Skills England

Guidance

Assessment of priority skills to 2030

Published 12 August 2025

Applies to England

Contents

Foreword

In a time of rapid technological change and shifting economic priorities, it's vital to equip our workforce with the right skills.

The Assessment of priority skills to 2030 report offers a detailed analysis of future employment needs across ten critical sectors, aligned with the government's Industrial Strategy and Plan for Change.

It also highlights the scale of demand for apprenticeships and broader skills training.

Over a quarter of a million people enter priority occupations from the skills system each year.

That's a huge amount of training that needs to be targeted and high quality if we are going to support learners, businesses, and the economy to thrive and grow.

Our findings show that demand for jobs in priority occupations is expected to expand significantly by 2030. That growth will outpace non-priority employment.

This highlights the need for targeted investment in training. We must prepare our workforce for the opportunities and challenges ahead. Sectors such as Digital Technologies, Adult Social Care, Construction, and Engineering will experience the largest increases in job demand.

It is also important to recognise the levels of training required. One third of the projected extra demand in priority occupations will need workers with a career entry level 2 or 3 qualification. The rest will require higher-level qualifications.

Skills England is committed to improving our understanding of the nation's skills needs. We are driven by data to find the right solutions, both nationally and regionally, and will co-create training products with employers and others to meet those needs.

We also have to recognise that there is huge uncertainty at the moment, in how the economy may evolve, not least from the revolution in AI technology. This uncertainty makes future planning more important, not less. Skills England will be monitoring these changes and updating our analysis based on the new data.

I'm proud to say this is already our third major data-driven publication in the relatively short time since we started. It represents a major step forward in understanding the skills landscape and I want to thank everyone who contributed. Your expertise and collaboration have been invaluable. Together, we are building a more skilled and prosperous nation.

Phil Smith, Chair of Skills England.

Executive summary

Skills England's vision is to build our nation's world class skills, enabling growth and opportunity. To do this we will understand our nation's skills needs and improve our

skills offer. Working with partners across government and beyond, we will provide the single authoritative voice on the country's current and future skills needs. This will also allow us to co-create and refine a set of training products and solutions with employers and other partners to meet labour market and economic need.

In September 2024, we published our first report [Driving growth and widening opportunities](#), which outlined how skills can drive UK growth, along with an initial assessment of skills needs in the economy. In June 2025, we followed this up with [Skills England: Skills for growth and opportunity](#), which summarised findings of our analysis and engagement with sectors on the growth and skills offer, and skills needs assessments for 10 priority sectors.

The Assessment of priority skills to 2030 report examines the future direct employment demand across 10 key sectors critical to the government's [Industrial Strategy](#) and [Plan for Change](#) and identifies the education pathways associated with priority occupations in these sectors. These have been developed in collaboration with government departments responsible for leading on each sector using the best evidence available, and is the first time a quantitative assessment of skills needs has been made that looks across all of these sectors, rather than focussing on the needs of a single sector.

This initial assessment provides valuable information to help prioritise where training can most effectively support employment in jobs delivering on government and industry priorities. This is a first step towards bringing together sector-specific estimates in a consistent and comparable way to support policymaking on skills training. The methods in this report are new, and we will develop them further, working with local and industry stakeholders to develop our evidence base and widen the scope of the analysis.

The report uses occupations, as defined by Standard Occupation Classification (SOC) codes, to provide an indication of the skills needs for the sectors. These allow for a consistent approach and cross-sector comparison. However, they are an approximation and do not work for all types of employment, particularly in highly specialised and emerging roles. They also do not specifically cover consideration of important skills like critical thinking, and leadership. We will be working closely with departments across government to refine our methodology to capture further skills needs across the economy.

All estimates of future employment are highly uncertain and their inclusion here is not for making precise forecasts of employment levels. Rather, the aim is to provide information about the general nature of changing employment patterns and their implications for skill requirements. The projections should be regarded as indicative

of general trends and orders of magnitude, given the assumptions set out in the methodology section below.

Key findings

Employment demand

Our initial modelling suggests that employment demand in priority occupations across the 10 sectors is expected to increase by 0.9 million by 2030, from 5.9 million in 2025 to 6.7 million in 2030, an increase of 15%. This is 1.6 times faster than other employment in these sectors, which is expected to increase by 0.8 million, a 9% increase from 8.9 million in 2025. These estimates are subject to a high degree of uncertainty. Figures for the health subsector of Health and Adult Social Care are not included as these were under review at the time of the analysis, but figures for Adult Social Care are included.

It also suggests that one third (34%) of the projected additional employment demand in priority occupations require workers with a level 2 or 3 qualification, and around two thirds (66%) require workers with a qualification at level 4 or above. This varies substantially by sector: in Adult Social Care, Clean Energy Industries, and Housebuilding the majority of additional employment in priority occupations requires workers with level 2 or 3 qualifications. The expected education level for an occupation uses a similar, but different methodology to the Migration Advisory Committee.

The initial modelling suggests that occupations in Digital, Adult Social Care, Construction and Engineering have the greatest additional employment demand between 2025 and 2030. There are particularly large increases for care workers and home carers (90,000), which accounts for one-ninth of the demand across all priority occupations. The next highest individual occupation is programmers and software development professionals (87,000), which is listed as a priority by seven sectors. There will be further specialisms grouped within these occupations that are likely important across multiple sectors that are not captured within SOC codes, such as AI professionals. Priority occupations make up a relatively small amount of the whole-sector demand in Professional and Business Services and Clean Energy Industries. Therefore, individual occupations within these sectors will show lower growth, but this is not reflective of the whole sector picture. Within Health and Adult Social Care, growth is only included for Adult Social Care in this report as health figures will be updated as part of the latest 10 Year Workforce Plan.

Current education supply

In England, over a quarter of a million (285,000) people enter priority occupations from the skills system each year. Around two thirds (65%) of these are learners with qualifications at level 4 and above, broadly matching the expected education requirements for the priority occupations.

In higher education, courses related to health and medicine have the highest proportions of employed recent education leavers in priority occupations. Courses in architecture, building and planning; engineering; and computing also have over two thirds of employed recent education leavers working in priority occupations.

In further education, engineering and construction subjects have the highest proportions of employed recent education leavers in priority occupations, followed by digital technology; health; and business, administration and law.

For apprenticeships, 57% of recent starts were on an apprenticeship that is aligned to a priority occupation. For those that achieve their apprenticeship and are in employment, it is estimated that 80% are expected to work in a priority occupation. Apprenticeships in engineering and manufacturing technologies; health, public services and care; and construction, planning and the built environment have the highest shares of employed learners in priority occupations.

This analysis focusses on education supply into priority occupations from government funded training. The estimates do not cover other methods of learning or upskilling, such as employer-funded training, or supply of workers from other routes like migration. Skills England will carry out further work to improve evidence in these areas, alongside ongoing work to refine this analysis further, establishing a robust process and methodology for assessing skills needs.

Introduction

Skills England is responsible for providing authoritative assessments of current and future skills needs across the country and identifying how skills provision in England can help meet these diverse needs. As outlined in the Industrial Strategy, the work of Skills England will be crucial to 'enhance skills and accelerate access to talent'. This report represents a key step in achieving the goals set out in the Industrial Strategy, including ensuring the skills system is aligned to strategic economic priorities.

Analysing future employment changes presents significant challenges. The available data is often incomplete and lacking in detail, particularly for specialist and emerging roles. Therefore, forecasting how the economy will evolve into the future is inherently complex and difficult.

Despite these challenges, publishing this analysis is important. This is the first comprehensive overview of the skills needs for all the priority sectors, combining individual sector estimates to identify common skills needs and tensions. This analysis provides a public evidence base for the Department for Education's (DfE) policies to support the Industrial Strategy sectors as well as to provide insight to shape the skills system. Finally, this is the next iteration of SE's work to provide an authoritative skills assessment, building on its first report published in September 2024 and the sector skills assessments published in June 2024. This will serve as a foundation for ongoing conversations with sectors and efforts to improve the data to refine these estimates.

Within that context, the aim of this analysis is to provide information about the general nature of changing employment patterns across all sectors and their implications for skill requirements. All estimates of future employment are uncertain and their inclusion here is not for making precise forecasts of employment levels within any sector. The projections should be regarded as indicative of general trends and orders of magnitude, given the assumptions set out in the methodology section below.

This analysis examines estimated future employment demand across 10 key sectors important for delivering the government's Industrial Strategy and Plan for Change priorities, and identifies the key education pathways associated with the priority occupations in these sectors. This analysis has been developed in collaboration with the government departments responsible for leading on each sector, but will not necessarily align with other sector publications due to differing methodologies.

Sector coverage

The analysis covers employment across 10 sectors important for the government's growth mission: the 8 industrial strategy sectors, along with Health and Adult Social Care, and Construction which are critical for the Plan for Change. No data covering the workforce needs of the entire construction industry was available at the time the analysis was undertaken, so this report focuses only the Housebuilding sector within

Construction. Therefore, it does not cover wider demand in the Construction sector, for example to support the 10 Year Infrastructure Strategy.

Table 1: Sectors included in the analysis

Sector	Lead government department	Industrial Strategy	Plan for Change
Advanced Manufacturing	DBT	x	
Clean Energy Industries	DESNZ	x	x
Creative Industries	DCMS	x	
Housebuilding	MHCLG		x
Defence	MoD	x	x
Digital and Technologies	DSIT	x	
Financial Services	HMT	x	
Health and Adult Social Care	DHSC		x
Life Sciences	OLS	x	
Professional and Business Services	DBT	x	

Note: The Industrial Strategy is also a part of the Plan for Change. The Office for Life Sciences (OLS) is a unit that sits across the Department for Health and Social Care (DHSC), Department for Science, Innovation and Technology (DSIT) and the Department for Business and Trade (DBT).

Approach

Future employment demand has been estimated for each sector at an overall level, and for a selection of priority occupations within each sector. Information on recent education leavers is then used to identify the most relevant education pathways

across all of the priority occupations. This allows an assessment of which education pathways are most important to supporting employment in priority occupations important to sectors. This is done by subject area and occupation, so does not attempt to capture specific courses, or the specific skills required to transition between occupations.

In assessing future employment demand the analysis considers the additional workforce that is required between 2025 and 2030. It does not include an estimation of the workers needed to replace those leaving the workforce, often referred to as replacement demand. Replacement demand is the demand for new workers to fill positions vacated by those leaving the workforce for various reasons, such as retirement, death, or moving to another job or out of the labour market entirely. This demand will be particularly acute for some occupations and sectors, for example those with an ageing workforce, high attrition due to poor terms or conditions, or particularly affected by labour augmenting technologies. It also does not capture retraining of the existing workforce to account for technological change, for instance from artificial intelligence (AI).

The analysis assumes that current supply into the workforce, either directly from education leavers or from other routes, is sufficient to maintain the existing size of the workforce and meet replacement demand. In practice, this will not be the case for many occupations. The analysis also does not cover other methods of learning or upskilling, such as employer-funded training, or supply of workers from other routes like migration.

Employment demand

The employment projections and current workforce sizes have been calculated separately for each sector, using a range of different approaches and assumptions. These are outlined in the methodology section and are determined by the availability of different sources within each sector and connected to the growth ambitions or policy targets for each sector. These projections are highly uncertain and should be regarded as indicative of general trends and orders of magnitude, given the assumptions. They also provide only one view of future employment demand, and there are other plausible scenarios that could also be considered.

Changes arising as a result of policies introduced in the Industrial Strategy and Plan for Change and Sector Plans to address skills needs across growth-driving sectors have not been considered in this analysis.

There are some sectors that partially overlap, which may inflate the future employment demand. When aggregating the projections, employment is capped by occupation to ensure it does not exceed totals for the whole UK workforce.

Employment projections cover the UK for most sectors. In Health and Adult Social Care, they are England-wide, and for Clean Energy Industries the estimates for some electricity generation technologies are for Great Britain only.

Employment is considered for direct employment within each sector. Further, indirect employment will be required in supply chains to support each sector.

Priority occupations
For each sector, we have focused on a selection of occupations which are expected to see growth in employment over the next five years; currently face skills shortages; are in high demand; or have high importance to the sector.

These occupations – referred to as priority occupations - have been identified by the departments leading on each sector, considering these factors and other expert judgement.

Education pathways
Education pathways only consider learners in England. They have mostly been estimated using outcome data on recent educations leavers, linking together information from the Longitudinal Education Outcomes Study (LEO) with the Annual Survey of Hours and Earnings (ASHE). As the linked data only covers a small sample of recent education leavers, Skills England has used the data to develop an internal model to estimate occupational outcomes. This model looks at the characteristics of employed education leavers, including their subject studied and the industry of employment, and estimates their likely occupation based on similar education leavers.

Some newer qualifications are not included in the historic data so additional analysis has been conducted to estimate progression into priority occupations from these pathways. For example, newer apprenticeship standards and Skills Bootcamps.

This analysis considers only the occupations that education leavers enter the year after completing their qualifications. Therefore, transitions to different occupations later in their careers are not included.

Employment demand to 2030

Headline figures

In 2025 there are expected to be an estimated 14.8 million people in employment across the 10 priority sectors, just under half (45%) of the total UK workforce in 2024. Across these sectors, 148 occupations were identified as a priority for at least one sector, equivalent to 5.9 million people in employment, and 18% of the total UK workforce.

These estimates are created by combining individual sector-based estimates of future employment demand. These are subject to a high degree of uncertainty and will change as more workforce data is published in the future, and sector definitions are refined. Furthermore, they cover direct employment in the sector, and further employment will be required in supply chains to support each sector.

Between 2025 and 2030, employment demand in priority occupations within these sectors (excluding the Health subsector) is projected to increase by almost 0.9 million, rising from 5.9 million in 2025 to 6.7 million in 2030, an increase of 15%. This is 1.6 times faster than the 0.8 million growth in projected employment across other occupations in these sectors (excluding the health subsector), an increase of 9%. Figures for the Health subsector of Health and Adult Social Care are not included as these were under review at the time of the analysis, but figures for Adult Social Care are included.

Table 2: Projected additional employment in priority sectors between 2025 and 2030 (millions)

Occupations	Workforce 2025	Workforce 2030	Change 2025 to 2030	Percentage change
Priority occupations	5.9m	6.7m	0.9m	15%
Other occupations	8.9m	9.7m	0.8m	9%
All priority sector occupations	14.8m	16.5m	1.7m	11%

Source: Skills England planning scenarios based on sector-level projections.

Note: Some sector definitions overlap so employment for each occupation has been

capped to 100% of UK employment in that occupation in 2024.

Sector estimates

Figure 1 shows that the projected additional employment between 2025 and 2030 varies substantially between each sector (see further detail in Sector assumptions section below). In part, this reflects the different approaches that have been applied in developing the projections for each sector, as well as the different sizes of each sector. The projected additional employment estimates should not be directly compared across sectors, and are outlined here to show their contribution in driving the overall employment demand estimates. In addition, the whole sector and priority occupation figures are not comparable as they were developed using different methodologies for some sectors.

The largest projections of additional employment between 2025 and 2030 are for the Creative Industries, Digital and Technologies, Housebuilding, and Clean Energy Industries sectors. The Creative Industries sector is also the largest sector in terms of employment in 2025. Employment between 2025 and 2030 is projected to need to increase the fastest in Clean Energy Industries (77%) and Housebuilding (42%) and slowest in Advanced Manufacturing (no growth). In Advanced Manufacturing, while based on existing [Industrial Strategy](link) agnostic trends employment is not expected to grow significantly, productivity improvements driven by upskilling, increased business investment, and technological advances will grow outputs in the sector. These effects may not be evenly spread across the Frontier Industries within the Advanced Manufacturing sector, with some industries, such as Space, still requiring increases in their workforce but others potentially seeing decreases as the sector aligns with Industrial Strategy priorities.

Growth in the priority occupations makes up a relatively small proportion of the total growth in Professional and Business Services (35% of all additional employment) and Clean Energy Industries (41% of all additional employment). The additional employment is spread across a range of occupations in these sectors, which is, in part, due to the varied nature of jobs within these sectors.

Figure 1: Contribution of each sector to overall additional employment demand between 2025 and 2030
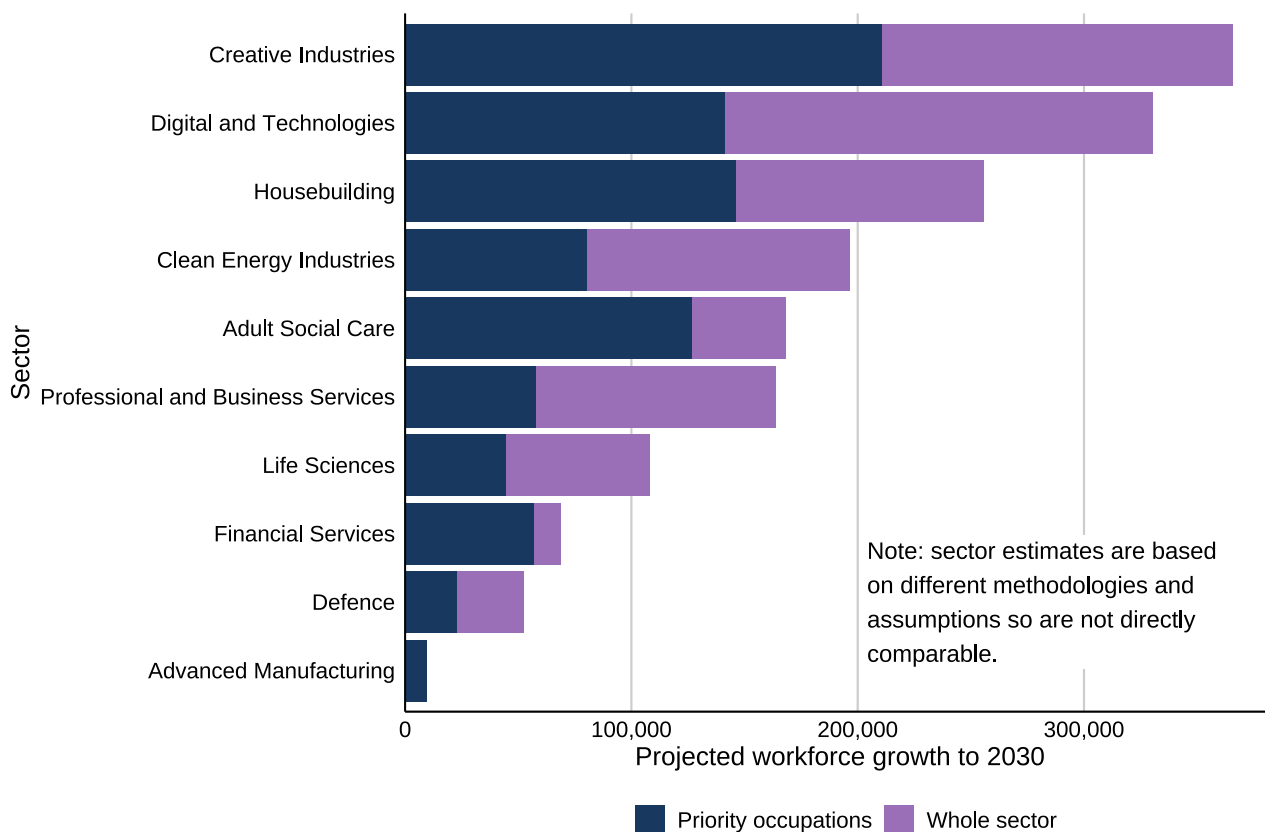
Note: sector estimates are based on different methodologies and assumptions so are not directly comparable.

Source: Skills England planning scenarios based on sector-level projections.

Note: Sector-level projections are based on differing assumptions and some sector definitions overlap (including Creative Industries and Digital and Technologies) so volumes will sum to more than the total UK demand. The underlying data for this chart can be found in the accompanying spreadsheet.

Sector assumptions

The employment estimates, projections, and selection of priority occupations are produced on a sector-by-sector basis, so are subject to different assumptions. This is necessary due to the different ways sectors are defined, and the data that is available for each sector. The figures shown here are a planning scenario for Skills England for the purposes of estimating key skills needs within and across the sectors. Whilst they have been developed with the relevant government department responsible for each sector, they do not represent an official forecast and are subject to a high degree of uncertainty.

The key assumptions and methods for the estimates are covered below, with the main scenarios split into three broad types:

- policy based - to align to a commitment or ambition

- trend based - assuming recent growth in occupations continues

- economy wide - using national long-term projections

The employment estimates only cover direct jobs in each sector and indirect jobs, including those in the broader supply chain, are not covered.

Advanced Manufacturing

Economy wide projection. Growth estimates for priority occupations are based on economy-wide occupation projections, assuming growth rates in the sector are the same as across the UK. Overall employment growth in the sector out to 2030 is projected to be flat based on historical employment trends since 2010, with economic growth coming from productivity improvements driven by investment and technological advances.

Clean Energy Industries

Economy wide projection. Employment in 2030 and 2022 is informed by a mix of different approaches. Sub-sector level estimates are combined with occupation profiles which are derived by joining ONS Low Carbon and Renewable Energy Economy (LCREE) survey data with ONS Annual Population Survey (APS) data based on Standard Industry Classification (SIC) code matching. 2025 baseline figures are estimated by Skills England assuming uniform growth each year between 2022 and 2030. Only direct jobs have been included, but a substantial amount of demand in Clean Energy Industries is likely to come from indirect jobs

Creative Industries

Trend based projection. The midpoint between two projections has been taken to estimate growth in priority occupations. The projections are:

- employment growth based on compound annual growth in employment for the Creative Industries as a whole between 2011 and 2019, applied uniformly across occupations

- employment growth based on the Creative Industries Sector Plan employment projections - the compound annual growth rate for the 2025 to 2030 Sector Plan projections has been applied uniformly across occupations

- estimates do not include an assessment of the target to increase investment from £17 billion to £31 billion by 2035 or the impact of AI on the sector

Housebuilding

Policy based projection. 2030 employment is based on an illustrative trajectory to deliver 1.5 million homes this parliament from a baseline workforce size based on the number of workers required to complete the construction of a recent peak in net dwellings. This does not include the whole Construction sector, which would have higher overall growth.

Defence

Policy based projection. Growth estimates are based on figures gathered from a sample of companies within the defence sector applied to the 2023 ADS defence sector figures. ADS is a trade association which represents the UK Aerospace, Defence, Security and Space sectors.

Digital and Technologies

Trend based projection. Employment growth estimates are based on the trend rate of employment growth for the Digital sector from 2010 to 2019, applied uniformly across occupations.

Financial Services

Economy wide projection. Growth estimates are based on economy-wide occupation and industry projections, and compound annual growth between 2021 and 2024. They do not consider other skills demand, for example re-skilling due to increased need for digital skills, which is predicted to be required for 160,000 workers in the sector according to a report by the Financial Services Skills Commission.

Adult Social Care

Trend based projection. Future NHS employment estimates are not included as further work is required to align to the latest NHS 10 Year Workforce Plan. For Adult Social Care data, projections assume that workforce demand will increase in line with individuals who draw on care and support in residential, nursing and community care. Estimates relate to England only.

Life Sciences

Trend based projection. Employment growth for the sector is based on historic employment growth between 2020 and 2022 for the whole Life Sciences sector, and applied uniformly across all occupations.

Professional and Business Services

Economy wide projection. Growth estimates are based on economy-wide occupation projections, and assume growth rates in the sector are the same as across the UK.

Uncertainty

There is a high degree of uncertainty present in both the estimated current workforce sizes in 2025 and the projected growth to 2030. For most sectors, the 2025

workforce size has been estimated by projecting forwards historic data, with the latest year of actual data ranging from 2020 to 2024. In addition, apportioning workforce sizes within occupations to specific sectors requires estimation with certain assumptions.

There is additional uncertainty when projecting workforce sizes to 2030. The assumptions outlined in the sector assumptions section of this report have been used to estimate growth up to 2030. Where these projections are not based on policy targets, they are dependent on the continuation of historic trends, ignoring the impact of changes such as those arising from the Industrial Strategy.

As an example of the impact of uncertainty, different assumptions on how the workforce will grow within the Creative Industries have a large impact on the demand figures. Assuming that growth within priority occupations follows the growth rates underlying the Sector Plan employment projections, the estimated workforce growth is 117,000 over the next five years. Alternatively, growth could be estimated by assuming the sector's historic trends between 2011 and 2019 continue to 2030, which gives a much higher workforce growth of 305,000. This applies growth from a period of particularly high growth in the sector, due to changes in the way media is consumed, to the next five years. A midpoint between these two scenarios has been presented in the demand figures for the Creative Industries throughout this report. The growth under these 3 scenarios is shown in Table 3. These are just 3 possible scenarios, and the true growth over the next 5 years could be outside the range of these figures. This uncertainty is present in figures presented for all sectors.

Table 3: Examples of alternative growth scenarios for priority occupations in the Creative Industries

Scenario	Growth 2025 to 2030	Percentage growth
Low growth	117,000	8%
Medium growth	211,000	14%
High growth	305,000	20%

Source: Skills England planning scenarios based on sector-level projections for Creative Industries.

There is additional uncertainty created by wider technological and economic changes. The development and adoption of labour augmenting or replacing

technologies, such as AI, will affect the number of additional workers needed across the economy and may lead to a substantial demand for retraining of existing workforces.

Job level

One third (34%) of the projected additional employment demand in priority occupations, which expect at least a level 2 qualification, have an expected education at level 2 or 3, and around two thirds (66%) expect workers with a qualification at level 4 or above.

This varies substantially across sectors. In Adult Social Care, Clean Energy Industries, and Housebuilding, the majority of additional employment in priority occupations expects workers with level 2 or 3 qualifications (79%, 61% and 53% respectively). In all other sectors, the majority (between 82% and 99%) of additional employment in priority occupations expects workers with qualifications at level 4 or above. For roles with expected qualifications at level 4 or above, historically the majority of these have been filled by those with at least a level 6 qualification. Figure 2 shows the expected education level split for each sector.

Figure 2: Additional employment in priority occupations between 2025 and 2030 by expected education level
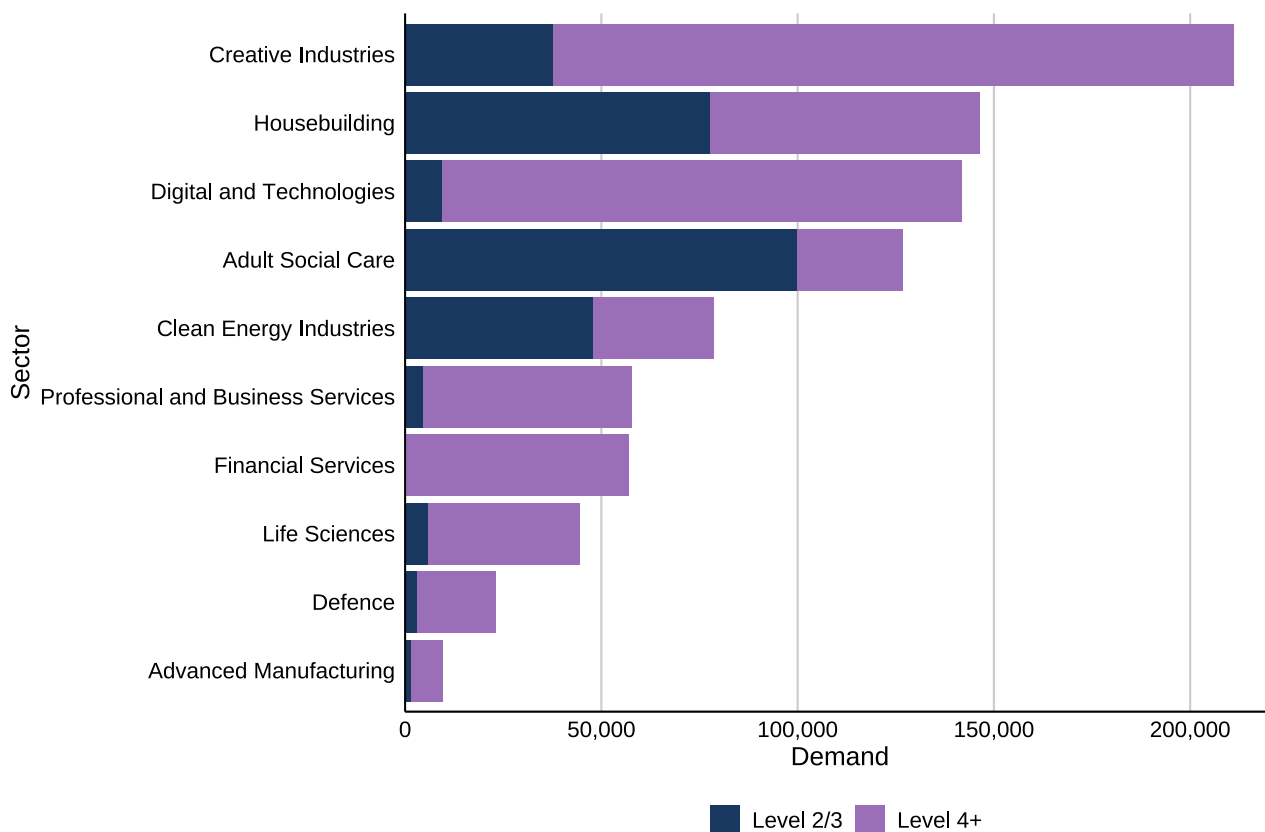
Source: Skills England planning scenarios based on sector-level projections.

Note: Sector-level projections are based on differing assumptions and some sector definitions overlap so volumes will sum to more than the total UK demand. Where the expected education level of an occupation spans level 2/3 and level 4+ employment is split evenly across both categories. Only occupations which include an expected qualification of at least level 2 have been included. The underlying data for this chart can be found in the accompanying spreadsheet.

The expected education level for each occupation is based on a new methodology developed by Skills England which is explained in the annex of this report. This is approximate and typically provides a range of expected education levels for a specific occupation, such as level 3 to 5, so more detailed splits are not available. The Migration Advisory Committee use a different methodology for defining skilled occupations for SOC codes, which is set out in paragraph 2.32 of Analysis of the Points Based System and paragraphs 2.4 to 2.18 of Review of the Shortage Occupation List: 2020.

Occupations

Across all priority sectors, the 20 occupations predicted to see the most growth over

the next five years are shown in Figure 3. Where occupations are included in multiple sectors, the demand has been summed across sectors.

Employment estimates for individual occupations are highly uncertain, and the occupational classification does not define all professions well. The estimates in this section should be used as an indication of the types of occupations that are in need and not a precise estimate for any specific occupation.

Across all sectors, the occupations that are projected to need the greatest additional employment between 2025 and 2030 are occupations related to Digital, Adult Social Care, Housebuilding and Engineering.

Figure 3: Additional employment between 2025 and 2030 across all sectors – top 20 occupations (excludes health occupations)

Source: Skills England planning scenarios based on sector-level projections.

Note: Some sector definitions overlap so employment for each occupation has been capped to 100% of UK employment in that occupation in 2024. The underlying data for this chart can be found in the accompanying spreadsheet.

The occupations with the greatest additional employment requirements are care workers and home carers (90,000) and programmers and software development professionals (87,000). Whilst the demand for care workers and home carers all

comes from the Adult Social Care sub-sector, the demand for programmers and software development professionals covers 7 sectors.

Although not included in the Clean Energy Industries priority list, stakeholders highlighted the growing importance of programming, IT and digital roles. Other occupations with demand across many sectors include IT business analysts, architects, systems designers, and engineering professionals not elsewhere classified, required by 6 and 5 sectors respectively, demonstrating the broad need for digital and STEM skills across occupations and the economy. There will be further specialisms grouped within these occupations that are likely important across multiple sectors that are not captured within SOC codes, for example AI professionals.

All occupations with demand in four or more sectors are listed below. Whilst projected additional employment demand differs across sectors, this shows there are likely to be cross-sector pressures. Advanced Manufacturing, Defence, and Digital and Technologies each list 7 (out of 8) of these occupations as a priority.

Programmers and software development professionals was listed as a priority occupation in seven sectors: Advanced Manufacturing; Creative Industries; Defence; Digital and Technologies; Financial Services; Life Sciences; Professional and Business Services.

IT business analysts, architects and system designers was listed as a priority occupation in six sectors: Advanced Manufacturing; Creative Industries; Defence; Digital and Technologies; Financial Services; Life Sciences.

Engineering professionals not elsewhere classified was listed as a priority occupation in five sectors: Advanced Manufacturing; Clean Energy Industries; Digital and Technologies; Life Sciences; Professional and Business Services.

Civil engineers was listed as a priority occupation in four sectors: Clean Energy Industries; Defence; Housebuilding; Professional and Business Services.

Electrical engineers was listed as a priority occupation in four sectors: Advanced Manufacturing; Clean Energy Industries; Defence; Digital and Technologies.

Electronics engineers was listed as a priority occupation in four sectors: Advanced Manufacturing; Clean Energy Industries; Defence; Digital and Technologies.

Engineering technicians was listed as a priority occupation in four sectors: Advanced Manufacturing; Clean Energy Industries; Defence; Digital and Technologies.

Production and process engineers was listed as a priority occupation in four sectors: Advanced Manufacturing; Clean Energy Industries; Defence; Digital and Technologies.

Education supply for priority occupations

Current education supply

An estimated 285,000 recent education leavers enter priority occupations from the skills system in England each year. Around two thirds (65%) of these are learners who enter the priority occupations via qualifications at level 4 and above, broadly matching the expected education requirements for the priority occupations outlined in the job level section of this report.

These estimates refer to historical education supply into priority occupations from government funded training. They do not cover other methods of learning or upskilling, for example employer-funded training, or supply of workers from other routes like migration, which may meet some of the additional demand. Therefore, not all additional demand may need to be met through government funded training routes.

Tables 4 and 5 show the share of learners entering priority occupations via qualifications at a given level or pathway respectively.

Table 4: Share of learners entering priority occupations by level

Level	Number of learners	Share of learners
Level 2/3	101,000	35%
Level 4/5	19,000	7%
Level 6+	165,000	58%
Total	285,000	100%

Source: Skills England estimates.

Note: Higher education estimates include UK first degree graduates, level 7 (taught and research) and level 8 postgraduates from English higher education providers that are employed and not studying at the same time. Further education and apprenticeship estimates refer to funded training in England. Figures may not sum to totals due to rounding.

Table 5: Share of learners entering priority occupations by pathway

Pathway	Number of learners	Share of learners
Apprenticeship	89,000	31%
Further education	49,000	17%
Higher education	147,000	51%
Total	285,000	100%

Source: Skills England estimates.

Note: Higher education estimates include UK first degree graduates, level 7 (taught and research) and level 8 postgraduates from English higher education providers. Further education and apprenticeship estimates refer to funded training in England. Figures may not sum to totals due to rounding.

These numbers reflect learners entering priority occupations in any sector across the UK economy. Of these, not all will enter one of the priority sectors. Approximately half of the workforce in priority occupations are also in priority sectors, so a corresponding proportion of learners entering priority occupations may enter other sectors.

Key education pathways

Tables 6 and 7 show the percentage of employed learners entering any priority occupation in the 10 sectors, by subject studied. Only the subjects with the highest rates of learners entering priority occupations are shown for each pathway. In higher education the Higher Education Classification of Subjects is used to classify subject,

whereas in further education subjects they are grouped using sector subject areas.

In higher education, half (53%) of employed recent education leavers are in priority occupations. Health and architecture courses – which are typically more occupationally aligned than other higher education courses – have the highest shares of employed learners in priority occupations, followed by training in computing, engineering, economics, and physics and astronomy.

In further education, one third (33%) of employed recent education leavers are estimated to end up in a priority occupation. Engineering and construction subjects have the highest shares of employed learners in priority occupations in further education, followed by digital technology, health, and business, administration and law subjects. History, philosophy and theology has been excluded due to low volumes.

There are often a wide breadth of qualifications within any subject area, and occupational outcome data is only available by sector subject area. In addition, as the majority of priority occupations require higher qualification levels (level 4 and above) and further education is normally training at lower levels, the share of learners entering priority occupations in further education is typically lower for each subject.

Table 6: Top 10 first degree (level 6) higher education subjects into priority occupations

Subject	Share of learners entering priority occupations
Nursing and midwifery	97%
Medicine and dentistry	96%
Medical sciences	81%
Architecture, building and planning	79%
Pharmacology, toxicology and pharmacy	78%
Allied health	73%
Computing	70%
Engineering	68%

Economics	65%
Physics and astronomy	60%

Source: Skills England estimates.

Table 7: Top 5 further education subject areas into priority occupations

Subject	Share of learners entering priority occupations
Engineering and Manufacturing Technologies	64%
Construction, Planning and the Built Environment	46%
Digital Technology	35%
Health, Public Services and Care	35%
Business, Administration and Law	32%

Source: Skills England estimates.

For apprenticeships, 57% of recent starts were on an apprenticeship that is aligned to a priority occupation. For those that achieve an apprenticeship aligned to a priority occupation and are in employment, it is estimated that 80% will work in a priority occupation. This is highest for apprenticeships aligned to a priority occupation in Engineering and Manufacturing Technologies; Health, Public Services and Care; and Construction, Planning, and the Built Environment.

Information on actual occupational outcomes after apprenticeships is available mainly for apprenticeship frameworks, therefore these have been estimated for apprenticeship standards using occupational maps and outcomes from apprenticeship frameworks.

Education pathways by sector

Education pathways that have led into priority occupations vary by sector, in terms of pathway, level and subject studied. Some of the key pathways that have historically fed into key occupations for each sector are given below. However, as the education landscape changes, different pathways could become more important for specific sectors.

Advanced Manufacturing: Engineering training at all levels, especially level 6 and above; training in computing at level 6 and above; level 2 and 3 training in manufacturing technologies and transportation operations and maintenance.

Clean Energy Industries: Training in engineering at all levels, and training in building and construction at all levels, including architecture, building and planning; training in manufacturing technologies at level 2 and 3.

Creative Industries: Training in computing in ICT at all levels; training at level 6 and above in creative arts and design, business and management, and performing arts.

Housebuilding: Training in building and construction at all levels, including in trades mainly at levels 2 and 3; level 6 and above in architecture, building and planning; and engineering and manufacturing technologies at all levels, though mainly at level 3 and above.

Defence: Training at level 6 and above in computing and engineering, and training in ICT, engineering and manufacturing technologies at all levels.

Digital and Technologies: Training in computing and ICT practitioners at all levels, but especially training at level 6 and above in computing; and training in engineering, manufacturing technologies, and business and management at level 3 and above.

Relevant occupations

After training, people take up employment in a range of occupations, not all of which are directly related to their training – either as they required a lower education level or are in a different specialism. Usually if someone is employed in a priority occupation then they will have completed training relevant to that occupation. This is not always the case – for example, someone with an engineering degree may find employment as care worker, or even a welder – which uses some of their skills but typically requires lower qualification levels.

We have defined learners entering relevant occupations as those who studied a

subject judged to be relevant to their occupation and achieved the expected level of education and no higher for their occupation. For this analysis we have used data from the LEO linked with the ASHE which includes information on the occupation of employment after training. Full details of this analysis can be found in the annex of this report. This is slightly different to the methodology used to calculate figures in sections on education supply and education pathways, so may produce different estimates.

Across employed education leavers working in priority occupations, 79% are estimated to be working in occupations relevant to their studies. This compares to 58% across all occupations. The relevant occupation rate is higher for education leavers entering priority occupations than for all education leavers entering employment, across all levels and pathways.

An estimated 81% of those in a priority occupation after studying in higher education or for an apprenticeship are also in an occupation relevant to their study. In further education the proportion is lower, 59% of those in a priority occupation are in an occupation relevant to their studies.

Employment information is measured in the year after leaving education, so will not capture those who move into relevant occupations in subsequent years. The data used to form these estimates is based on employees only, so will not include all workers with a relevant occupation, such as those who are self-employed in a relevant occupation alongside a second job. The relevant occupation rates may therefore be an underestimate for these workers.

Conclusion

The Department for Education (DfE) 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. It will set out how the government will use the data supplied by Skills England to inform decisions that are being taken on the future of the skills system.

This report uses a standard framework to bring together information on skills needs and education pathways for 10 sectors critical to delivering the Government's Industrial Strategy and Plan for Change. This is a first step towards bringing together sector-specific estimates in a consistent and comparable way to support policymaking on skills training.

While estimates of future employment demand are highly uncertain, they suggest that employment in these 10 sectors (excluding Health) will grow by 1.7 million over the next five years, with priority occupations, which make up over a third of jobs within these sectors, growing by 0.9 million. Around two thirds of these priority occupations expect workers with education at levels 4 and above, meaning a substantial number of roles will also need to be filled by those with qualifications at level 2 and 3.

Historic training routes into occupations identified as priorities are mostly at higher levels. Health courses, STEM training, and vocational qualifications in fields like Engineering and Construction have been typical routes into these occupations.

This report only captures a portion of the skills that will be required in the future: there are further skills required beyond the priority occupations; more specific skills in highly specialised and emerging roles; and changes to skills needed within an occupation, for example digital and AI skills to take advantage of new technologies. Skills England will carry out further work that looks at these needs in these areas.

Due to the uncertainties in the employment estimates provided in this report, ongoing work is required to improve projections. Skills England will continue to develop and refine this analysis further, establishing a process and methodology for assessing skills needs. We are aiming to widen the scope of the analysis, covering skills needs at a national, sectoral, and regional level in England.

Annex: methodology

Priority occupations and demand figures

Advanced Manufacturing

Priority occupations were selected based on workforce size and proportion in the Advanced Manufacturing sector, using 2024 Annual Population Survey (APS) data. Generalist occupations such as sales, marketing and human resources were excluded from the priority occupation list. Occupations identified as being in elevated or critical demand in the Department for Education's (DfE) Occupations in Demand in 2024 publication, which are in the manufacturing and production industry group, were used to further refine this occupation list.

Workforce size projections and actual figures are based on [DfE Labour Market and Skills baseline scenario occupation level data for the UK](#) weighted by the proportion of each occupation appearing in the sector, based on 2024 APS data. This assumes that the growth seen in each occupation at an economy wide level will also apply to growth in the occupation in the Advanced Manufacturing sector.

Sector-wide workforce size projections assume that growth will remain flat, based on historical employment trends.

Clean Energy Industries

Estimates of direct workforce size represent a combination of various sub-sector level modelling. High level assumptions on the occupation profile of each sub-sector were derived by combining economy wide Office for National Statistics (ONS) occupation and industry employment data (APS) with [low carbon and renewable energy economy (LCREE)](#) microdata.

As a result, these estimates reflect the following assumptions.

The occupational mix of SIC divisions across the economy is assumed to be reflected within the LCREE economy, e.g. if welders make up 10% of total UK construction jobs, we assume welders also make up 10% of Clean Energy Industries construction jobs. There is a risk that this could overstate the importance of more general occupations which are more important at the economy-wide level but are less critical for Clean Energy Industries.

The profile of occupations is assumed to be constant over time; based on the average across 2018-22 LCREE microdata. SIC by SOC shares relate to the latest APS 2024 values. This does not capture the possibility that different occupations become more or less important over time. It is possible that deployment of new innovative technologies in Clean Energy Industries could shift this. Occupation mixes could also vary according to the life cycle of major clean energy projects, for example, demand for construction related occupations is likely to peak during the construction phase.

ONS LCREE does not capture the workforce in electricity networks, and so this is accounted for separately using stakeholder evidence.

These occupations profiles were applied to the 2022 and 2030 sub-sector estimates to apportion by occupation. Skills England applied a linear trajectory to these figures to estimate the workforce size in 2025.

The profile of occupations within sectors is assumed to stay constant over time, ignoring peaks and troughs in occupation workforces over project lifecycles.

Priority occupations were identified as 4-digit SOC codes expected to experience the highest demand in the Clean Energy Industries by 2030, while also facing significant workforce supply challenges. The selection was based on an analysis of four metrics: two related to workforce demand (derived from the 2030 modelling outlined above) and two related to workforce supply:

- [DfE: Employer Skills Survey, 2022, skills shortage vacancy density (%)](#), transformed from SOC 2010 to SOC 2020

- [ONS: Number of people meeting each occupation's skills requirements, at different percentages of skills match, UK, by employment status, 2024](#)

Outputs were sense-checked with industry stakeholders.

This approach only captures occupations as a priority where high levels of demand and supply constraints are expected. It is recognised that there are many other critical occupations that do not meet these criteria such as growing digital occupations, and roles associated with emerging sectors. The Department for Energy Security and Net Zero (DESNZ) will continue to consider the needs for all occupations required to deliver the Clean Energy Superpower Mission, including those not included in this priority list.

DESNZ will shortly be publishing the Clean Energy Workforce Strategy which will outline how we will coordinate work to ensure that we have the skilled workforce to deliver our clean energy ambitions and ensure that jobs in Clean Energy Industries are good jobs. This strategy will also include more detail of our modelling of the workforce needed across key sectors, occupations and regions through to 2030.

Creative Industries

Priority occupations were primarily selected based on workforce size and proportion in the Creative Industries based on the Department for Culture, Media and Sport's (DCMS) analysis of APS, together with the DfE [Occupations in Demand in 2024](#) demand index, and the number of Creative Industries sub-sectors where the occupation appears in the top 25. Additional factors considered included share of employment at subsectors level, and whether creative and computing training pathways offer a clear route into these occupations.

Occupational and sector-wide workforce projections were based on the midpoint between DCMS analysis of APS data using the compound annual growth rate between 2011 and 2019, and the growth rates underlying the Creative Industries Sector Plan employment projections, applied to APS data.

The projections do not include an assessment of the target to increase investment

from £17 billion to £31 billion by 2035 or the potential impact of artificial intelligence (AI).

Housebuilding

Priority occupations were selected based on whether the occupations have training or qualification requirements to start employment, where the skillset is only applicable to construction or where there are already shortages that affect construction. While the occupations refer to construction the workforce size data includes only those workers involved in housebuilding, and uses full time equivalent estimates.

2024 estimates of the Housebuilding sector workforce size is derived from applying the assumed number of workers needed per home delivered (derived from analysis of published Construction Industry Training Board (CITB) data), to the recent peak in net additional dwellings in 2022 to 2023 (234k homes). This simplistically assumes no changes in behaviour or productivity. Occupation estimates are calculated by multiplying the total number of workers needed in Housebuilding in each year by the proportion of the total workforce in construction related SIC in the relevant SOC code. Chartered architectural technologists, planning officers and consultants are assumed to all work within the construction sector regardless of SIC as all are assumed to be integral to construction. The redistribution of workers between occupations reflects the occupational mix of the Construction sector generally, which is likely to differ from the mix of occupations needed for Housebuilding specifically.

Workforce size projections are based on an illustrative trajectory of housing supply that delivers 1.5m homes this parliament, in accordance with the government's Housebuilding mission. The trajectory is not based on specific policy interventions, representing only one possible trajectory that achieves 1.5m homes this parliament. The estimates are highly sensitive to the shape of the assumed trajectory of housing supply. To account for time taken to build, it is assumed that 50% of workers are needed in the year before completion and 50% are needed in the year of completion.

This analysis does not account for any existing shortages within occupations. SOC codes do not always neatly align with the skills and qualifications of interest (for example, registered building inspectors), often spanning multiple SOC codes. These estimates could understate the additional workers needed as part-time workers are not accounted for. This analysis does not capture any workers needed for the government's other construction ambitions or for any changes in behaviour or productivity. For example, increased uptake of modern methods of construction and changing build mix of homes towards denser, flatted developments would change the composition of skills needed in the Housebuilding workforce.

Defence

Official estimates for jobs supported in the sector are not available. Occupational and workforce size projections are based on data from a sample of companies which have had the 2023 ADS defence sector figures applied to estimate the overall size of the UK sector. ADS is a trade association which represents the UK aerospace, defence, security and space sectors. This methodology assumes that the industry returns are representative of the whole sector. However, individual adjustments have been made to specific occupations' workforce size projections based on departmental knowledge. Data has also been adjusted to account for the expected increase in defence spending to 2.5% of GDP by 2027.

Digital and Technologies

Priority occupations were identified from a multi-stage process, with Textkernel online job advert data providing the foundation. The limitations are documented on the ONS website but include Textkernel containing duplicate job adverts, some job adverts reflecting internal churn rather than new jobs and potential misassignment of job adverts to SIC or SOC codes.

First, an initial list of occupations was selected based on a multi-criteria decision analysis. The intensity of digital or technical skills required, as determined by analysis of requested skills in job adverts, formed the primary factor. Other factors considered included average annual growth rate in workforce and vacancies, the proportion of the digital sector workforce accounted for by workers in an occupation relative to the UK workforce as a whole, level of formal education required, and sub-sector specific analysis.

Second, a rapid review of the literature on the skills needs within the Digital and Technologies sector was undertaken. The draft priority occupation code lists were compared against the sources identified, such as sectoral reports.

Finally, interim lists were shared with expert industry stakeholders for review, feedback and validation. Following this 3 stage process, the final list of priority occupations was produced.

Therefore, the resulting list of priority occupations for the Digital and Technologies sector will be both too broad, in that they do not allow us to focus on critical and specific occupations (for example, on AI), and too narrow, as they do not take into account the foundational or mixed skills that will be required to operationalise and adopt our technologies (for example, in the interface between AI and professional services).

The UK total employment in each SOC code for 2020 to 2024 were sourced from

the APS. The totals for each year were weighted according to the proportion of those employed in the SOC that work for businesses assigned to the Digital and Technologies sector SIC codes based on published APS data. The full sectoral workforce has been calculated from analysis of the total workforce in businesses assigned to the Digital and Technologies sector SIC codes in APS data.

The average annual growth rate from 2011 to 2019 for the digital sector as defined in economic estimates was applied to all occupations, and to the full sectoral workforce, to project workforce sizes to 2030. This assumes that the growth in all occupations is the same as the overall sector growth, and is likely to be a significant under-estimation in some SOC codes.

Occupation specific growth rates were not possible due to the changes in occupation definitions in data pre and post COVID-19 pandemic, 2023/24 estimates suggest digital sector employment has returned to pre-pandemic trends.

Financial Services
Priority occupations were selected based on the proportion of the occupation's workforce currently employed in the sector; the demand level for an occupation; and whether the occupation was digital. This information was sourced from DfE's Occupations in Demand in 2024 report, using the Finance and Insurance Industry group as a proxy for the Financial Services sector.

Workforce sizes for occupations and the whole sector are based on APS distributions of workers in SOC occupations across the Finance and Insurance Industry group as published in Occupations in Demand in 2024. Projections are based on 2 equally weighted forecasts: occupation growth projections and Financial Services industry 2-digit SOC projections from DfE labour market and skills projections.

For technology-based occupations, a separate projection was used. APS data was used to calculate a compound annual growth rate for relevant SOC occupations between 2021 and 2024 and this rate was applied as the annual growth rate.

This analysis underestimates the issues that this sector faces, as there are specific issues of re-skilling due to increased need for digital skills, which are not covered here.

Health and Adult Social Care
Priority occupations in health were selected based on the 2023 NHS Long Term Workforce Plan. However, as SOC does not always match clearly with NHS occupation groups, approximations have been made where necessary.

Workforce size data for health in 2024 was sourced from APS data for England, assuming the full workforce within the occupations was in the health sub-sector. This includes people working in NHS trusts, primary care, local authorities, schools and private providers. These will differ from NHS England published data on the number of people employed by NHS Trusts and related organisations, as these only capture those working for NHS providers. There are no workforce projections for health as the Department of Health and Social Care (DHSC) will shortly be publishing an updated NHS 10 Year Workforce Plan.

In Adult Social Care, priority occupations were selected by matching roles defined by Skills for Care to SOC defined occupations. However, SOC does not align fully with the Skills for Care roles, so approximations have been made where appropriate.

Workforce sizes for Adult Social Care were sourced from APS data for England, assuming the full workforce within the occupations was in the Adult Social Care sub-sector. This includes people working in NHS trusts, primary care, local authorities, school and private providers. These will differ from Skills for Care published official statistics on workforce sizes.

Workforce projections for Adult Social Care are based on Care Policy and Evaluation Centre projections on the number of care users in residential, nursing and community care, with a linear forecast applied between 2022 to2023 and 2027 to 2028 data to approximate data between 2023 and 2027. This assumes that the workforce demand will increase in line with individuals who draw on care and support.

Life Sciences
The Office for Life Sciences (OLS) produces an official statistic, [bioscience and health technology sector statistics](#) (BaHTSS), providing estimates for the size and composition of Life Sciences companies based in the UK. Employment counts within this publication for the overall Life Sciences sector are taken from the BaHTSS publication. The definition of the sector can be found in the [accompanying background quality and user guide.](#)

The BaHTSS publication does not provide an occupation breakdown of the UK Life Sciences workforce. This publication has sourced employment counts by occupation from secondary external analysis of the ONS Labour Force Survey carried out by Lightcast. The definition of the UK Life Sciences sector used in the Lightcast analysis differs from that used in the OLS BaHTSS publication, and therefore employment counts do not reconcile between the sources. More details of the variation in these definitions can be found in [Technical annex](#) of the Lightcast publication.

Priority occupations were selected from the Lightcast publication based on the current workforce size, the 20 largest occupations have been included within this publication. This means SOC definition occupations which have a high rate of growth to 2030 but currently have a lower workforce size may not be included in the priority occupation list.

To produce projections of employment counts by priority occupations, the average annual growth rate for the overall Life Science Industry from 2019 to 2020 to 2021 to 2022 is taken from the OLS BaHTSS publication and applied annually to each priority occupation's employment counts from the Lightcast analysis.

This assumes each occupation, and the whole sector, will continue to grow at the same rate as the whole sector has historically grown, and impacts from the COVID-19 pandemic will be included in this growth rate.

Professional and Business Services
Priority occupations were selected based on workforce size in APS after mapping SOC occupational definitions to SIC industries. DfE's Occupations in Demand in 2024 was also considered in creating the priority occupation list.

Workforce sizes are sourced from APS data. Projections were applied at an occupation level based on the year on year growth in DfE Labour Market and Skills baseline scenario occupation level data for the UK. The proportion of the total workforce in each occupation who are in Professional and Business Services SIC codes according to APS data were then applied to the data to obtain a sector-wide figure. This assumes that growth within the Professional and Business Services sector is the same as growth in these occupations overall.

Projections in this sector do not account for the potential impact of AI on jobs in the sector.

Occupation demand aggregation

To account for counting workers multiple times when summing occupational demand across sectors, the total priority occupation workforce in 2024 was used to calculate a proportion of the UK workforce accounted for in sector returns, using the total workforce in each occupation who were 16 or older and in employment in January to December 2024 in the APS.

In cases where the total 2024 workforce across sectors exceeded 100% of the

workforce in the APS data, a scaling factor was applied to cap the 2024 workforce figure to the APS occupational workforce figure. In cases where a scaling factor was applied to the 2024 workforce figure, the same scaling factor was then applied to all years from 2025 to 2030. The scaled workforce figures were then used to calculate demand between 2025 and 2030.

Education supply figures

To estimate higher education supply figures, we have used results from an internal model named the Education Leavers Model of Occupations (ELMO). This model was built using the Longitudinal Education Outcomes Study (LEO) linked with the Annual Survey of Hours of Earnings (ASHE) which includes information on the occupation of employment after training for a 1% sample of the population. We have used the ASHE-LEO data covering the period from 2012 to 2021 and taken the latest year where an employee is present in ASHE.

The ASHE-LEO sample was used to estimate the distribution of SOC occupations that learners have historically entered based on their education pathway (consisting of level, subject, and pathway of their highest qualification), industry sector of employment and gender. The output of this model is a dataset that, for each education pathway, SIC, and gender assigns a probability to each occupation at the 4-digit SOC code level.

The probabilities were applied to a cohort of education leavers from [LEO Graduate and Postgraduate Outcomes](#) who were in sustained employment in the year after education, to estimate their occupations at 4-digit SOC. We include graduates and post-graduates employed in the 2021 to 2022 tax year and who graduated in 2019 to 2020 academic year. This does not include those studying at level 4 or 5 or international students. Further details on learners included in this cohort is given in the [LEO Graduate and Postgraduate Outcomes](#) publication.

For further education, we used the above method with some selected adjustments to acknowledge changes in the further education sector since the ASHE-LEO sampling period, for example changes between apprenticeship frameworks and standards, and the introduction and growth of T levels and Skills Bootcamps.

Relevant occupations

For the relevant occupations analysis, we used outputs from ELMO applied to education leavers from both higher education and further education. The higher education cohort is outlined in the education supply section above. The further education cohort consists of education leavers from the [Further education outcomes report](#), who were employed in the 2021 to 2022 tax year and achieved their qualifications in the 2020 to 2021 academic year. These are limited to those aged 16 and above with a full level 2 or 3, or level 4+ qualification.

To determine the proportions of learners entering relevant occupations, we have defined a relevant occupation rate as the percentage of employed education leavers who both studied a subject judged to be relevant to their occupation and achieved the expected level of education and no higher for their occupation. For higher education graduates and postgraduates, we judge all subjects to be relevant as long as they were achieved at the expected level. For details on how the expected level of education were defined, see below. Subjects judged as relevant to the occupation were based on linking subject areas to occupations using [Skills England's occupational maps](#).

Expected education level

Skills England have developed an expected education level to 4-digit SOC lookup, showing the education level that we expect learners to have when working in each occupation. Education levels have been split into level 2, level 3, level 4/5, and level 6 and above. The full lookup can be found in [the accompanying tables](#), with 1 indicating that the level is expected for those working in a given occupation, and 0 indicating that it is not. For many occupations, a range of education levels are expected. For example, we expect production managers and directors in manufacturing (SOC code 1121) to have a qualification of at least level 3.

This lookup was developed by considering:

- [Skills England occupational maps](#)
- ONS skill levels as outlined in table 1 of the [SOC 2020 Volume 1](#)
- graduate roles as defined by the [Warwick Institute for Employment Research](#)

These were combined with data analysis of the census, the APS, and ASHE linked to LEO. The various sources were used alongside judgement of Skills England analysts to develop the final lookup.

The Migration Advisory Committee use a different methodology for defining skilled occupations for SOC codes. The methodology for assigning skill levels to occupations in the immigration system is set out in:

- paragraph 2.32 of Analysis of the Points Based System
- paragraphs 2.4 to 2.18 of Review of the Shortage Occupation List: 2020

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