GT GARDINER &THEOBALD

AI LABOUR MARKET SURVEY

2025

By: Gardiner & Theobald

For: Department for Science, Innovation, and Technology (DSIT)

CONTENTS

1. EXECUTIVE SUMMARY

Gardiner & Theobald (G&T), a UK-based consultancy, has been commissioned by the Department for Science, Innovation & Technology (DSIT) to examine the UK AI labour market in 2025. This report builds on a previous study undertaken in 2020, and uses surveys and interviews to assess trends, skills gaps, and evolving skills needs in the sector. The findings contribute to the delivery of the AI Opportunities Action Plan (2025), aimed at accurately identifying AI skills shortages and supporting policy decisions to strengthen the UK's AI ecosystem. However, subsequent findings or recommendations do not represent Government views or policy and are instead G&T views.

The UK AI sector is facing a critical skills gap that threatens its long-term growth and global competitiveness. The rapid expansion of AI applications is driving increasing demand for skilled professionals, yet the availability of suitably trained talent is failing to keep pace. This disconnect between industry needs and workforce capabilities is creating significant hiring challenges, stalling innovation and limiting business performance. Addressing this skills gap requires a multi-faceted approach that enhances education, training, recruitment strategies, and workforce diversity.

The reported skills gap as it stands is significant. 97% of respondents surveyed identified at least one gap in skills in the AI labour market. 57% of businesses reported a technical skills gap, while 30% reported a non-technical skills gap (skills that do not require specialised tools, techniques, or knowledge such as programming, engineering or modelling). The most significant gap is in understanding AI concepts and algorithms, with the percentage of respondents identifying this as a skills gap increasing from 55% to 60% over the past five years. Critically, 28% of surveyed organisations report that technical skills shortages have impacted their ability to achieve business goals, reinforcing the urgent need for targeted interventions.

To address this gap, alternative pathways into AI careers are expanding. Apprenticeships have risen from 3% of AI hires in 2020 to 19% in 2025, providing structured, experience-based training. However, despite this progress, the gap between theoretical knowledge and practical application remains a major challenge. The increasing reliance on informal training further highlights this issue, with 88% of organisations using on-the-job training instead of structured education and training programmes. Notably, only 13% of graduate schemes include AI training, underscoring the inadequacy of formal education routes in preparing students for industry roles.

The skills gap is further exacerbated by the accelerating adoption of AI technologies. The use of Natural Language Processing (NLP) has surged by 34% in the last three years, and 22% of organisations now utilise all five AI types included in the survey. Looking forward, 57% of respondents plan to adopt Agentic AI within the next three years, intensifying the need for skilled specialists. However, talent supply is not keeping pace, leading to increased recruitment difficulties which are slowing industry progress.

Despite the persistent reliance on academic qualifications—particularly PhD and master's degrees for technical roles—AI skills requirements are becoming more complex. Data science expertise has grown in prevalence, with the proportion of businesses employing professionals in this field increasing from 48% to 66%. While computer science remains the dominant qualification, AI roles are increasingly incorporating social sciences such as psychology and philosophy, reflecting a greater focus on human intelligence and

ethical considerations. This broadening of required skills places further pressure on an already constrained talent pipeline.

Recruitment challenges remain, with 35% of organisations struggling to fill AI roles. The main barriers include candidates lacking work experience (31%) and insufficient technical skills (30%). Senior positions are particularly difficult to fill, reflecting a shortage of experienced professionals. These shortages directly impact business performance, hindering innovation and AI adoption across multiple industries.

International recruitment serves as one means to mitigate these shortages, with 38% of businesses hiring talent from outside the UK. The main drivers for international hiring include accessing specialised skills, securing top talent, and cost efficiency. However, organisations face obstacles such as visa processing delays, high costs, and security clearance requirements, all of which limit the ability to attract overseas AI expertise. Addressing these issues through streamlined visa policies and international collaboration could alleviate hiring difficulties and enhance the UK's AI competitiveness in the short-term.

Workforce diversity further exacerbates the skills gap, as underrepresentation continues to limit the available talent pool. Women account for a decreasing proportion of AI roles – dropping 4 percentage points since 2020 to 20% in 2025. Meanwhile, 41% of firms do not employ people from minority backgrounds. Additionally, fewer organisations are employing non-UK nationals, with a 10% increase in firms reporting no international hires. Disabled individuals remain underrepresented, and while LGBTQIA+ inclusion is improving, broader diversity barriers persist. Expanding workforce pathways beyond traditional academic routes could improve representation and make AI careers more accessible to underrepresented groups.

While progress has been made in diversifying entry routes and enhancing training provisions, this report recommends several key interventions that government could consider based on these research findings. Expanding AI apprenticeships in collaboration with industry partners would help bridge the gap between education and practical experience while also improving diversity. Formal education programmes could better align with industry requirements, incorporating ideas like more dynamic digital learning platforms in order to keep pace with technological change. Additionally, streamlining visa processes for international talent and fostering government-industry collaboration to develop AI internships and job opportunities could help address workforce shortages.

2. INTRODUCTION & METHODOLOGY

2.1. Introduction

Gardiner & Theobald (G&T) was commissioned by the Department for Science, Innovation & Technology (DSIT) in December 2024 to carry out a survey and subsequently develop a report examining the UK AI labour market. The research aims to collect information on the current AI labour market, focusing on skills gap, educational pathways, recruitment, entry and progression routes, and diversity in the workforce. This market is defined as UK organisations that fall into the three categories outlined within Section 3, which are those who are commercially developing AI, those who are internally developing AI and those who are procuring AI.

The AI Opportunities Action Plan (AIOAP) (2025) outlines the UK's approach to AI across three areas: investing in the foundations of AI, adopting cross-economy AI, and positioning the UK to be an AI maker, not AI taker.

While DSIT regularly undertakes analysis to develop a comprehensive and robust evidence base to assess trends against these objectives, recommendation 14 of the AIOAP specifically tasks government with 'accurately assessing the size of the skills gap', as current estimates are considered imprecise and outdated.

The findings of this report contribute to meeting that recommendation, as well as forming part of DSIT's wider work assessing trends in the UK's AI labour market. The evidence will be used to support AI policy decisions, to evaluate their effectiveness, and to identify the future skills needs of the AI ecosystem.

2.2. UK AI Labour Market 2020 Report

The first report into the UK AI labour market was conducted in 2020, titled Understanding the UK AI Labour Market: 2020. This study used a mixed-methods approach to collect data on skills gaps, skills shortages, geographic concentration, and workforce diversity. G&T's report builds on the 2020 study, replicating key data points from the previous study while introducing new data points and focus areas that reflect the evolutions of the AI labour market over the past four years.

2.3. Overview of Methodology

This report was created using three key data inputs:

- Data from the 2020 report for comparative purposes
- Quantitative data gathered via a self-selective online survey
- Qualitative findings gathered from interviews.

G&T launched a survey in January 2025, which was developed jointly with DSIT. The survey was sent to 3,940 organisations who were selected by:

- registration with commercial channels such as Crown Commercial Services

- self-identification as an AI provider
- identification by DSIT as being relevant to the survey.

A total of 119 organisations responded to the survey, compared to 118 respondents in the 2020 study. These 119 organisations formed the sample for analysis. Although that represents a 3% response rate, it is a similar number of responses and response rate to the 2020 survey. Additionally, 20 one-to-one interviews were conducted (whereas 50 interviews were completed for the 2020 study).

The findings of this report have been categorised into 11 key sections covering key topics such as capacity, capability, diversity, training and recruitment.

To note before reading

- *Not all survey questions were mandatory, and individual response rates have therefore been indicated for all figures included in this report*
- *Where possible, a comparison has been made to the 2020 report, however some aspects of this report are new and therefore this is the first datapoint being captured.*
- *The data collected was used solely for this activity and has not been retained by G&T.*
- *For the creation of this report, none of the data was edited or manipulated by G&T.*
- *The analysis reflects the data provided by the abovementioned sample set of respondents.*
- *Some percentage charts may not add up to 100%, this is due to data rounding.*

1. *Self-selection participation to the survey may create a biased sample.*

---

3. RESPONDENT OVERVIEW

This section of the report provides information relating to the size, location and structure of the organisations surveyed and provides context to the findings in other survey areas.

Key findings from this section

- The majority of responding organisations (66%) are developing commercial AI solutions
- By organisation size, small and medium enterprises (SMEs) accounted for the majority of survey responses, making up 93% of respondents
- Greater London and the South of England were the most represented regions among responding organisations, accounting for 77% of responses

RESPONDENT ORGANISATION DETAILS

Categorisation of responses by involvement with AI

As part of the survey, respondents were categorised into the following three groups:

- Group 1: Businesses who are developing commercial AI solutions (i.e., organisations that are developing proprietary AI solutions that can be brought to market)
  - Group 2: Businesses who are internally developing AI for their own use (i.e., organisations that are building an internal AI tool, though this may be developed using an underlying third-party AI model)
  - Group 3: Businesses using or procuring AI tools developed by others (i.e., organisations simply using third-party AI solutions (out of the box AI models).

This categorisation helps describe a respondent's level of involvement in the AI sector, as this is a key factor in determining their likely labour skills requirements.

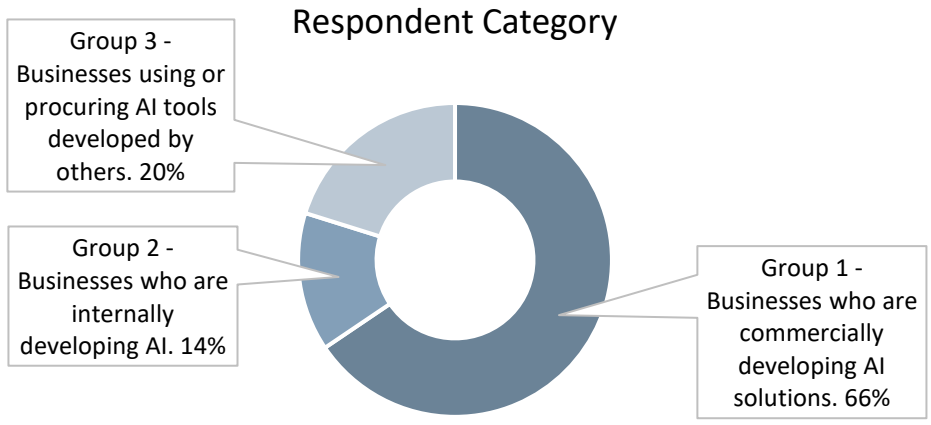

Figure 1: Respondent category by type of AI involvement (2025 sample size: 119)

As illustrated in figure 1 above, the majority of respondents fall into Group 1. Given their focus on developing proprietary AI solutions, these organisations are more likely to require internal AI expertise across multiple areas to support the creation of market-ready tools.

Size of organisations

The survey also captured the size of responding organisations, based on total number of employees. Understanding organisation size is a key factor in analysing trends, as each group may face different challenges.

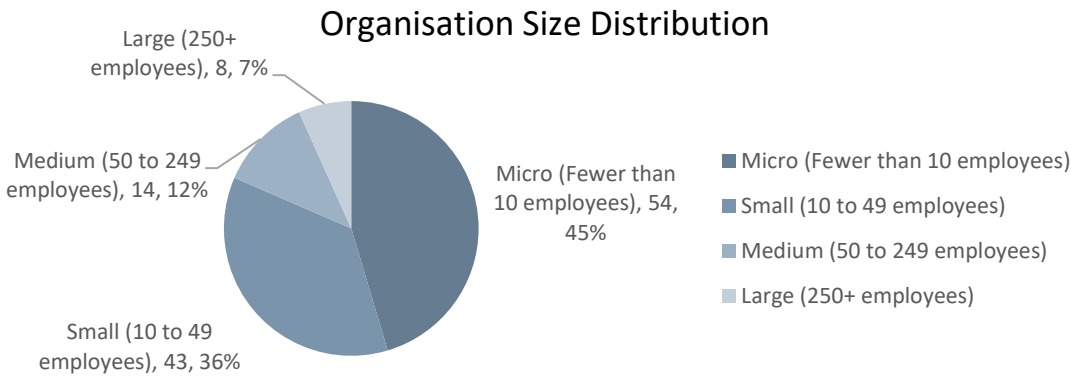

Figure 2: Respondent organisation size (2025 sample size: 119)

Figure 2 shows the distribution of respondents according to organisation size. Respondents were predominantly made up of small and micro organisations at 82% (slightly lower than total UK figure of 98%[1]), reflecting the AI sector's composition of start-up and SME businesses. The challenges may differ for different firm sizes and that is explored as part of this report.

[1] https://www.nomisweb.co.uk/datasets/idbrent

Location of organisations

The survey also captured the geographic location of responding organisations to assess regional variations in AI adoption and development.

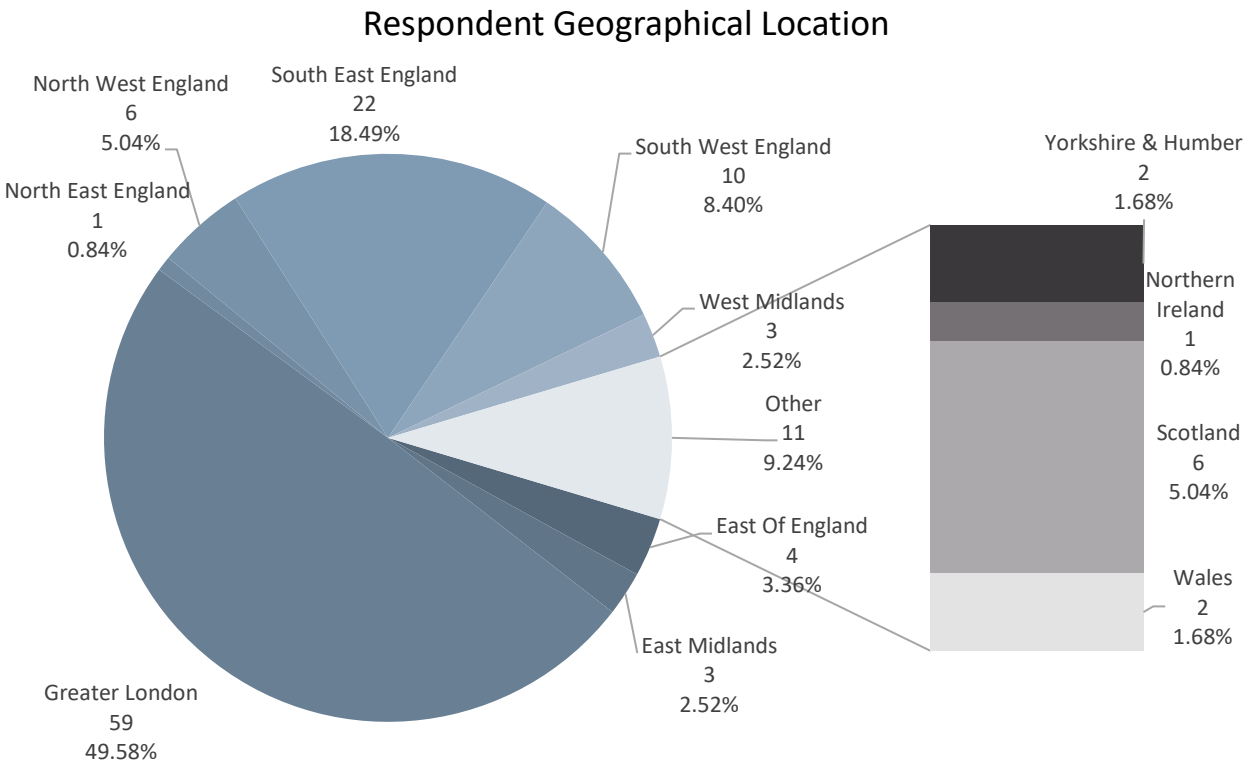

Figure 3: Respondent geographical location (2025 sample size: 119)

As illustrated in Figure 3, Greater London had the highest representation, accounting for 50% of all responses, followed by the South East England (18%) and the Southwest of England (8%). In contrast, regions outside Southern England made up 24% of responses.

A comparison with the AI Sector Study published by DSIT in October 2024 shows strong alignment. In this analysis, 71% of organisations were based in London, the South East, or the East of England—closely mirroring the preceding study, where 73% of respondents were from the same regions.

4. ORGANISATIONAL AI RESOURCE

This section of the study focusses on the resources within the responding organisations and outlines how many individuals within each have a specific focus on AI as part of their role. This analysis provides additional context relating to respondent organisations and helps assess the extent to which AI skills are integral to their day-to-day operations.

Key findings from this section

- 56% of employees from respondent organisations undertake a role with AI as a core part
- Across SMEs, 14% of AI-related employees are in senior roles vs. only 1% in large organisations
- The majority (56%) of organisations use both internal and third-party developed AI models, whereas 24% rely only on third-party models and 18% rely only on internal solutions

4.1. FINDINGS

56% of employees from responding organisations use AI models, tools or technologies as a **core part of their main role**. This is primarily driven by the high proportion of micro organisations who have a high reliance on these individuals. Of the 54 micro organisations that responded, 66% of employees have AI as a core part of their role. This is unsurprising, as smaller AI-focused organisations tend to have a higher concentration of AI-related positions compared to larger companies with more diverse resource needs. However, this also highlights these organisations' strong dependence on their workforce's AI expertise.

This is in contrast with large organisations (over 250 employees). 11% of employee roles involve AI as a core part, and these organisations therefore rely less on these individuals.

For those in senior roles (those that make business decisions), 36% use AI models, tools or technologies as a core part of their role (across all respondents). This could indicate that these individuals have technical responsibilities in addition to management responsibilities. Again, the large organisation vs SME split is significant, with:

- 1% of large organisations' employees being in senior AI roles; and
- 14% of SME employees being in senior AI roles (in a smaller organisation the roles defined as 'senior' may be different to a larger organisation with an executive team, but this does still demonstrate an increased reliance on senior AI skillsets).

When understanding resources and skills, it is also important to understand if organisations have their own employees developing AI models, or whether AI models are developed externally by others.

In the figure below, the division is shown between organisations using internally developed AI solutions and those relying on third-party providers. The majority (57%) utilise a combination of both. This reflects the variety of resources available to organisations and suggests that individuals may require upskilling on a variety of AI models or platforms as well as the underlying concepts that are applicable across products.

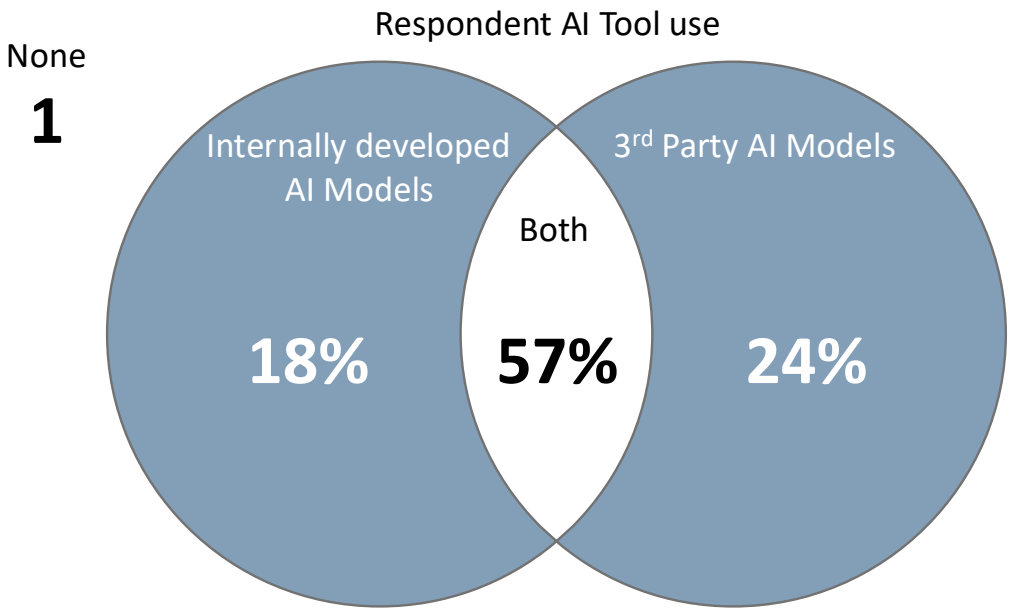

Figure 4: Respondent AI tool use (2025 sample size: 119)

5. TYPES OF AI USED

This section of the report focuses on the types of AI being used by respondent organisations, and those that they plan to use in future. This is a key indicator of future skills requirements.

Our survey focused on five key AI types. By using the data from the 2020 report, our report outlines which of these types of AI are becoming more prominent within the sector and are therefore more likely to require greater expertise for use and development.

Key findings from this section

- Use of AI across all comparable areas has increased between 2020 and 2025
- The use of Natural Language Processing (NLP) has increased significantly in responding organisations (34% increase when measuring how many organisations used NLP in the last three years)
- 22% of respondents have used all five types of AI tested within the survey
- Demand for Agentic AI will increase over the next three years, with 57% of organisations stating that they plan to use it

5.1. FINDINGS

Figure 5 below illustrates the types of AI that has been used by organisations in the last three years, the types they plan to use in the next three years, and the proportion of organisations seeking neither. The graph compares responses (where available) from both the 2020 and 2025 findings.

When interpreting this data, it is crucial to consider the strong link between the types of AI that organisations use, and the educational pathways and qualifications needed to develop a skilled workforce. The expanding scope of AI adoption, alongside ambitious plans for further growth, reinforces the challenge of keeping AI-related courses up to date. While previous courses may have focused on high-use areas in 2020, the AI landscape in 2025 has undergone significant evolution, necessitating rapid adjustments in educational content. The changing nature of AI adoption directly influences current and future skills gaps, highlighting the need for responsive and forward-thinking training programmes.

"Another issue is that academic institutions just can't keep up with the rapid pace at which AI is evolving. The curriculum isn't adapting quickly enough to meet the changing demands of the industry." – SME AI company

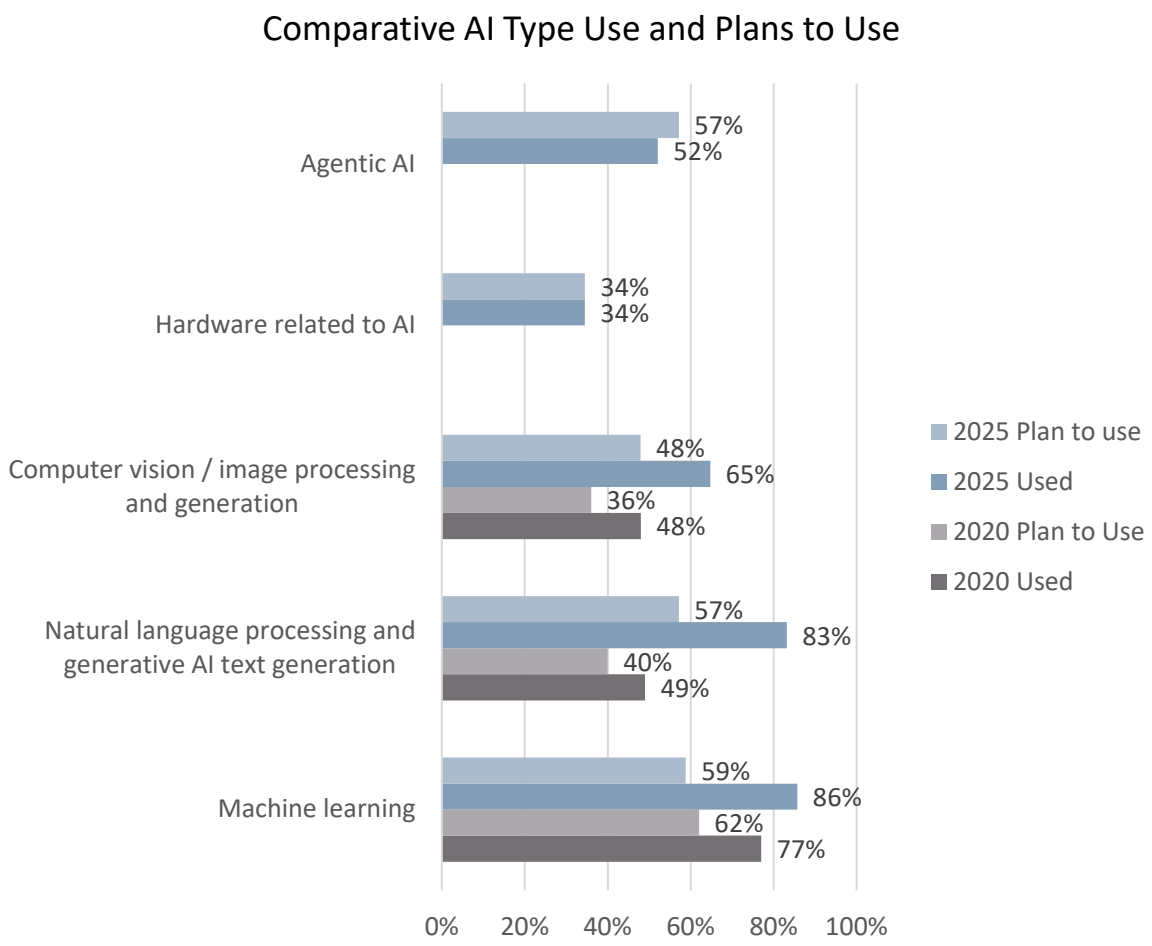

Figure 5: AI current and planned use within the firm (2025 sample size: 119)

Figure 5 highlights key areas of comparison with the 2020 findings, as some areas have notably changed. Across all three AI types captured under both surveys, there has been an increase in both current use and future planned use. The biggest increases are seen within Natural Language Processing, which was previously used by 49% of respondents, and is now used by 83%. This is likely due to the rise of highly popular Large Language Models (LLMs) and will drive demand for skills related to this area of expertise.

The use of computer vision and image processing/generation has increased by 17% over the last five years, indicating its growing adoption as a business application.

All respondents in 2025, 22% have used all five types of AI in the last three years, showing the breadth of AI capability required within these organisations. This varies depending on the type of organisation responding:

- For Group 1 organisations (those developing commercial AI solutions), 23% have used all five types of AI
- For Groups 2 & 3 on the other hand, 10% have used all five types, and 14% have only used either Machine Learning or Natural Language Processing.

6. VACANCIES

This section focusses on AI role vacancies and the challenges that organisations face in filling them. This data helps to identify AI skills gaps.

Key findings from this section

- 35% of organisations had AI vacancies they identified as hard to fill, the majority of these being due to a lack of work experience (31%), and secondly due to a lack of technical skills/knowledge (30%)
- AI professionals and leaders were identified as the most difficult role to fill, aligning with lack of work experience being the critical factor
- Word of mouth remains the most common recruitment method followed by social media
- Recruitment methods have become more diverse, with no single dominant approach
- Partnering with universities to fill vacancies has declined significantly, dropping from 22% in 2020 to just 5% in 2025
- Similarly, while word-of-mouth recruitment remains the most common method, its usage has fallen sharply from 42% to 15% over the same period

6.1. FINDINGS

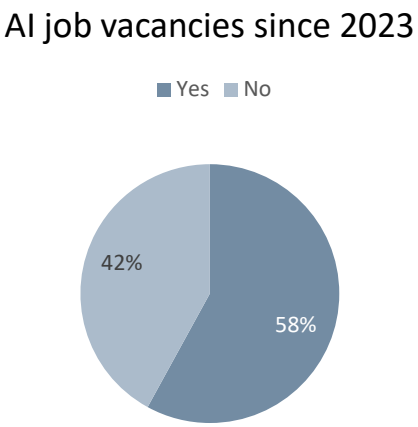

Figure 6: Respondent vacancy rate (2025 sample size: 119)

This graph illustrates that 58% of organisations that responded have had AI related vacancies in the last two years. This does not necessarily represent an issue but could affect sector growth. When compared to the Cyber Security Skills in the UK Labour Market 2024[2] report, '47% of cyber businesses have attempted to recruit recently', suggesting a marginally higher rate of activity than similar technological sectors.

[2] https://www.gov.uk/government/publications/cyber-security-skills-in-the-uk-labour-market-2024/cyber-security-skills-in-the-uk-labour-market-2024#introduction

Group 1 (developing commercial AI solutions) had the highest proportion of vacancy reporting at 67%, in contrast to Groups 2 & 3 where only 33% stated they had AI role vacancies.

Of all organisations, there has been a significant reduction in the difficulty organisations have found in filling these vacancies, dropping from 69% in 2020 to 35% in 2025.

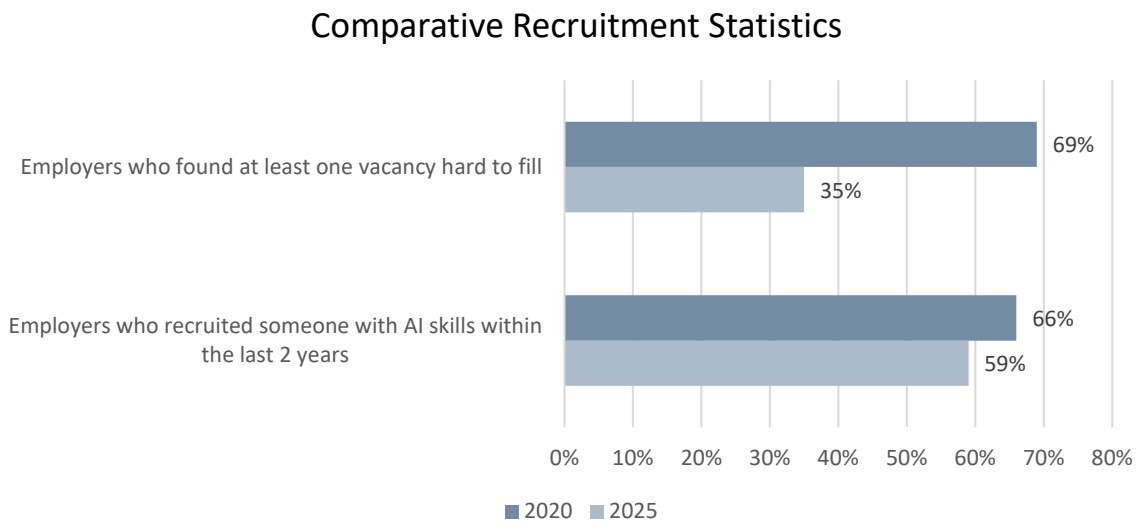

Figure 7: Comparative recruitment statistics (2025 sample size: 66)

Although the proportion of employers struggling to fill vacancies has declined, the issue remains significant, with 35% still facing recruitment challenges.

A comparison with the Cyber Security Skills in the UK Labour Market 2024 report (see footnote 4) highlights a stark contrast: 70% of cyber firms reported having at least one hard-to-fill vacancy—double the proportion seen in AI firms.

Figure 8 below illustrates a significant disparity in the seniority of vacancies that were difficult to fill.

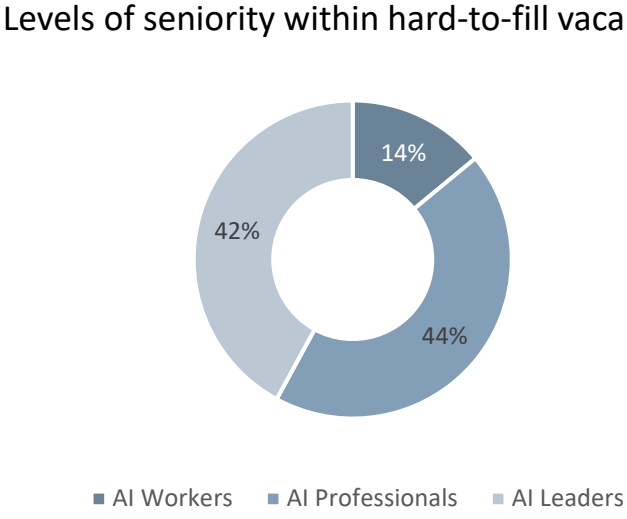

Figure 8: Seniority of hard to fill vacancies (2025 sample size: 70)

Using the Turing AI Skills Business Framework[3], responses were categorised into AI workers, professionals and leaders (AI citizens were excluded as not within the scope of this survey).

AI workers are defined as employees not working primarily in 'data' or 'AI', but whose roles may be impacted by these technologies. While being the largest group in terms of employment, this group makes up only 14% of the hard to fill vacancies. Comparatively, AI professionals and AI leaders made up 44% and 42% respectively of the hard to fill vacancies respectively.

This demonstrates that obtaining deep specialism, or individuals with management expertise coupled with AI skills is much more challenging than those who may use AI but where it is not part of their core responsibilities. Interviews also highlighted this challenge, with several respondents noting the difficulty in finding candidates with practical, hands-on experience, particularly for senior roles such as data architecture and strategy. These positions require extensive expertise across multiple technology components before candidates can effectively design and integrate AI technologies within a company's broader technical landscape. The rapid pace of AI advancements further compounds this issue, as even structured learning programmes struggle to keep up, leading to a shortage of experienced professionals.

> "The most difficult AI-related role to recruit and develop is in data architecture and strategy, particularly at the senior level." – medium-sized AI consultancy

The cause for these hard-to-fill vacancies are listed below:

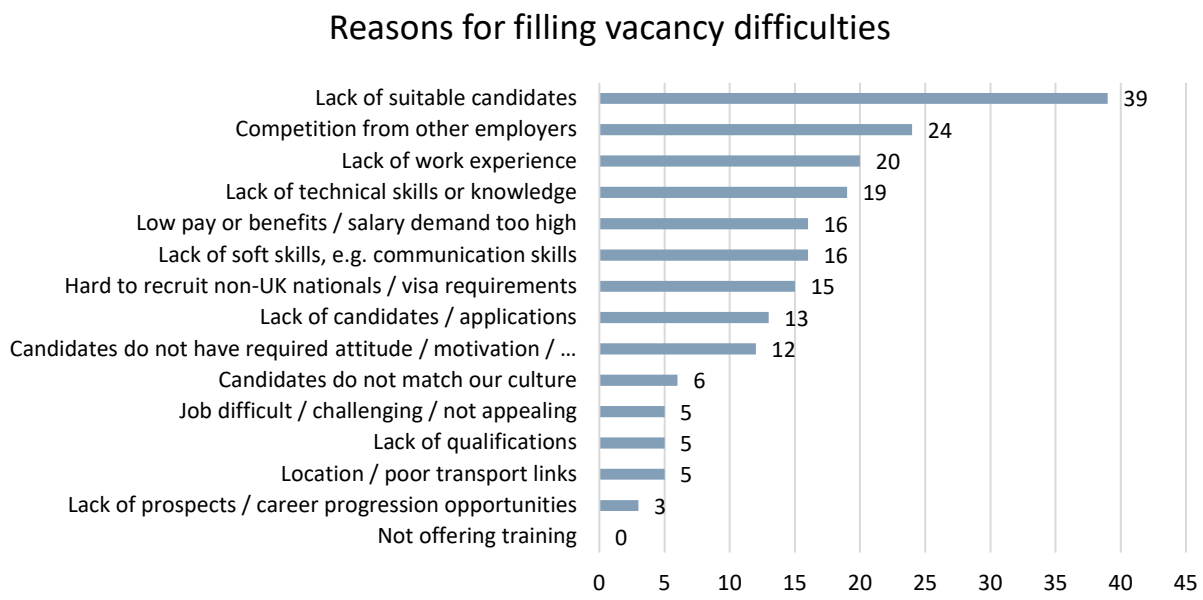

Figure 9: Reasons for filling vacancy difficulties (2025 sample size: 64)

Figure 9, the most common reason was a lack of available suitable candidates, which was cited by 39 respondents. This was followed by competition from other employers, which also contributes to the

[3] https://www.turing.ac.uk/skills/collaborate/ai-skills-business-framework

continuing trend of salary demands being too high (a reason cited by 25% of respondents in both 2020 and 2025).

When looking at progress in these areas, the graph below compares the key reasons between 2020 and 2025.

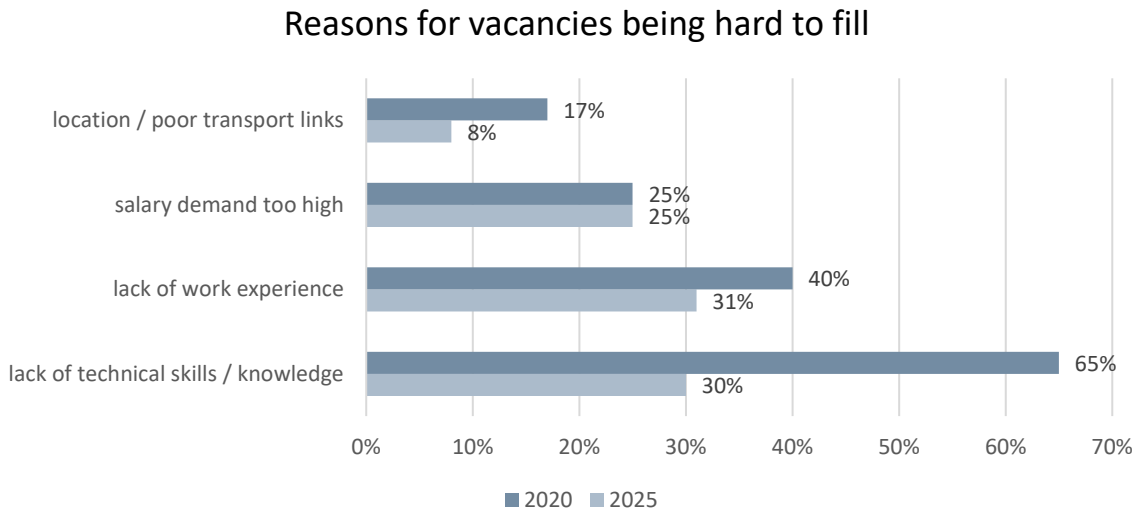

Figure 10: Comparative vacancy difficulty reasons (2025 sample size: 64)

There has been a significant drop in technical skills/knowledge being the reason for vacancies being hard to fill (35% reduction between 2020 and 2025), demonstrating that education and qualifications for AI-specific roles have improved dramatically. This is further highlighted in the training section.

Similarly, the impact of location and poor transport links as a barrier to recruitment has more than halved across all respondents over the past five years. This decline may be attributed to the rise of hybrid and remote working. According to the ONS, as of November 2024, over a quarter of UK employees work in a hybrid model[4], with this trend being particularly prominent in the IT sector, where hybrid working reaches 49%.

Notably, among organisations responding to the 2025 survey, 5% of those located outside Greater London cited location as a challenge, compared to 3% of those based within Greater London, indicating slight variation based on geography.

Retention

While not explored in the survey, retention emerged as a key issue in interviews. Respondents highlighted several challenges in retaining AI talent, including the competitive nature of the AI industry, where high

4

https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/whoarethehybridworkers/2024-11-11

demand for skills frequently leads to higher salary offers from other companies. This competition on salary makes it difficult for organisations, especially smaller ones, to retain talent.

Several respondents mentioned the importance of providing strong career pathways, opportunities for growth, and continuous development to retain employees. Additionally, non-financial benefits such as a positive work culture, flexible working arrangements, and a focus on wellbeing and social responsibility contribute to employee retention.

> "Retention of AI talent is a significant challenge due to shifting expectations and the evolving nature of the workforce." – large defence company with AI capability

Some respondents highlighted the impact of job security and financial stability on retention, particularly for start-ups. Uncertainty around company viability and cash flow can lead to concerns among employees, affecting retention rates. Additionally, the cost of living in certain areas, such as London and the Southeast, can influence employees' decisions to seek opportunities elsewhere.

Recruitment

To examine how vacancies are being filled, primary recruitment methods have been captured and analysed, as illustrated in figure 11 below.

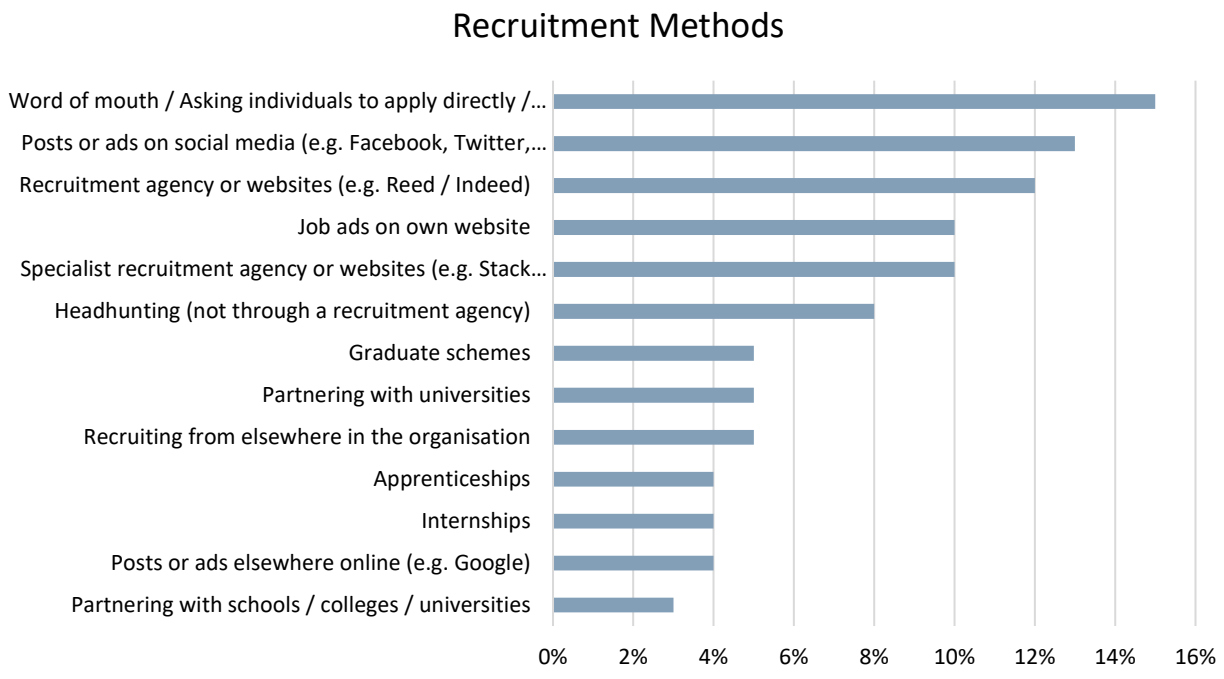

Figure 11: Recruitment methods utilised (2025 sample size: 68) – the data above displays the primary method used

At 15%, word of mouth was the highest used recruitment method for AI roles, followed by social media sites at 13%.
When looking at the change in trends between 2020 and 2025, there have also been some notable changes – captured in figure 12 below:

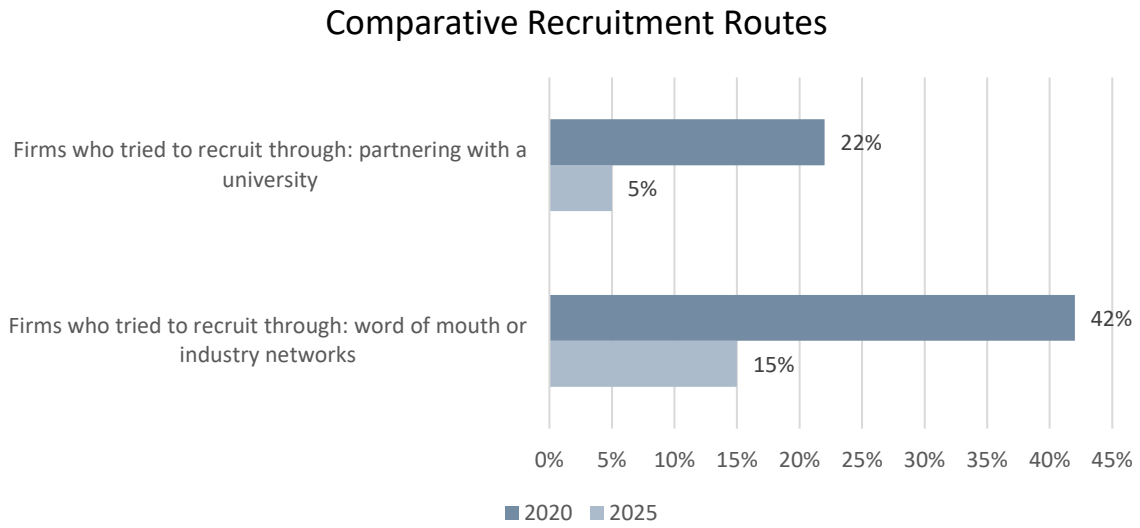

Figure 12: Comparative recruitment routes (2025 sample size: 68)

While word of mouth was the most commonly stated recruitment route, it has dropped significantly from 42% in 2020, to 15% in 2025, demonstrating the diversification in recruitment modes. This may also suggest that AI skills are more widely recognised, and more traditional recruitment methods such as social media are therefore more successful. It is worth noting this does not necessarily mean that fewer people are recruited this way. It may reflect that increased demand has been part of the diversification. The 'mainstreaming' of AI may have also lead to more traditional recruitment methods proving more successful, as the general understanding of AI is likely to have increased in the last five years.

Another notable change relates to partnering with universities. This approach dropped from 22% in 2020 to 5% in 2025. Again, this may suggest more traditional routes are proving more successful.

7. WORKFORCE PATHWAYS

This section of the report explores the pathways followed by employees to begin their careers in the field of AI, or how organisations are accessing these individuals.

Key findings from this section

- Graduate degrees are still the primary entry route for AI roles at 60%, up from 42% in 2020
- Apprentice opportunities for AI roles have increased significantly in the last five years jumping from 3% to 19% between 2020 and 2025
- There are almost identical proportions of individuals coming from experienced professionals new to AI and graduate entry routes at 35% and 36% respectively
- However, for SMEs the graduate entry is less prominent with only 14% compared to large organisations at 44%
- Within the interviews conducted, graduate recruitment posed a challenge due to the lack of experience that cannot be obtained through current education pathways, and due to the lack of commercial applications of theoretical learning

7.1. FINDINGS

Recruitment paths

The graph below outlines the various pathways by which organisations brought individuals into AI roles.

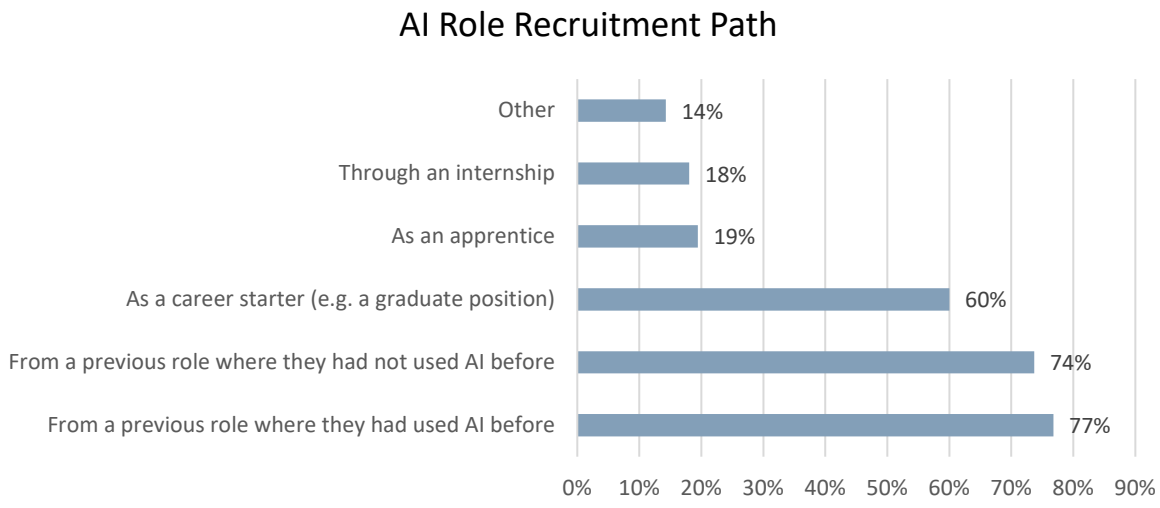

Figure 13: AI role recruitment paths (2025 sample size: 114)

As shown in Figure 13 above, the most common pathway into AI roles was from previous AI roles, either internally or externally, with 77% of respondents using this method. This again speaks to the retention issues referred to in the previous section. A high proportion of organisations (74%) hired individuals from a previous role that did not involve AI, potentially indicating that individuals needed to be retrained (either from a different field or in an untrained entry-level position).

Within junior roles, there have been significant increases in the use of 'career starter' routes since 2020. Figure 14 shows the proportion of organisations who use these pathways.

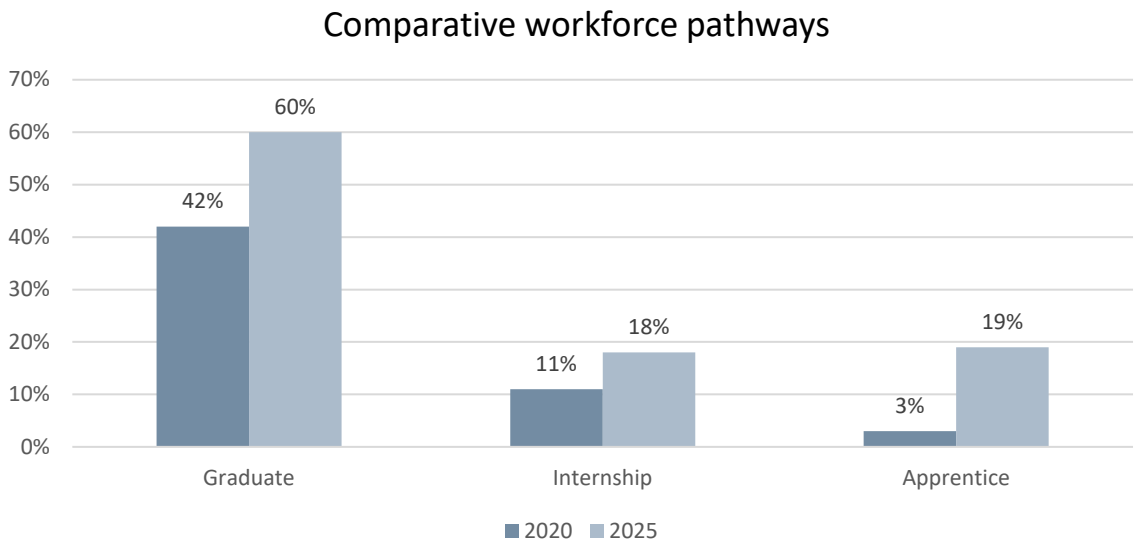

Figure 14: Comparative AI Role recruitment paths for junior AI roles (2025 sample size: 114)

Figure 14 also shows a positive step forward within the AI sector, with entry-level roles becoming more accessible to those with different education paths, and with organisations and education bodies beginning to understand how to train junior staff in technical skills.

Alongside this are qualitative findings which outline major problems in graduate pathways such as misalignment of AI courses with industry needs. Many respondents noted that university courses tend to focus heavily on theoretical knowledge and research-driven projects, often neglecting practical, business-oriented applications. This results in graduates who may have strong technical foundations but lack the hands-on experience and problem-solving skills needed to thrive in a rapidly changing industry.

The graph below outlines the number of employees who have secured AI roles through the pathways surveyed.

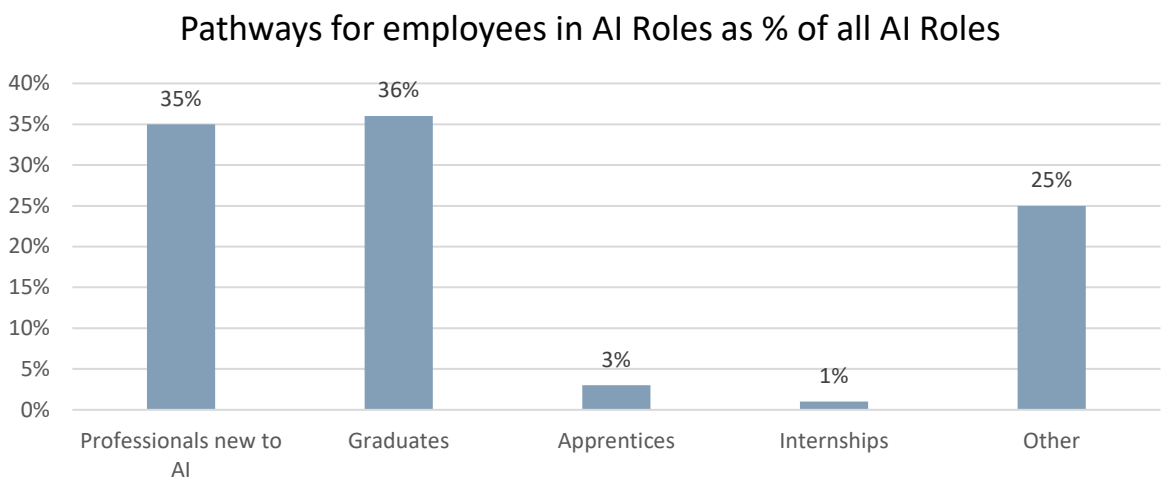

Figure 15: AI role pathways as proportion of all AI roles (2025 sample size: 114)

Figure 15 shows that while 19% of organisations are now hiring apprentices in AI roles, they only represent 3% of their AI workforce. Within the interviews conducted, apprenticeships were frequently brought up by small and large organisations alike, who stated the desire to develop a workforce that develops technical experience and commercial application while also learning theory. However, this is yet to resonate within the AI workforce – potentially due to the current focus of apprenticeships in other fields. It is unclear if this is a demand or supply issue, though further review of apprenticeships at large across the UK provides more clarity as to the potential causes.

When looking at the UK Government's Apprenticeship Statistics Updated in January 2025[5], 'digital technology' made up just 7% of apprenticeship starts in the year 24/25 (at the point of the January 2025 data refresh). If this is expanded to include 'science and mathematics' and 'engineering and manufacturing technologies' (alongside 'digital technology'), the figure increases to 25.7%. This increase is derived mostly from 'engineering and manufacturing technologies', an area that only partially includes AI. It is worth noting that 'science and mathematics' made up just 0.3% of apprenticeships in this period, showing that apprenticeships are not commonly used for STEM subjects. However, for Higher Apprenticeships (post A-Levels or equivalent), this figure rises by 8.1% between 23/24 and 24/25. This level of apprenticeship may become a more significant route into the AI sector going forward.

Interviews highlighted another key challenge related to apprenticeships, specifically the requirement for apprentices to complete a formal qualification alongside their training. Respondents noted that these qualifications can quickly become outdated, making it difficult to establish standardised pathways for apprentices in the rapidly evolving AI landscape.

> "A key reason for this gap is the rapid evolution of technology. Even structured learning programmes, such as AI-focused apprenticeships or academic curricula, struggle to keep pace with constant advancements. By the time a curriculum is developed and delivered, the landscape has often moved on." – medium-sized AI consultancy

[5] https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships#explore-data-and-files

Graduates, on the other hand, made up a significant proportion of the AI workforce within responding organisations, demonstrating the value of university education in the sector (as further explored in the subsequent section on education). This also demonstrates the significant opportunities in AI for those early in their careers. Interviews identified work experience as a key challenge in sourcing suitable talent. As a result, respondents suggested that expanding internships and apprenticeships could be a natural area for further development.

> "Universities should focus on more practical experience—such as internships, industrial placements, and collaborations with businesses—to give students a better understanding of how AI works in a commercial context." – micro AI company

Entry-level AI recruitment trends vary based on company size, as shown in the table below.

Organisation size	Apprenticeships	Graduates
Large	4%	44%
SME	2%	14%

These formal career pathways are more commonplace in larger organisations, potentially allowing them to build more AI capacity as they can allow for greater internal training and gradual development of candidates. A key factor is the investment in training and development that graduates and students require.

> "Students need thousands of hours of training, using AI tools every day to build the real-world experience needed for the future." – micro AI consultancy

For SMEs, limited capacity and internal resources may hinder an organisation's ability to invest in training students to meet business requirements. Unlike larger organisations, SMEs often lack the infrastructure to support extensive in-house training, making it more challenging to develop AI talent internally.

Regionality also plays a significant role in shaping the pathways through which AI employees are sourced. Outside of London and the South of England, only 5% of AI roles were filled through the graduate pathway. In contrast, within London, the Southwest, and Southeast England, this figure rises to 53%.

8. INTERNATIONAL RECRUITMENT

This section focusses on international recruitment, how overseas AI skills are being brought into the UK market to boost labour supply, and the key challenges organisations face when adopting this route.

Key findings from this section

- While the majority of responding organisations did not hire from outside the UK, a significant proportion (38%) did
- The most common reason given for this was lack of available skills, followed by finding the best candidate, and then cost efficiency
- However, there were challenges in non-UK sourcing of labour, most common being visa challenges followed by cost and security clearance constraints

8.1. FINDINGS

Firstly, the survey sought to understand the frequency of overseas hiring for UK AI companies. The graph below displays the proportion of organisations who have, and those who have not, recruited from outside of the UK.

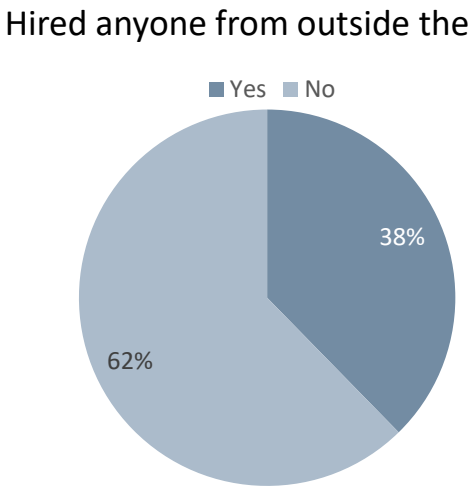

Figure 16: Overseas recruitment (2025 sample size: 69)

The majority of organisations that responded are not currently recruiting overseas. However, a significant portion (38%) are. For organisations who identified as Group 1 (commercially developing AI solutions) this is higher (41%) than those in Groups 2 & 3 (25%). This trend suggests a greater reliance on international talent for specialist AI skills.

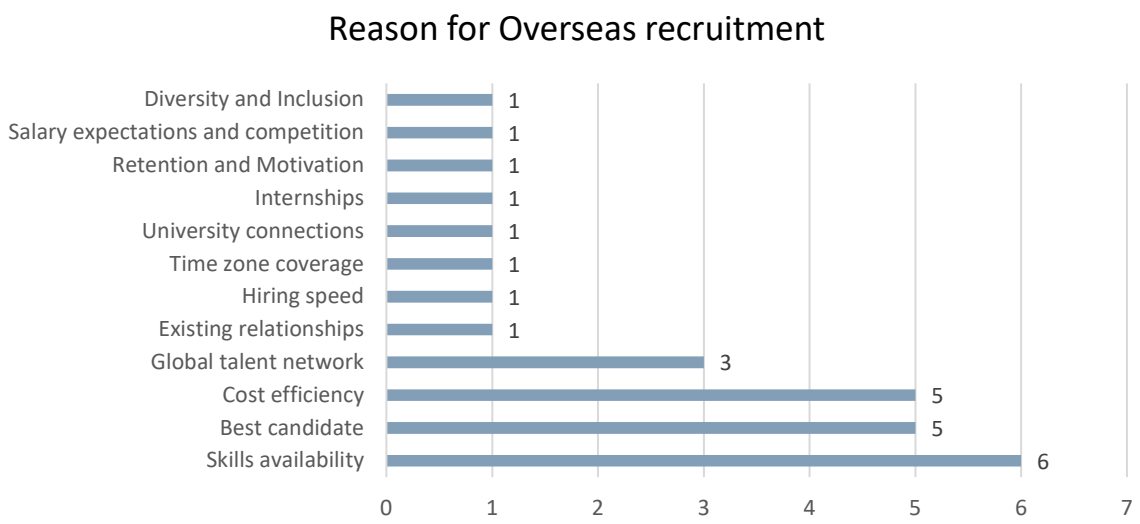

Figure 17: Reasons for overseas recruitment (2025 sample size: 27)

There were a diverse number of reported reasons for overseas recruitment, with the most common being skills availability, closely followed (and highly linked to) finding the best candidate. This shows that certain skillsets are difficult to find in the UK labour market. This was also mirrored in interview research, with the rapid pace of AI development and the need for specialist skills meaning that international candidates may be more technically prepared. This is due to an emphasis on STEM subjects and innovation in countries such as China and the US. Respondents noted that the technical skills displayed by entrepreneurs from these regions are often phenomenal, with institutions like Stanford University, Massachusetts Institute of Technology (MIT), and various Chinese universities producing highly skilled graduates. This cultural emphasis on STEM subjects and strong links with innovation contribute to the advanced technical skills found in international candidates.

> "AI skills are definitely more readily available internationally, particularly in the US, where the AI market is far more mature." – large international technology company

Cost efficiency is the next most commonly cited reason – likely due to lower salary expectations from certain countries such as India. This assumes, however, that additional costs from international recruitment are negated. As interviews indicated, cost-efficient recruitment was perceived as more of a challenge than an opportunity, with visa and security access making this prohibitive. While overseas recruitment may offer access to specialist skills, it is not without significant barriers. Additionally, visa availability was highlighted as a challenge, further complicating efforts to recruit international talent, as discussed in interviews.

> "The government could change the regulations around the Global Talent Visa, it would make a huge difference. Right now, it's quite limited—only around 200 or 300 people can get a visa, which isn't enough." – medium sized AI company

The figure below explores the challenges that organisations face in conducting overseas recruitment. This highlights the barriers that may be limiting the UK's AI sector if recruiting the right individuals domestically is proving to be a challenge.

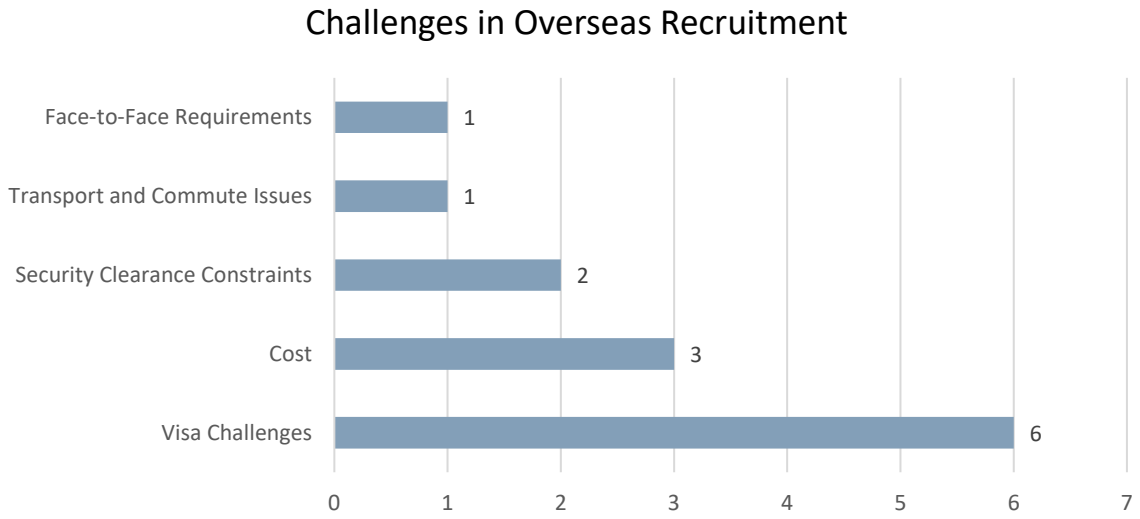

Figure 18: Challenges in overseas recruitment (2025 sample size: 13)

Figure 18 shows that 6 out of 13 (46%) respondents cited visa challenges as the most common issue when recruiting from overseas. This was an area previously identified in the 2020 report and remains a challenge for organisations operating in the UK AI sector.

The cost of overseas recruitment was the second most common challenge, potentially offsetting the cost benefits that initially motivated hiring from abroad.

Interviews uncovered additional challenges that were not present in the survey – such as language and cultural barriers affecting effective communication with supplementary efforts required to ensure cultural fit.

Finally, one key area of note is security clearance constraints. Organisations working with the public sector or secure industries where clearances are required experience barriers in being able to deploy individuals from overseas on certain projects. This was backed up within the interviews where multiple organisations stated that security clearance requirements, particularly in the defence and government sectors, further complicate international hiring. These roles often require candidates to have lived in the UK for a certain period, limiting the pool of eligible international candidates. This is a significant hurdle, as it restricts the ability to provide full exposure across projects. This issue is especially important for those working in functions such as business development where access to comprehensive information is necessary.

9. SKILLS GAPS

This section of the report focusses on specific skills gaps in the AI labour market to understand whether there are particular key skillsets or techniques that are in high demand but are proving difficult to source.

Key findings from this section

- There has been a number of key changes in the specific skills gaps identified between 2020 and 2025
- Lack of user experience skills has fallen by 28%, lack of systems and software engineering skills has fallen by 18%, and lack of programming skills has fallen by 26%
- However, understanding AI concepts and algorithms remains the most significant skills gap, and data management has emerged as a new key gap in this survey
- Technical skills gaps have increased by 8% (with 57% of businesses reporting a gap), while non-technical skills remain a significant gap (cited by 30% of respondents)
- The combination of these challenges has led to a significant proportion (28%) of organisations stating that existing employees lacking technical skills has prevented them from meeting business objectives
- 100% of respondents cited at least one of the four key vacancy issues affected their ability to meet their business goals

9.1. FINDINGS

97% of respondents identified at least one skills gap in the AI labour market. This can be seen in figure 19 below, where the breakdown of technical skills gaps is displayed.

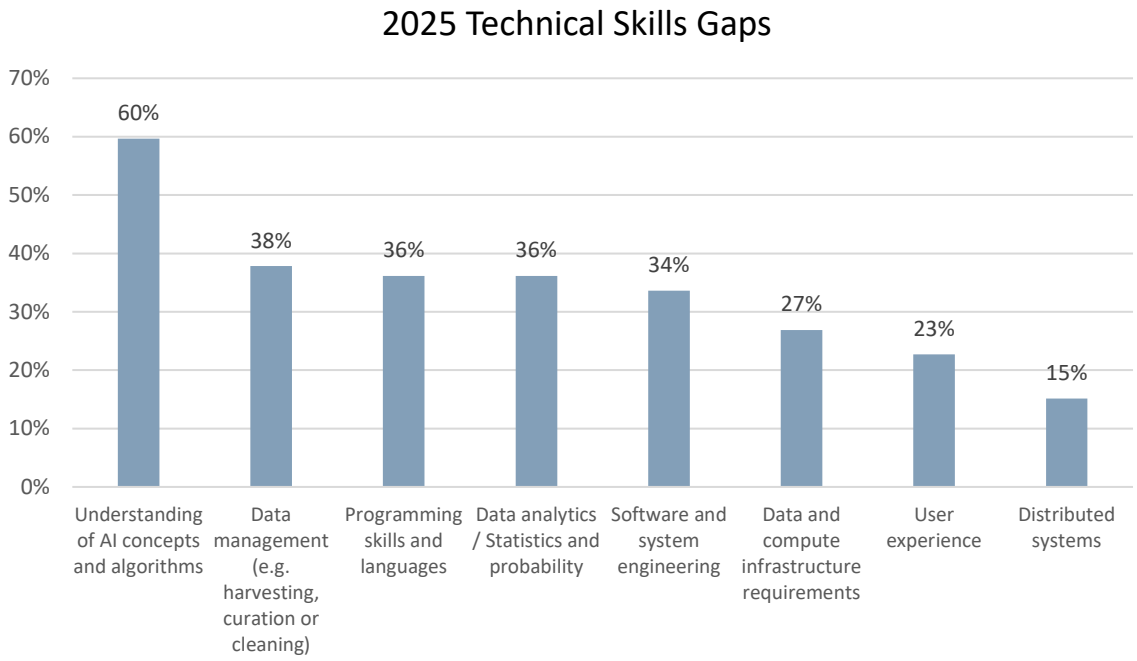

Figure 19: 2025 technical skills gaps (2025 sample size: 119) – respondents had the option to select more than one response

Understanding AI concepts and algorithms is the most prominent skills gap (consistent with the 2020 report – see figure 20). This is the most fundamental gap in the market and ties together the issues the AI sector faces in education and training. This gap is struggling to close as AI is constantly developing and, as explored in sections 10 and 11 of this report, current education and training routes cannot evolve at the same speed as technology.

A new gap identified in this report is that of data management, an adjacent yet critical skillset required for AI development, which 38% of respondents cited as a key gap. Similarly, data analytics/statistics is an adjacent skillset but 36% of organisations cite this as a key gap.

Figure 20 below illustrates the changes in skills gaps between 2020 and 2025.

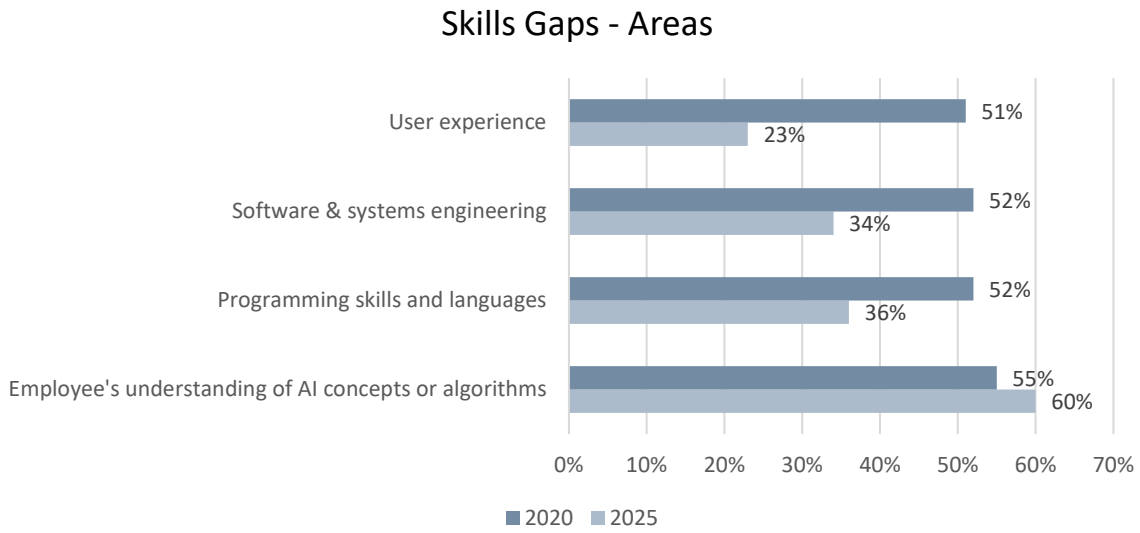

Figure 20: Comparative skills gaps (2025 sample size: 119)

As illustrated in Figure 20, significant progression has been made within:

- User experience (28 percentage point reduction of organisations citing this as a skills gap)
- Software and systems engineering (18 percentage point reduction)
- Programming skills and languages (16 percentage point reduction)

These results indicate a progression in training and development and the material impact this is having on an organisation's ability to find these skillsets.

However, the most commonly cited gap from the 2020 survey – employee understanding of AI concepts or algorithms – has increased from 55% to 60% between 2020 and 2025. This may be due to the continuous development and advancement of concepts/algorithms, which would suggest that this gap may never fully close – representing a key issue that is difficult to address.

> "People are overwhelmed, too much information, too much to learn... people just don't have the time, capacity, bandwidth and or other reasons to actually engage and get involved in AI." – micro AI-focused company

The graph below compares technical and non-technical skills gaps between 2020 and 2025.

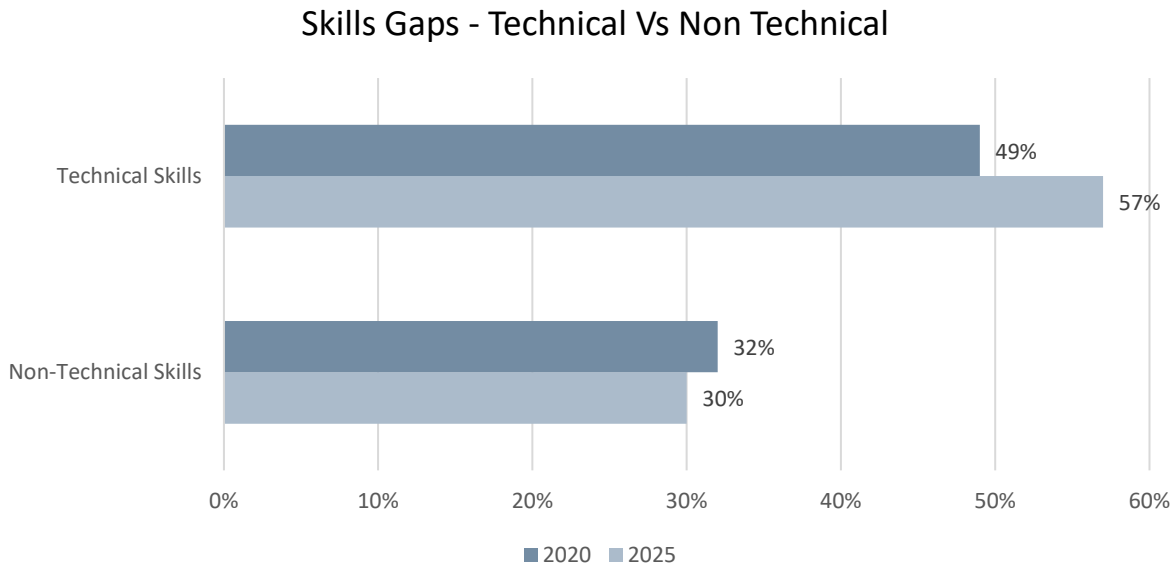

Figure 21: Comparative skill gap groups (2025 sample size: 119)

Aligning with previous figures, the gap in technical skills has increased between 2020 and 2025, rising from 49% to 57%. However, for non-technical skills (also crucial for AI organisations), the gap has reduced marginally from 32% in 2020 to 30% in 2025. While this drop does signify progression, it still remains a key gap for nearly a third of organisations, with non-technical skills also cited multiple times during interviews.

Figure 22 below presents a comparison between the two surveys, highlighting the impact of skills gaps on an organisation's ability to achieve business goals.

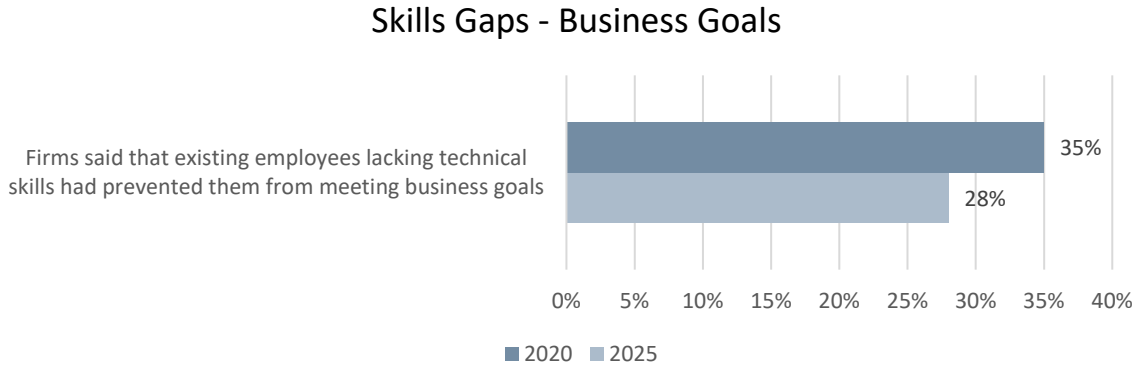

Figure 22: Skills gaps and business goals (2025 sample size: 119)

Figure 22 above illustrates a 7 percentage point reduction in skills gaps since the 2020 survey, with 28% of organisations in 2025 identifying this as a factor impacting their ability to achieve business goals. However, despite this improvement, skills shortages remain a concern, with nearly a third of organisations still citing them as a barrier to business performance.

10. EDUCATION & QUALIFICATIONS

This section explores the level of education and qualifications of individuals occupying AI roles within the responding organisation's AI. This supports the understanding of the level of education required in the AI labour market at this time, and also how this has changed since the last survey was completed in 2020.

Key findings from this section

- There is still a significant presence of advanced qualifications in AI roles, with the majority of organisations requiring PhD-level resource and a growing number using master's level
- Data science qualifications in the labour market have increased significantly, growing from being present in 48% of businesses in 2020 to 66% in 2025
- Computer science remains the most common qualification for individuals at 76%, however a number of other 'non-AI specific' qualifications have a significant presence, including maths, social sciences and physical sciences
- Particularly through the qualitative feedback obtained, a number of other courses were cited, including psychology and philosophy (as AI evolves to focus on understanding and mimicking human intelligence, and continued discussions on AI ethics require a different skillset to those traditionally sought)

10.1. FINDINGS

While the prevalence of PhDs has remained largely unchanged, the rise in master's degrees in 2025 suggests either that roles are growing more complex and demanding higher levels of education, or that increased competition is raising the educational requirements for these positions.

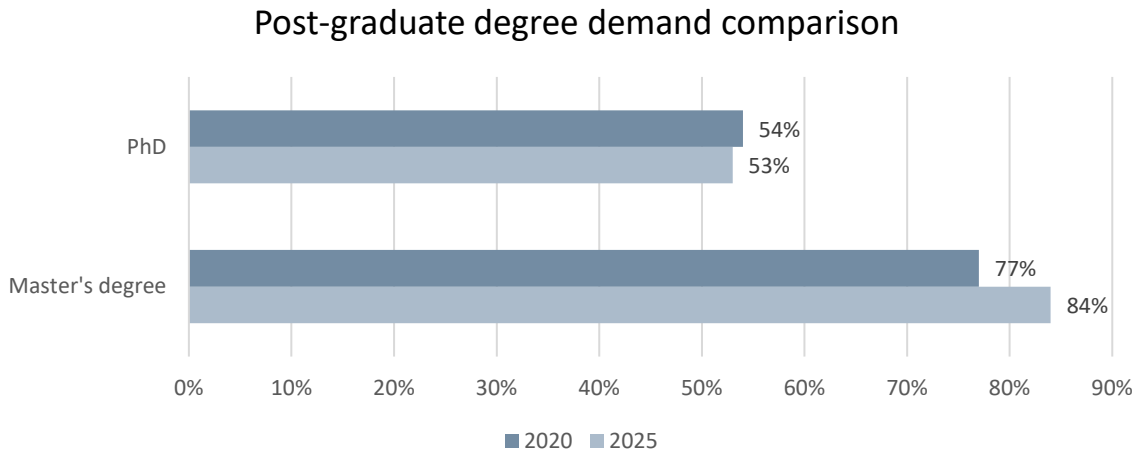

Figure 23: 2020 vs 2025 post-graduate degree demand comparison (2025 sample size: 119)

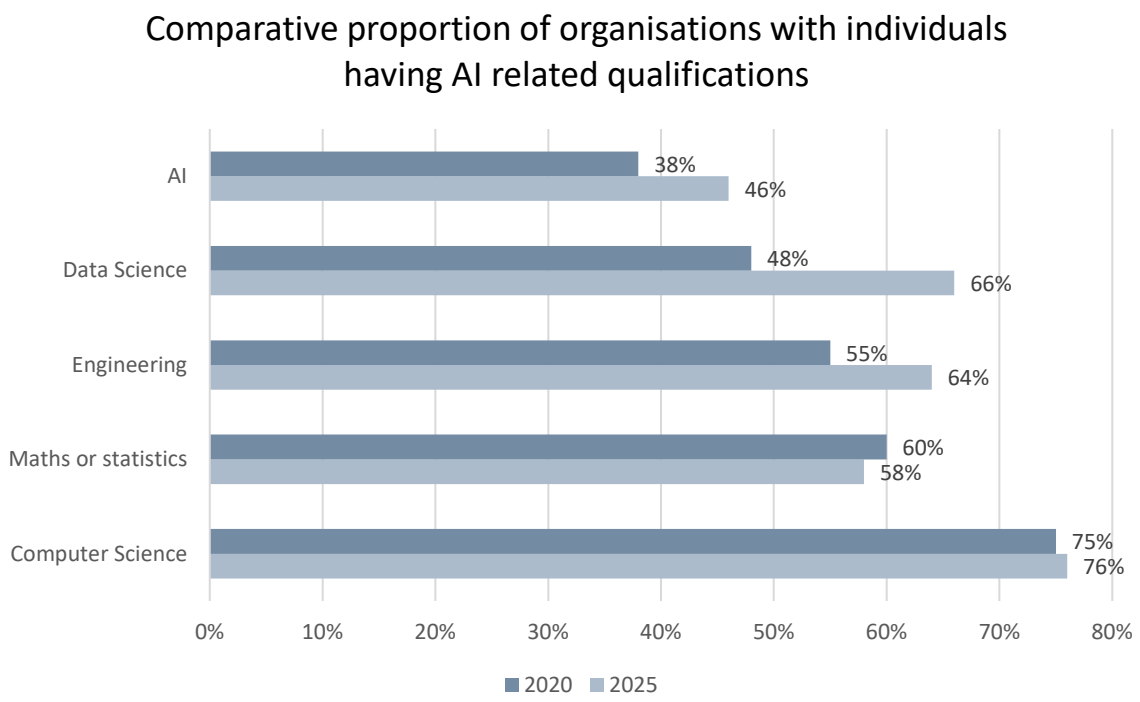

Figure 24: Comparative proportion of organisations with individuals having AI-related qualifications (2025 sample size: 114)

When examining courses undertaken over the last five years, several significant trends emerge. Data Science has experienced substantial growth, with 66% of organisations now reporting that they have hired an AI professional with a data science qualification—an increase from 48% in 2020. This highlights both the growing importance of data science in emerging AI applications, and the rising availability of related educational programmes.

Engineering has also seen a notable shift, with a 9% increase in the past five years. Meanwhile, other fields of study have remained relatively consistent, with Computer Science continuing to be the most common qualification among AI professionals in the surveyed organisations.

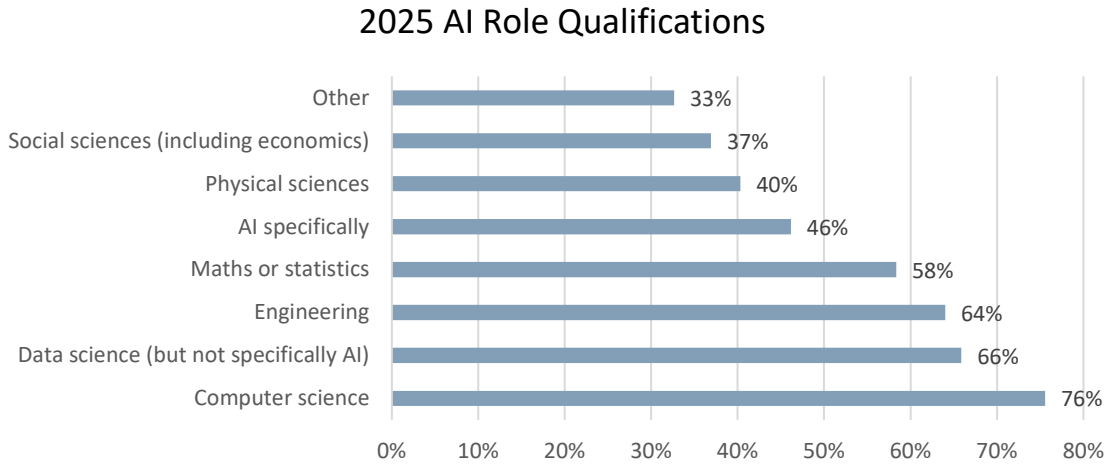

Figure 25: AI role qualifications (2025 sample size: 114)

The 2025 survey also captured data on higher education qualifications to identify whether new academic pathways are emerging as key contributors to the AI workforce.

Computer Science remains the dominant qualification in the field. However, a broader range of degrees is also playing a significant role. Notably, 37% of organisations have hired AI professionals with a background in Social Sciences—an area not traditionally linked to AI. Meanwhile, 40% have filled AI roles with individuals holding degrees in Physical Sciences (biology, chemistry, physics).

Qualitative insights further reinforce this trend, revealing that while technical skills are relatively easy to acquire, the industry is facing a growing demand for creative and empathetic competencies. Skills related to user experience, content design, and human-centred AI development are becoming increasingly valuable, as they help bridge the gap between technical functionality and real-world usability. These non-technical skills are proving essential for designing AI interactions that are not only efficient but also intuitive and engaging for users.

> "Finding technical skills is not particularly a challenge... but there is a lot of creative thinking and empathetic type skills that come from other disciplines."– respondent in interview

11. TRAINING

This section of the report focusses on training as opposed to formal education or qualifications. This is becoming an area of increasing importance due to the pace of change and development of AI, and the perceived inadequacy of formal qualifications.

Key findings from this section

- Training is still being provided predominantly informally rather than formally at 88% and 52% respectively
- Training has become paramount for responding organisations with 100% stating that employees had undergone AI training
- Training has also increased in frequency in different areas of AI including ethics and bias training
- 95% of organisations stated they had conducted training focused on technical knowledge or skills, meanwhile only 13% of organisations had provided AI training as part of a graduate training programme
- In interviews, a hybrid training model (external and internal) was preferred – with the importance of informal training highlighted for developing 'on-the-job' skills

11.1. FINDINGS

For this survey, training has been defined in two ways:

- Formal training as 'structured and planned – often undertaken through online courses, workshops and conferences'
- Informal training as 'unstructured – often happens on the job or in a mentorship programme; self-directed and asynchronous, involving activities undertaken by the individual, like experiential/workplace learning, reading and research'

62% of surveyed firms reported that employees in AI roles had undertaken internal or external training in the last 12 months to improve their knowledge and skills. This has increased significantly with **100% of respondents in the 2025 survey** stating their employees in AI roles have completed **formal and/or informal** training.

As shown in the graph below, informal training has been deployed by almost all respondents, with 88% indicating that they have informally trained their employees. By comparison, only 52% deploy formal training, and 40% of firms' employees have undertaken both types of training.

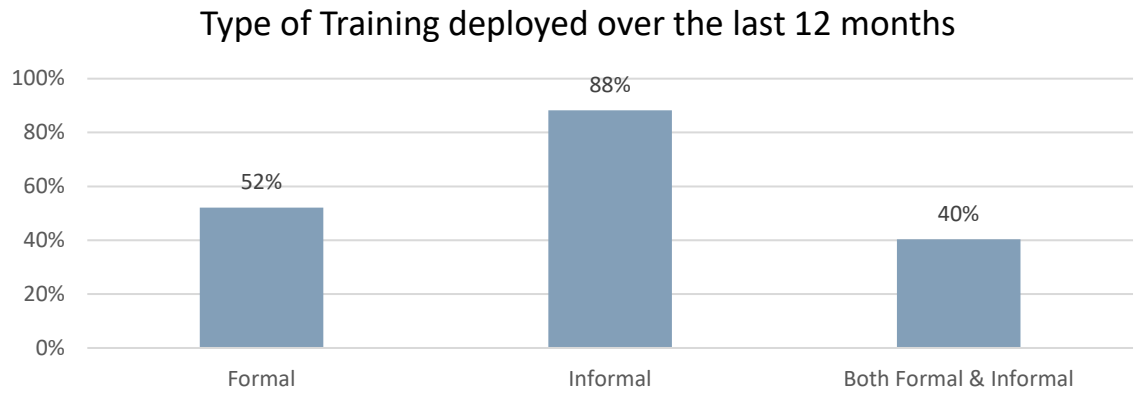

Figure 26: Respondent training (2025 sample size: 119)

This increased requirement for training between 2020 and 2025 could likely be due to the increased adoption and continued development of AI.

In 2020, a majority of firms had trained their AI and data science employees in the last year, though much of this was informal.

In interviews, several respondents mentioned the use of hybrid approaches, combining both formal and informal training to create a dynamic learning environment. This blended approach ensures that employees receive both the theoretical knowledge and practical skills needed to excel in AI roles. For instance, some organisations conduct formal training sessions to establish a foundational understanding of AI, followed by informal training through real-world projects and client interactions. This combination helps employees apply their learning in practical situations and stay current with the latest developments in AI.

This increase in training may also be due to the formalisation and maturation of external training routes such as courses from well-known organisations such as Microsoft and AWS (who were cited in the interviews).

However, informal training clearly brings unique benefits:

> "Informal training plays a crucial role, with a strong emphasis on learning on the job and immersion in customer environments." – large defence company with AI capability

As illustrated in figure 27 below, further evidence of an increased training requirement for those in AI roles is provided. Aside from improving AI knowledge and skills in general, AI ethics has become an increasing area of focus for training. In 2020, only 24% of individuals in AI roles completed training on this topic. In 2025, this proportion stands at 45%. Similarly, though to a lesser extent, the uptake of Massive Open Online Courses (MOOCs) has increased from 17% in 2020 to 22% in 2025 among individuals in AI roles.

Interviews provided specific feedback on the use of MOOCs, with organisations citing platforms such as Coursera and MIT Open Courseware as key resources. However, some employees expressed concerns that the vast amount of content available can be overwhelming. As a result, in some cases, organisations have reverted to established training partnerships to provide more structured learning pathways.

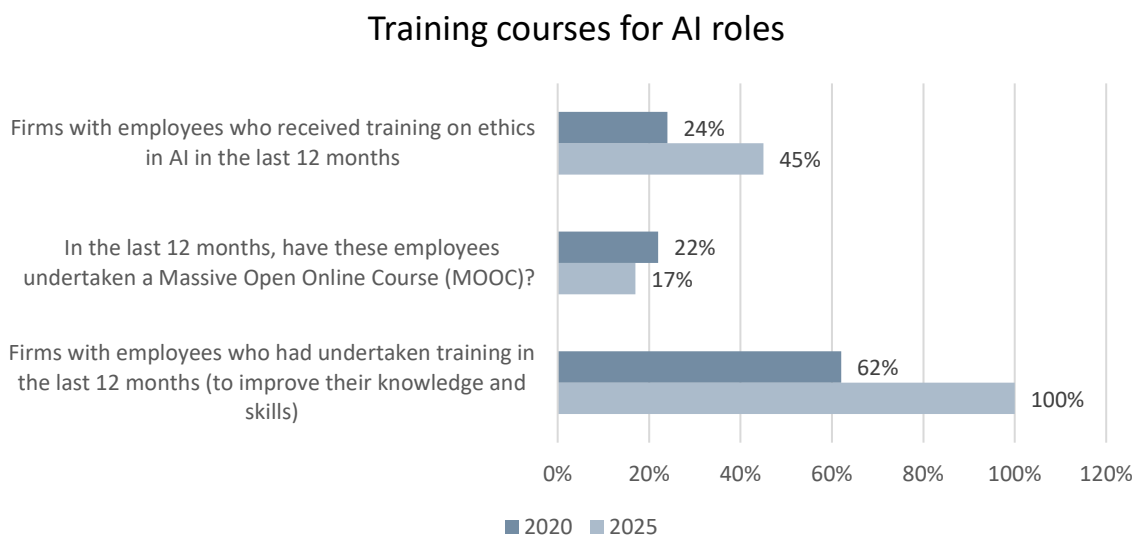

Figure 27: AI role training courses (2025 sample size: 119)

Within the 2025 survey, several new areas of training were captured to understand their current uptake.

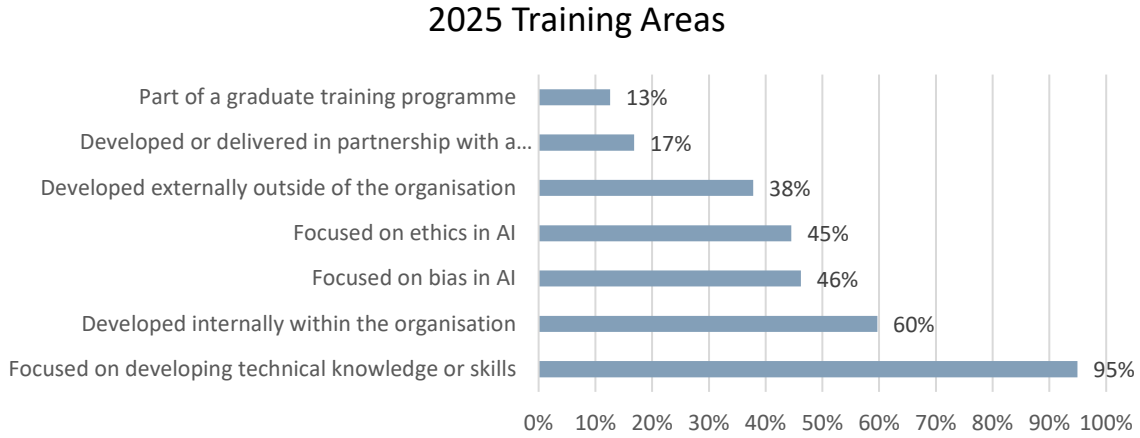

Figure 28: AI training types (2025 sample size: 119)

As shown in Figure 28, AI bias training has been more widely provided for AI employees, with 46% of responding organisations having completed training on this topic. The figure also shows a significant portion (60%) are developing training internally, in contrast to the 38% of training that is developed externally. This could suggest that external training courses could be outdated or not bespoke enough to meet changing demands, or that training is already being delivered sufficiently by larger organisations.

When examining the breakdown of internal versus external training across different types of organisations, distinct patterns emerge.

Group	External training	Internal training
1 (Commercially developing AI solutions)	32% (25 of 78)	65% (51 of 78)
2 & 3 (Developing AI solutions internally or using third-party)	49% (20 of 41)	49% (20 of 41)

The increased use of internal training for Group 1 organisations (commercially developing AI solutions) is likely due to the fact that the AI algorithms and models being developed will be bespoke and potentially proprietary. Therefore, external training may not be relevant enough to the specific work that organisations are conducting. This was supported by interview findings which cited in many cases that external training and formal qualifications were not specific enough to the commercial application of AI.

This of course corresponds with the increased use of external training for Groups 2 & 3 when compared to Group 1, where more generic training from external providers would be more applicable to those using internally developed or third-party AI tools.

12. WORKFORCE DIVERSITY

This section explores the impact of workforce diversity on the UK AI labour market and examines the challenges faced in building a diverse talent pool.

Key findings from this section

- The AI sector remains a challenging market for women with the proportion represented dropping 4% across AI roles in the period between 2020 and 2025
- Non-UK nationals are also making up less of the AI roles, with an increase of 10% of firms not having any non-UK nationals in AI roles
- The proportion of disabled employees in AI roles is behind the national proportion of disabled individuals in the overall workforce – illustrating additional challenges in the AI sector
- 43% of organisations employ LGBTQIA+ individuals into AI roles, accounting for 12.6% of total AI roles represented by responding organisations

12.1. ALL EMPLOYEES KEY FINDINGS

Gender

The figure below shows the proportion of responding organisations that do not employ any women in AI roles, and secondly the overall proportion of women in all AI roles within the organisation, in 2020 and 2025.

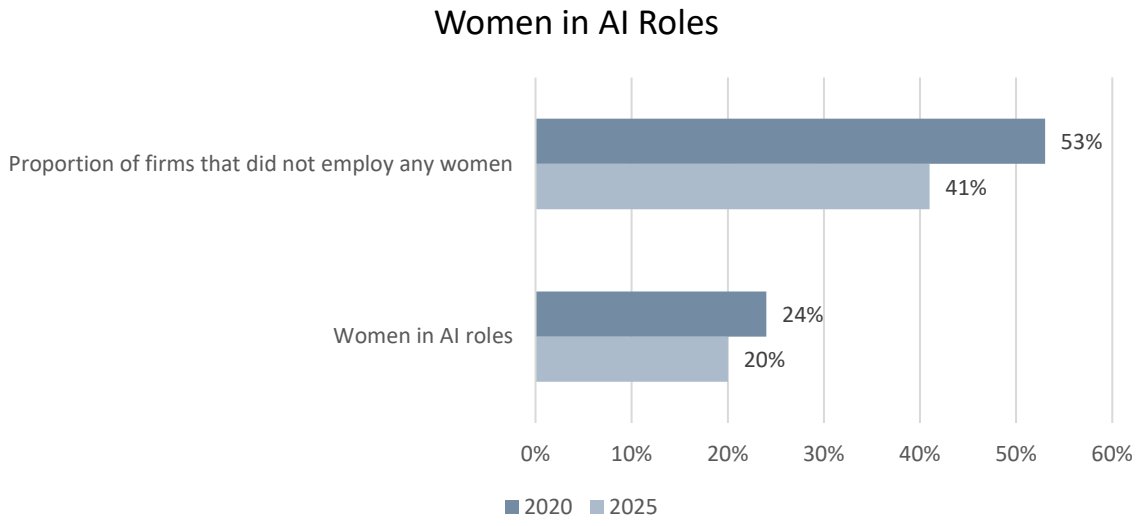

Figure 29: Comparative diversity data: women (2025 sample size: 104)

There has been a reduction between 2020 and 2025 in the number of organisations that do not employ any women in AI roles (from 53% to 41%). While this shows progress and no longer applies to the majority, a significant proportion of respondents still do not employ female staff in AI roles. The gap presented in these latest findings demonstrates a remaining challenge in increasing opportunity and accessibility of the AI sector to women. This may be driven by diversity challenges in supply or by the number of women undertaking training.

Figure 29 above illustrates the overall number of AI roles filled by women. Unlike the previous statistic, this has not improved between 2020 and 2025. Findings indicate a slight decline in the proportion of women in AI roles. This highlights an ongoing challenge for the sector. While more firms may be employing women in AI, the overall proportion is decreasing due to the rapid growth of the industry. The findings of this survey align closely with the data outlined within the Government's AI Opportunities Action Plan, where it shows that only 22% of people working in AI and data science are women. It is a recognised objective in the AI action plan to 'increase the diversity of the talent pool' which would include efforts to increase female representation in AI roles.

This topic was explored in depth during interviews. Many organisations faced difficulties in attracting women to AI roles, which was often attributed to societal norms and an education system that does not encourage girls to pursue STEM subjects. This results in a predominantly male talent pool, making it challenging to achieve gender diversity. Respondents noted that the gender gap is particularly pronounced in AI, and significant investment is needed to encourage more women to enter the field.

> "Building a diverse AI workforce presents challenges, but culture and societal norms play a significant role. You cannot force diversity overnight—it has to start early, from childhood, to influence career choices." – large defence company developing AI

Ethnic minorities

The graph below compares data on ethnic minorities in AI roles between the 2020 and 2025 surveys.

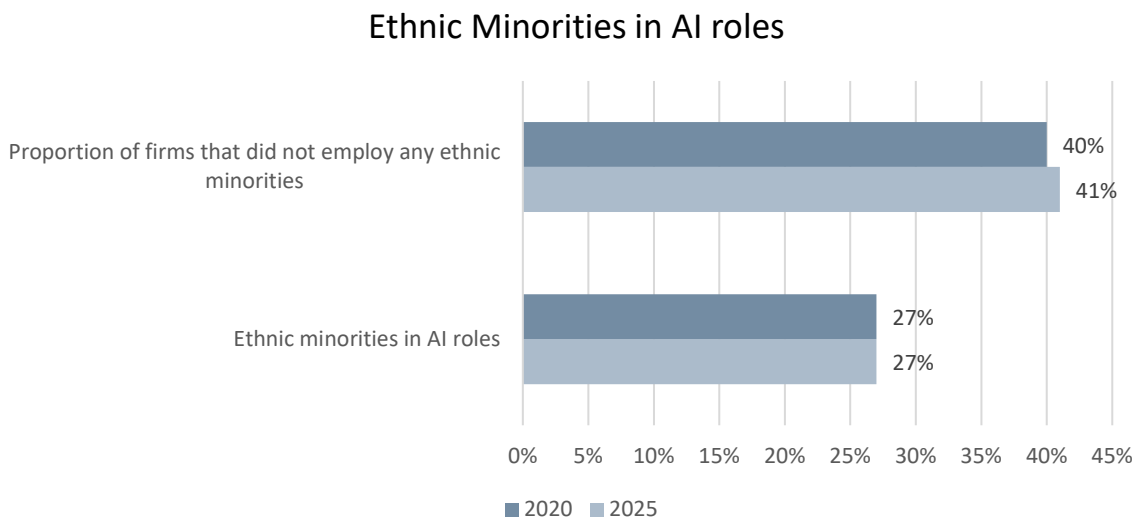

Figure 30: Comparative diversity data: ethnic minorities (2025 sample size: 96)

The proportion of firms who do not employ people from ethnic minorities in AI roles, and overall ethnic minorities in AI roles, remains largely unchanged. Between the two surveys, there has been a small increase in the proportion of firms who do not employ any people from ethnic minorities, and overall proportions stayed the same. However, the figure of 41% represents a major challenge as this is still a significant proportion of organisations. Both areas shows little to no progression over the last five years.

Non-UK nationals

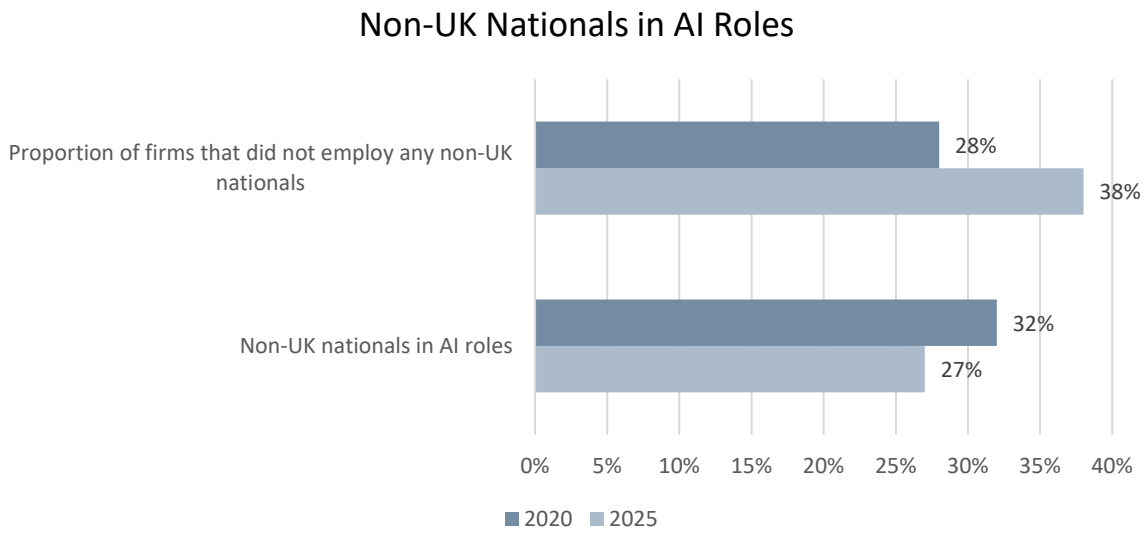

Figure 31: Comparative diversity data: non-UK nationals (2025 sample size: 92)

As shown in Figure 31, there has been a notable increase in the proportion of firms that do not employ any non-UK nationals – from 28% in 2020 to 38% in 2025. This sharp rise signifies increased challenges in addressing this area and significant regression over the last five years. This finding correlates with the challenges previously identified in the section on international recruitment, which cites the challenges faced when hiring non-UK nationals. Many of the difficulties such as visas and cost implications may have contributed to this reduction in non-UK nationals in AI roles, perhaps exacerbated by the impact of leaving the EU and the effects of the COVID-19 pandemic on travel.

Similarly, the proportion of non-UK nationals in AI roles overall has decreased by 5%, aligning with the previous analysis on recruiting labour from outside the UK (see section 10).

Wider diversity

In other aspects of diversity, the survey captured key data around gender, sexuality and disabilities. Some of the key findings from this part of the survey include:

- 7% of responding organisations employ in AI roles individuals with registered disabilities, who account for just over 1% of total roles focussed on AI in the respondent organisations. According to official statistics from the Department for Work and Pensions[6] (updated 20 November 2024), approximately 13% of all working people in the UK are disabled and the AI sector therefore reflects an underrepresentation of disabled individuals.
- 43% of surveyed organisations employ LGBTQIA+ individuals in AI roles – accounting for 12.6% of total AI roles within the 32 respondent organisations. According to UK Parliament 2021 census report[7], an estimated 3.2% of the UK population aged 16 years and over identified as LGB+. While this is not directly comparable, it highlights a proportionally strong representation for individuals from this group.
- 40% of responding firms indicated that they employee in AI roles people who are neurodiverse. A commonly cited source for neurodiversity in the population is around 15-20%, suggesting that neurodiverse individuals are well represented within the AI workforce[8],

Interview outputs emphasised the importance of early education and cultural shifts to encourage a more diverse group of people to pursue careers in AI. Initiatives such as partnerships with universities, boot camps and training programmes for individuals from disadvantaged backgrounds were mentioned as effective ways to improve diversity. For example, partnering with organisations such as Generation UK, which offers free training programmes for individuals from lower socio-economic backgrounds, can help remove financial and educational barriers to entering the tech industry.

[6] https://www.gov.uk/government/statistics/the-employment-of-disabled-people-2024/the-employment-of-disabled-people 2024#:~:text=The%20latest%20data%20shows%20that,as%20disabled%20continue%20to%20rise
[7] https://commonslibrary.parliament.uk/2021-census-what-do-we-know-about-the-lgbt-population/#:~:text=What%20were%20the%20results%20on,and%20queer%20(15%2C000%20people).
[8] https://academic.oup.com/bmb/article/135/1/108/5913187#219133554

12.2. SENIOR ROLES – KEY FINDINGS

Data was collected for senior roles specifically, to understand how diversity is represented across different levels of organisations.

The importance of diversity at senior levels was emphasised in interviews, with organisations highlighting the role of leadership in setting the tone for diversity and inclusivity. Encouraging diversity starts with leadership advocating for a workplace where everyone can thrive. Additionally, some respondents mentioned the need for greater awareness and education around AI careers, particularly for women and other underrepresented groups. Educating individuals about alternative entry routes into AI, such as apprenticeships or non-traditional schemes, can help to increase diversity and broaden access to the field.

Focus area	Proportion of senior AI roles in respondent organisations filled by defined employees	Proportion of respondents with no defined employees in senior AI roles	Response rate
Women	28%	45%	97%
Non-binary	3%	91%	94%
Ethnic minority	23%	61%	92%
Non-UK nationals	17%	60%	94%
Disability	1%	87%	91%
Neurodiverse	9%	69%	82%
LGBTQIA+	2%	68%	78%

According to the House of Commons Business Statistics November 2024[9] report, of the UK's small- and medium-sized enterprises, 15% were led by women in 2023. When compared with the findings in our survey, 32% of AI leaders in respondent organisations that are classed as SMEs were female.

[9] https://researchbriefings.files.parliament.uk/documents/SN06152/SN06152.pdf

13. RECOMMENDATIONS

This section divides the recommendations for government into two sections. The first section outlines recommendations for the next iteration of this survey as a result of uncovering areas that may require further exploration in the future. The second section sets out key actions from the AI Opportunities Action Plan[10] that could contribute to addressing the gaps identified by this survey's findings. These actions have been supplemented by additional recommendations drawn from the findings of this report.

Recommendations for the next iteration of this report

- Firstly, and most importantly, based on the current rate of change and importance of AI in the UK labour market, the next iteration of this report should be conducted no more than one year after the publishing of this report. The previous five-year gap is far too long to allow the UK to effectively track the success of its initiatives and check progress.
- New roles should be surveyed and compared to the backfilling of existing roles when looking at the number of vacancies. This would uncover further detail as to whether vacancies are driven by expansion of focus areas or by individuals moving out of current roles.
- Diversity data within areas of training should be obtained. By doing so, further findings and insights can be uncovered as to whether training is a contributing factor to the overall diversity challenges within the AI sector (vs recruitment issue or bias factor).
- More time for interviews should be allowed. Interviews were found to be incredibly rich in detail and a crucial part of the research process. In future, outputs could be improved by considering a six-month total process – allowing time for a greater number of interviews.

[10] https://www.gov.uk/government/publications/ai-opportunities-action-plan/ai-opportunities-action-plan

AI Opportunities Action Plan

The AI Opportunities action plan included actions that are aimed at addressing the AI skills gap. Based on the evidence discussed in this report, below are our recommendations that can help focus the actions in the right areas.

Action	Overview of action	Recommendation based on report findings
14	Accurately assess size of skills gap.	This report will help support the Department for Education in completing this action – please refer to section 9 of this report
15	Support Higher Education Institutions in increasing numbers of AI graduates and in teaching industry-relevant skills	This action is important due to the reliance on graduates for AI roles and the significant proportion of roles met through this route. This is further reinforced with lack of work experience being a key cause of capability gap and difficulty filling vacancies. Therefore, an **industry/university partnership** to equip students with both technical skills and work experience could be massively beneficial. Key to this, however, will be **overhauling current courses** to ensure they become, and remain, up to date with the latest technology – or graduates will not be well equipped to enter the AI sector. Additionally, we recommend this should not be limited to higher education. Within interviews, respondents stated that '**AI literacy could be a core part of education – the government could offer online resources or courses to help individuals from all walks of life understand AI**'.
16	Increase diversity of talent pool	Increasing **diversity of the talent pool is multi-faceted**. While gender is a key aspect, we recommend also looking at disabilities, ethnicity and sexuality – as this report shows there may be barriers that are leading to a workforce of disproportionate representation. Attracting diverse thinking from graduates of more traditional degrees into post-graduate AI related degrees is likely to increase the diversity of people within the AI labour force. Additionally, **we recommend that the government reviews action 16 alongside action 17** as expanding education pathways into AI will increase diversity organically.

17	Expand education pathways into AI	We recommend this is supported by the development of relevant and advanced training, as currently this is being delivered mostly informally and via apprenticeships. In other sectors, even sub-sectors, formal professional qualifications have been developed. Government must look to work with industry on requirements for the AI sector, such as an advanced level 4 data qualification that sets the foundations for AI skillsets, or a broad AI course that covers the key skillsets identified in this survey (user experience, data science, behavioural science, data management, programming. **AI-specific apprenticeships alongside a dynamic and relevant syllabus should be developed in partnership with industry.** Additionally, this report identified a key issue with formal education not equipping graduates with the right skills for applying AI commercially. **We therefore recommend that the government works with industry to develop more internship/work experience opportunities in the AI sector.**
19	Ensure the lifelong skills programme is ready for AI	We recommend that the government considers the plethora of skills that are relevant to and required in AI. Skills programmes must consider the diversity of skillsets required, both by individuals and of that required in the market. The government might also look to enable AI-related curricula to become more dynamic, as the most significant challenge is that content quickly becomes out of date. A key point raised in interviews was that 'AI-focused apprenticeships or academic curricula struggle to keep pace with constant advancements'. **We recommend that the government looks at successful platforms that have been previously launched, and how similar solutions could be deployed for AI. The Government Commercial College is one such example – an online platform that is regularly updated with new content to ensure it remains relevant.**

21	Explore how existing immigration system can be used to attract graduates from universities producing some of the world's top AI talent	**We recommend that the government focuses its efforts on the key challenges identified in this report – i.e.** Visa streamlining (time and cost standpoints) Review of security vetting process, and how organisations that work with public sector could effectively deploy international talent on these engagements

14. ANNEX

14.1. BIBLIOGRAPHY

- Understanding the UK AI labour market: 2020 Executive Summary - GOV.UK (https://www.gov.uk/government/publications/understanding-the-uk-ai-labour-market-2020/understanding-the-uk-ai-labour-market-2020-executive-summary)
- 9 key findings from Understanding the UK AI labour market: 2020 Report - GOV.UK (https://www.gov.uk/government/publications/understanding-the-uk-ai-labour-market-2020/9-key-findings-from-understanding-the-uk-ai-labour-market-2020-report
- Turing AI Skills Business Framework. AI Skills for Business Competency Framework | The Alan Turing Institute
- House of Commons Business Statistics – November 2024 https://researchbriefings.files.parliament.uk/documents/SN06152/SN06152.pdf
- The employment of disabled people 2024 - GOV.UK
- 2021 census: What do we know about the LGBT+ population?
- AI Opportunities Action Plan - GOV.UK
- Who are the hybrid workers? - Office for National Statistics
- Artificial Intelligence sector study 2023 - GOV.UK
- Apprenticeships, Academic year 2024/25 - Explore education statistics - GOV.UK
- Cyber security skills in the UK labour market 2024 - GOV.UK
- https://academic.oup.com/bmb/article/135/1/108/5913187#219133554

14.2. GLOSSARY

Term	Description
Agentic AI	Defined by NVIDIA as AI which uses sophisticated reasoning and iterative planning to autonomously solve complex, multi-step problems.
AI leaders	Alan Turing Institute – AI Skills for Business Competency Framework defines this as: "Those holding senior responsibility for the procurement and/or governance of artificial intelligence solutions. The framework will support them to foresight the implication of emerging technologies, including impacts on their workforce, and to oversee the responsible and safe introduction of AI in settings of organisational complexity and uncertainty."
AI professional	Alan Turing Institute – AI Skills for Business Competency Framework defines this as: "Employees whose core responsibilities concern the use of 'data' and 'AI'. These include data analysts, machine learning engineers, and data ethicists. The framework defines the cross-cutting competencies required to work effectively in multidisciplinary teams, and to collaborate effectively across their organisation."
AI workers	Alan Turing Institute – AI Skills for Business Competency Framework defines this as: "Employees not working primarily in 'data' or 'AI', but whose roles may be impacted by these technologies. The framework supports AI workers to identify the opportunities AI provides in terms of efficiency and productivity in their roles."
AI role	An individual that has AI models, tools or technologies as a core part of their job
Computer vision	Computer vision is the ability of AI systems to interpret images or videos and make decisions based on them. For example, it enables text recognition apps that translate restaurant menus, autonomous cars that detect pedestrians and traffic, and environmental monitoring via satellites.
Generative AI	Generative AI uses data, in the form of text, audio, video, and images, to identify patterns and create novel content. This process requires significant compute power due to the requirement of large amounts of training data. Model structures include generative adversarial networks (GANs), autoencoders, and transformers.
Large organisations	An organisation with 250+ employees
Machine learning (ML)	Machine learning is a type of AI focused on enabling computers and machines to imitate the way that humans learn, to perform tasks autonomously, and to improve their performance and accuracy through experience and exposure to more data.
MOOC	Massive Open Online Course

Natural Language Process (NLP)	Natural language processing is the ability to analyse text and spoken words. Voice assistants such as Siri and Alexa rely on NLP. Other use cases include text summarisation, allowing users to quickly process vast amounts of documents, social media sentiment analysis e.g. identifying whether reactions to policies or products are more positive or negative, named entity recognition allowing the semantic labelling of large datasets, and translation services.
Non-technical skills	Skills that do not require specialised tools, techniques, or knowledge such as programming, engineering or modelling.
SME	Gov.uk defines a small to medium-sized enterprise as having fewer than 250 employees
STEM	Abbreviation for Science, Technology, Engineering, and Mathematics (as subjects of study)

Independent Construction and Property Consultancy

Project Leadership | Cost Certainty | Construction Success | Specialist Consultancy

10 South Crescent, London, WC1E 7BD

gardiner.com

GARDINER & THEOBALD LLP

Labour Market Survey 2025