Department for Education

Skills England: Sector skills needs assessments

Defence

June 2025

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Summary

The UK's defence sector is foundational for national security and economic growth across the UK.[1] It provides good, well-paid job opportunities across all nations and regions of the UK, with around 239,000 direct and indirect jobs supported through Ministry of Defence (MOD) expenditure with UK industry.[2] On top of this, the Prime Minister has set a commitment to increase spending on defence to 2.5% of GDP from April 2027, stating that this increased spending will support highly skilled jobs and apprenticeships across the whole of the UK. He has also set an ambition to spend 3% of GDP on defence in the next Parliament, as economic and fiscal conditions allow.[3] Building the necessary workforce to support this aim and better understand the additional contribution that the defence sector makes to the UK economy, including its contribution to skills in the rest of the economy, are key priorities for government and the sector itself.

The defence industrial base in the UK draws on a range of manufacturing and service industries and occupations including advanced manufacturing, facilities management, construction, professional services and research and development. There is an urgent need for more and better defence industry skills data.

The Joint Economic Data Hub (JEDHub)[4], through an industry survey on some of defence's largest suppliers, has defined the sector as all elements of operations within an organisation if they benefit significantly from domestic and/or export defence sales of military industrial capabilities. [5] There is significant overlap in the defence sector with occupations in other sectors, such as the advanced manufacturing sector and the digital and technology sector. Skills England have also conducted skills needs assessments for these sectors, enabling us to draw data and insights from other sectors of the economy to support our understanding of the defence sector.

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.

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[1] Invest 2025: the UK's modern industrial strategy, DBT (2024)
[2] MOD supported employment estimates 2022/23, gov.uk (2024)
[3] Prime Minister sets out biggest sustained increase in defence spending since the Cold War, protecting British people in new era for national security - GOV.UK, gov.uk (2025)
[4] The Joint Economic Data Hub (JEDHub), based in the UK Defence Solutions Centre, is a collaborative initiative to improve understanding of the defence sector's contribution to the UK economy. This is in the context of the challenge of identifying defence data within national accounts as companies and professions often operate within both civilian and defence sectors.
[5] JEDHub Annual Economic Report, JEDHub (2024)

Priority jobs and skills

According to both JEDHub and ADS trade body estimates, the defence workforce is growing, with the JEDHub capturing an increase of 1.7% Full-Time Equivalent (FTE) employment between 2021 and 2022.[6] The ADS trade body has estimated that 70% of jobs are outside London and the South East.[7] Looking specifically at the nuclear industry, which combines both civil and defence (defence forming 46%), it has a workforce of 83,000 in the period 2023 to 2024 and is forecast to rise at least 48% by 2043, driven primarily by a surge in the defence sector.[8]

Apprenticeships and training programmes can provide effective pathways into defence occupations. The JEDHub found that, within the surveyed population in 2022, 14% of total recruitment were apprentices and 8% were graduates.[9] Companies operating in the sector have a strong requirement for STEM skills. Skills England engagement[10] with the defence sector highlighted the need for STEM skills, with concerns expressed about a shortage of these skills coming from the school system.

Employers from the engagement also classified skills gaps into three main areas:

- Craft skills such as electrical engineers or welders;
- Specialist skills (such as nuclear engineering and naval architecture); and
- New skills like digital, cyber or green.

Gaps in craft skills, including welders, aircraft maintenance technicians and electricians, were reported as the hardest to fill. Other specialised skills in demand included nuclear engineering, software engineering, and naval architecture. Several occupations identified as being in 'critical demand' by the Department for Education are relevant to the defence sector such as 'electrical engineers' and 'metal working production and maintenance fitters'.[11] Some of these occupations are also shared with the Advanced Manufacturing and Digital and Technology sectors, highlighting the need for skills across these areas within the labour market.

Typically, there is an uneven distribution of age and gender across the defence sector. In surveyed JEDHub businesses, the workforce was 79% male, an overrepresentation compared to the UK population aged 16 to 64 years (50%), and 93% of the workforce

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[6] JEDHub Annual Economic Report, JEDHub (2024). There were 84,000 defence FTEs for 2022. The growth from 2021 to 2022 was calculated for the 19 companies that provided returns to both years.

[7] Defence Sector UK Outlook, ADS (2024)

[8] Nuclear Workforce Assessment, Cogent (2023)

[9] 2024 Annual Economic Report | JEDHub: Joint Economic Data Hub, JEDHub (2024). Internal calculations based on underlying data from the 2024 JEDHub Annual Economic Report.

[10] 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

[11] Occupations in Demand, DfE (2024)

had a white ethnicity (compared to 84% of the 16 to 64 population).[12] In males, 57% of the workforce were 40 or over, with 11% aged 60+. While smaller, the female workforce is more evenly distributed between age categories, with 50% aged 39 or under. Skills England's engagement with employers suggested more needs to be done to attract those from underrepresented groups alongside the younger population to mitigate issues with an ageing workforce, as well as improving the reputation of a career in the defence sector.

Training routes into the sector

There are strong apprenticeship routes at all levels, alongside graduate routes into the defence sector. Looking at apprenticeship starts in the defence sector industries using ONS Standard Industry Codes, two thirds (66%) of apprenticeship starts in 2021/2022 were at Level 3 or below.[13] Of the remaining starts, 13% were at Level 4, 8% at Level 5 and 14% at Level 6+. Popular apprenticeships utilising STEM skills previously mentioned in this chapter include:

- Level 2 Telecoms Field Operative;
- Level 3 Engineering Technician;
- Level 3 Installation and Maintenance Electrician;
- Level 3 Information Communications Technician.

These apprenticeships have seen a decline in starts in 2023/24 compared to the previous academic year, however volumes are still above pre-covid levels.[14]

Case study: Nuclear skills

The Nuclear Sector Skills Team, composed of Ministry of Defence, Department for Energy Security and Net Zero, and private sector members, coordinates the implementation of the Nuclear Skills Plan. Key achievements include:

- Launching the multi-year Destination Nuclear campaign, boosting public awareness by 25% and directing 58% of website users to the careers portal.
- Securing commitments to double apprentices and graduates, quadruple nuclear PhDs, and create pathways for mid-career entrants. In 2024/25, nearly 4,000 early-career starters joined, including 1,300 graduates, 2,500 apprentices, and 20 new nuclear fission PhD students.

[12] Annual Population Survey Jul 2023-Jun 2024, ONS (2024)
[13] Apprenticeships in England by Industry Characteristics 2020/21, DfE (2024)
[14] Apprenticeships and traineeships, DfE (2024)

- Establishing Regional Hubs in the South West, North West, and Midlands to address local skills needs, foster partnerships, and enhance STEM outreach and supply chain relationships.
- Building foundations for cross-sector mobility by coordinating interchange opportunities, standardising skills taxonomy, and sharing skills data.

The Nuclear Skills Plan ensures the UK's nuclear industry has a skilled, adaptable workforce ready to lead in clean energy and national security.[15]

Securing the future workforce

Defence employers who took part in Skills England's engagement emphasised the complementary role that accelerated training programmes can play alongside longer form provision (i.e. providing skills where a full apprenticeship is not the most effective training solution to meet the need) with Skills Bootcamps recognised as a successful example of this model.

The engagement with defence employers highlighted some barriers to training, or where the current system does not meet the needs of industry employers. There was also a strong emphasis on STEM skills gaps occurring from school age. It was suggested that skills taught are not practical enough and there is too much focus on academic aspects. The content of some apprenticeships was deemed to be either too broad to be useful, or too focused on small segments of the labour force. It was also noted that the content of standards can be too slow to change, meaning they do not match the often fast-moving changes in production, or that new standards take too long to develop.

For higher level qualifications, employers expressed a gap in learning opportunities for Level 4 or 5 qualification graduates, who may have already gained the skills Level 6 apprenticeships offer. There was also a concern that some providers might not recognise qualifications such as T Levels for entry into Level 6 apprenticeships. The requirement for apprentices to hold certain GCSE grades in maths and English before they can complete was also seen as an unnecessary barrier for individuals who otherwise have the skills needed to do well in their jobs.

Other factors aside from underlying skills gaps also impact recruitment into the defence sector. Many employers noted that the defence sector is not attractive to young people and more needs to be done to attract this demographic, including from a reputational perspective. The need for security clearance was also highlighted in some roles as a barrier to entry, especially for non-UK nationals.

[15] National Nuclear Plan for Skills, Nuclear Skills Delivery Group (2024)

Key gaps in provision

Employers highlighted gaps in provision, and suggested the following options as ways to utilise increased flexibility from funding offers:

- Similar training models to Skills Bootcamps with a longer lead time (for example 24 weeks).
- Modular courses which could be used to supplement existing skills or full-length training courses.
- Shorter length apprenticeships which would be particularly useful for upskilling the current workforce.

The MOD is already undertaking initiatives to support future sector skills, such as joint MOD and Engineering and Physical Sciences Research Council (EPSRC) funded Centres for Doctoral Training, aiming to help fill the suitably qualified and experienced personnel gap for post-doctorate level skills within defence science and technology.

Supporting the future skills needs of the defence sector will rely on collaboration across Industry, government and skills bodies to build a strong evidence base. This will need to highlight the specific skills for growth for the defence sector separately from its civil counterparts within the labour market. The Defence Industrial Joint Council, established to help develop and deliver the Defence Industrial Strategy, will look to build on the existing collaborations between MOD, government, and industry to improve and secure the skills base needed for the future.

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