts are due to these routes serving a wide range of sectors. Our engagement with employers in the finance and professional and business services sectors confirmed the value and positive perception of apprenticeship training routes.

Figure 3: Apprenticeship starts by route (with top 4 routes identified), 2017/18 to 2023/24, England



Source: Apprenticeships 2023/24, DfE (2024)

Of the remaining apprenticeship routes, construction, health and science, and care services are popular options.

Transferable and cross-cutting employment skills

Across all sectors, employers expressed the importance of cross-cutting skills that enable employees to function effectively in the workplace. These cross-cutting skills include essential employment skills such as numeracy, literacy and communication, digital literacy, creativity and leadership. For example, while some sectors have advanced skill requirements relating to digital technologies, basic digital literacy will be essential for all roles at all levels. 92% of businesses stated that having a basic level of digital skills is

important for employees[39]. Transferable, essential employment skills are projected to be the skills in greatest demand across the labour market in 2035.[40]

Upskilling

Our engagement with employers emphasised the importance of training routes for those already in the workforce. This is essential to maintaining a pipeline of skilled workers into more senior or specialised roles. For example, in the creative sector, skills gaps were identified at mid-career and senior levels and there was a call for more flexible, lifelong learning models that support professionals as they advance in their careers.

Meeting these training requirements will require more investment from employers; employer investment in training has been declining.[41] Upskilling is not only relevant to more advanced skills; there are an estimated 8.5 million working age adults in England with low proficiency in literacy, or numeracy, or both.[42] There is a need to upskill these adults in basic skills to develop the skills pipeline.

The role of education to age 19

Strengthening routes into careers within the priority sectors will include careers advice in schools, colleges and other settings before the age of 19. Employers highlighted pre-19 education as a key opportunity to shape perceptions of career routes, and tackle gender stereotypes.

In advanced manufacturing, limited industry engagement with schools and colleges was considered a barrier to developing early interest in advanced manufacturing careers. In the digital and technologies sector it was highlighted that it can be a challenge for school and college staff to keep up to date with the rapidly emerging careers in order to provide informed careers advice. In the creative industries, inadequate career guidance is considered a significant barrier for young people, stemming from a lack of awareness of the routes available into the sector, limited resources for advisors, and weak industry connections.[43,44] The government has provided £3 million to expand the Creative Careers Programme to give young people the opportunity to learn more about career pathways and directly engage with creative workplaces and employers. The government commitment to improving careers guidance in schools and colleges, and to delivering a guarantee of two weeks' worth of work experience for every young person, will also need to reflect these concerns.

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[39] Disconnected-Report-final.pdf page 8

[40] An analysis of the demand for skills in the labour market in 2035, NFER (2023)

[41] Employer Skills Survey 2022, DfE (2023)

[42] Survey of Adult Skills 2023 (PIAAC): National Report for England, NFER (2024)

[43] BFI and ERIC screen careers research, BFI (2022)

[44] CSE and A-Level Arts Entries and Grades 2023, Cultural Learning Alliance (2023)

The Review of Qualifications Reform which took place in autumn 2024 considered the level 3 qualifications due to have public funding removed by 31 July 2025. The review aimed to ensure that post-16 qualifications reform supports the government's missions of spreading opportunity and supporting economic growth.

Addressing training needs at all levels will start with addressing any barriers at the earliest stages of education. The government has already launched the Curriculum and Assessment Review which aims to equip young people with the essential knowledge and skills which will enable them to adapt and thrive in the world and workplace of the future.[45]

[45] Government launches Curriculum and Assessment Review, DfE (2024)

Section 2: Evidence on the growth and skills offer

Skills England engaged with employers on their experiences with the existing apprenticeships system and how the growth and skills offer could be improved and expanded. There was a general consensus across sectors that further education and skills training was valuable and that employers wanted to continue building on existing apprenticeships routes which were adding value across sectors. They are seen as an important entry route into most sectors, essential for filling skills gaps and offer critical flexibility. Apprenticeships, including those at degree level, provide an important alternative to Higher Education and are valued by sectors.

Alongside these positive benefits, most sectors, including those where apprenticeships are effectively meeting skills needs, identified challenges that should be addressed to build on the existing pipeline:

- Apprenticeship standards do not respond quickly enough to rapid changes (e.g. the pace of new technological development). Standards should be developed and defined in ways that can cover new developments in technology or processes as they are adopted by the sector.

- Content and delivery frameworks can be too restrictive (e.g. in their duration, delivery of off-site learning, or curriculum content). Standards and delivery need to be more adaptable to meet employers' specific skills challenges.

- SMEs face particular challenges in accessing apprenticeships as their limited capacity to deal with the administrative burden makes it difficult to commit to longer programmes. The management and funding of apprenticeships may need to be adapted to provide greater support to small businesses.

There was interest from stakeholders across sectors for more flexible training offers to keep pace with quickly evolving skills needs through adaptable and continuous learning throughout careers. In rapidly developing fields such as clean energy, creative industries, advanced manufacturing and digital and technology, flexible training options would allow employers to better equip staff with new skills to meet demand. In areas where new technologies are blending with established skills, such as life sciences and finance, a flexible training approach could allow employers to equip employees with a blended skillset, by supplementing existing training.

Foundation apprenticeships

Our engagement showed that there was considerable appetite amongst employers for a broader training offer that supports the transition into employment. Further, employers discussed the importance of developing employability and transferable skills for those that are entering the workforce.

Skills England's engagement highlighted a number of key features that could inform the development of foundation apprenticeships:

- An apprenticeship with a broader, entry-level scope that supports transition into full-time employment by developing essential employability and transferable skills alongside work-based learning.
- A focus on strengthening collaboration between industry, education, and government to improve outreach to young talent, particularly where young people's awareness and perceptions of sectors are lacking such as in clean energy, advanced manufacturing and defence sectors.
- Allowing learners to develop and demonstrate common skills needed by new entrants to the sector, enabling professionals to move between different roles and sectors.

Throughout our engagement, stakeholders from several sectors emphasised the need to attract young people to widen participation in their sectors, particularly where the breadth of available roles may not be clear to young people. For example, in the advanced manufacturing sector, it was highlighted that pathways like foundation apprenticeships funded through the levy could support underrepresented groups into the sector. This could strengthen collaboration between industry, education, and government to improve outreach, reshape perceptions of manufacturing and apprenticeships, and increase access to young talent. The need to attract young people to the sector was also highlighted by employers in the defence sector, who emphasised the need to build on STEM skills taught in schools to build practical skills alongside academic aspects.

In clean energy and construction industries such as nuclear, hydrogen and CCUS (Carbon Capture, Usage and Storage) workers often operate at hazardous sites, restricting access to workers under 18. Foundation apprenticeships could offer an important entry point for young people interested in the sector and would supply them with relevant skills to get started in the sector upon completion. Some industry employers offer pre-employment training which foundation apprenticeships could build on. For example, in clean energy, the Engineering and Construction Industry Training

Board (ECITB) already offer a suite of 'essential' pre-employment courses to get people into employment and then incrementally give them skills and experience.[46]

Insight from our stakeholder engagement suggested that foundation apprenticeships should allow learners to demonstrate the common behaviours and skills needed by new entrants to the workplace. These include employability skills, resilience, and commitment to professional development. Stakeholders highlighted the need to improve work-readiness and transferable skills that enable professionals to move between different roles and sectors. In creative industries, there was a sector-wide understanding that practical, hands-on skills and experience are equally valuable to transferable skills[47], particularly in fields like live events, film and theatre, where technical skills and expertise are paramount to delivering these roles. In the defence sector, our engagement highlighted that in some areas the content of apprenticeships had too narrow a focus and hence a broader foundation apprenticeship would be a positive development.

[46] ECITB's 'essential' short course helping new entrants prepare for life on site, ECITB

[47] Transferable skills refer to those which can be applied across various roles and industries. These include, but are not limited to: communication, adaptability, problem solving and interpersonal skills: Transferable skills in the creative sector | Bristol Creative Industries

Shorter duration apprenticeships

The Department for Education has announced that the minimum duration of an apprenticeship will be reduced to 8 months from August 2025. It was clear through our engagement that employers were interested in shortening the duration of some apprenticeships to give greater flexibility where skills and full competence could be developed in less than 12 months. This would be suited to areas where training could be compressed to align with the normal cycle of the labour market, or where learners have substantial prior learning.

Skills England's engagement highlighted a number of key features that could inform the development of shorter apprenticeships:

- Build in recognition of prior learning into the apprenticeship system and improve alignment of pathways from entry level to occupational competency. This would allow learners to develop in skills needs areas and increase the resilience of the workforce.
- Increase the flexibility and therefore accessibility of the apprenticeships system to SMEs and learners from underrepresented groups.
- Consider the importance of reskilling the existing workforce alongside upskilling new entrants, particularly in sectors that expect to experience changes in skill needs brought on new technologies.

Shorter apprenticeships could help tackle key issues discussed by employers throughout our engagement: standards that can be delivered in less than 12 months while still delivering full occupational competency, where shorter duration apprenticeships make a better fit for the sector make up, and as a more accelerated route for learners with some relevant prior experience or skills.

Stakeholders highlighted the need for greater flexibility in the delivery of apprenticeships to improve accessibility for under-represented groups. For example, in advanced manufacturing this was particularly emphasised for shift workers and SMEs. In construction, where occupational competency in some roles can be delivered in less than the current minimum of 12 months there was support for the introduction of flexible and shorter duration apprenticeships. For example, our engagement highlighted the level 2 dual smart meter installer standard as one that could be delivered in less than the current 12 months.

Stakeholders discussed the need to build in recognition of prior learning more directly into the apprenticeship system. In the defence sector, stakeholders highlighted a need for better alignment of pathways, for example for learners with a level 4 or 5 qualification,

who may have already gained relevant skills that the level 6 apprenticeships would cover. Shorter apprenticeships could offer additional training which would take into account prior learning and attainment or experience. It would allow already highly skilled workers to formally recognise knowledge, skills and behaviours alongside developing in additional skills need areas and increasing the resilience of the workforce.

In project-based sectors, such as creative industries, shorter apprenticeships may be a better fit for employers and learners looking to upskill on emerging practices or technologies, or as an entry point into the sector, particularly when prior learning or experience can be recognised. Throughout our engagement, stakeholders emphasised the importance of reskilling the existing workforce in new technologies alongside new entrants. Shorter apprenticeships should be developed in a way that allows standards to adapt to new technologies as they are adopted by the sector. For example, as the financial services sector transitions to cloud-based technology solutions and integrates more advanced AI tools and faces escalating cyber threats, the demand for specialists in these areas is increasing. This was also discussed by the digital and technologies sector in relation to increased adaptability of the system, for example in cybersecurity, creative and strategic thinking are skills seen crucial for keeping pace with technology changes.

Priorities for future years

Beyond foundation and shorter duration apprenticeships, employers identified a number of other opportunities to maximise the benefit of further flexibility in the levy:

- Increase the reactivity of the apprenticeships system to better keep pace with rapidly changing technologies and skill needs across sectors.
- Develop ‘bolt-on’ training to supplement prior learning and attainment particularly across AI and digital skill areas and in transferable skills such as management and leadership to drive growth across priority sectors.
- Build on the success of existing programmes such as Skills Bootcamps to provide accelerated training programmes in skill areas relevant to priority sectors, for example including AI and cloud-based development in the fintech industry.
- Further develop and expand portable apprenticeships to support occupations that often have shorter-term or less predictable working patterns.

As well as training new employees, upskilling and reskilling existing workers is increasingly important in meeting skills needs. In our engagement, stakeholders across multiple sectors identified apprenticeships as an important tool in reskilling and upskilling

in relation to the adoption of AI and data science techniques. In financial services, employers discussed the current use of level 7 apprenticeships to address technical skills shortages by upskilling employees in AI, data science and machine learning. In life sciences, employers emphasised that apprenticeships, such as the 'Artificial Intelligence (AI) Data Specialist' occupational standard, were valued as a way to develop a blend of scientific and digital skills which was considered difficult to obtain via traditional routes.

Reskilling will also be important in those sectors most disrupted by the transition to net zero and its changing impact on clean energy industries. It is estimated that 1 in 5 workers will experience a shift in demand for skills through the transition to net zero, with around 3 million workers requiring upskilling.[48]

Responsiveness to change in the current system

Throughout our engagement, stakeholders highlighted the need for the skills system to react more quickly to meet current and future skills needs, alongside clear progression pathways for learners. They mentioned this both in terms of the development of new apprenticeships and training, and in the duration of the training itself.

The ability to deliver short, relevant training where it is needed was highlighted repeatedly across sectors. Defence stakeholders recognised the role that accelerated training programmes can play in their sector and highlighted Skills Bootcamps as a successful example of this model. This is especially true for trades such as fabrication and other manual roles where it was difficult to get learners to complete a full apprenticeship programme. In some sectors, stakeholders reported that the system lacks the flexibility to keep pace with the fast-moving demands of the workplace. For example, in the finance sector, a review of UK fintech reported the pace of sector change meant they struggled to use apprenticeships due to the duration of programmes.[49] In clean energy, where skills mismatches are further exacerbated by rapid technological advancements and the nascency of some industries, modular or short training courses were suggested to rapidly equip people with the right skills.[50, 51]

Digital and technological skills are quickly evolving. There was interest from across sectors in shorter training offers relating to digital and technological skills, which could be frequently updated and used to upskill those with relevant prior learning or experience. In advanced manufacturing, stakeholders reported that their ability to upskill the current workforce and attract a new generation of talent in AI and automation is hindered by standards that are slow to adapt to evolving industry needs. The life sciences sector

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[48] Tracking local employment in the green economy: The PCAN Just Transition Jobs Tracker, Place Based Climate Action Network (2021)

[49] Kalifa Review of UK Fintech, HMT (2021)

[50] Review of Net Zero GOV.UK, DESNZ and BEIS (2022)

[51] Green Jobs Taskforce report, Green Jobs Taskforce (2021)

highlighted the need for quickly evolving, interdisciplinary training to integrate digital, regulatory, and scientific skills. For example, upskilling laboratory technicians in the latest data analytics techniques to address immediate skill gaps.

Advanced manufacturing employers highlighted the need for investment in education providers for adequate equipment, technology, infrastructure and tools to support training around advanced technologies, such as targeted training on AI and digital technologies. In clean energy, employers identified further barriers to training and upskilling provision, including a shortage of teachers and staff to adequately facilitate training programmes.[52] Nascent sectors struggle to find experienced trainers. For example, there is a lack of expertise to curate and teach a hydrogen curriculum.

Additional 'bolt-on' training

Across a number of sectors, our engagement highlighted the need for short learning which combines different types of skills with practical experience. Creative industries called for more flexible, lifelong learning models that support mid-level and senior roles as they advance in their careers. This was echoed by the digital and technologies sector, alongside the need for clear professional development pathways and occupational maps to support continuous development and upskilling of the workforce.

As the financial services sector transitions to cloud-based technology solutions and integrates more advanced AI tools and faces escalating cyber threats, the demand for specialists in these areas is rapidly increasing. Cloud developers and DevOps engineers are now critical for modernising banking infrastructure and data analytics roles. These roles increasingly require candidates to work with AI tools, such as machine learning models, in addition to traditional processing and presentation of raw data. These skills needs are further complicated by the need for these highly technical skills alongside good contextual and regulatory understanding of the sector.

Many sectors mentioned this need for highly skilled interdisciplinary professionals, combining sector or technology specific skills and knowledge with transferable skills including management and leadership, communication and teamwork. Employers told us that these transferable skills are not just complementary to technical expertise; they amplify its impact, making them vital for future leadership and workforce resilience. In the finance sector, there was a need for broader workforce training, including graduate upskilling, professional development, and internal leadership programmes. In clean energy, transitioning the workforce to green roles will be further supported by the energy skills passport which recognises existing skills and qualifications across sectors.[53]

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[52] Clean Power 2030 Action Plan: Assessment of the clean energy skills challenge, DESNZ (2024)

[53] Delivering a skills passport for the Clean Energy Transition, DESNZ (2024)

Wider considerations

Employers also highlighted a number of other barriers, wider than the skills offer itself, which should be addressed. In particular, they argued for a reduction in administrative burden and complexity of the current skills system:

- **Complex landscape:** Stakeholders including those in the digital and technologies sector highlighted their concern that the proposed policy changes may result in a worsening of the situation rather than providing clarity. For instance, there is potential overlap between training courses such as T Levels, level 3 apprenticeships, and proposed foundation apprenticeships.
- **SMEs** say they struggle to employ apprentices as often their lack of dedicated HR and strategy resource make it difficult to conduct long-term workforce planning and commit to long programmes.
- **Career guidance:** Better careers signposting of the available education pathways to all types of technical education including apprenticeships would encourage more school leavers to consider these routes, increasing diversity and social justice benefits of apprenticeships.
- **English and maths requirements:** Stakeholders also raised the current English and maths exit requirements for apprenticeships as an unnecessary barrier for learners who otherwise have the skills needed to do well in their jobs. PBS stakeholders highlighted particularly where these were seen as inappropriate for older, senior workers looking to reskill or upskill.

Annex 1: Skills England's Engagement

The table below sets out the makeup of 743 attendees Skills England engaged with to support this report.

Sector	Activity	Number of people engaged
Provider Networks	Webinar	12
Cross-sector webinars: employer and provider representative bodies, employers, provider networks & other stakeholders	2 x Webinar	111
Strategic Authorities led visits and attended events to give nationwide representation	3 x face to face events	67
B5 Stakeholders meeting	Webinar	5
Sector engagement – Defence, Construction, Financial Services, Life Sciences, Health, Adult Social Care, Creative Industries, Professional Business Services, Advanced Manufacturing, Clean Energy Industries and Digital and Technologies	12 x Webinars	418
Sector in person roundtables – Financial Services, Professional Business Services, Life Sciences, Construction and Creative Industries	5 x Roundtables	76
Young People Engagement	Webinar	10
Apprenticeship Ambassador Network	Webinar	44
TOTAL		**743**

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