



# The National Rural Conference 2025

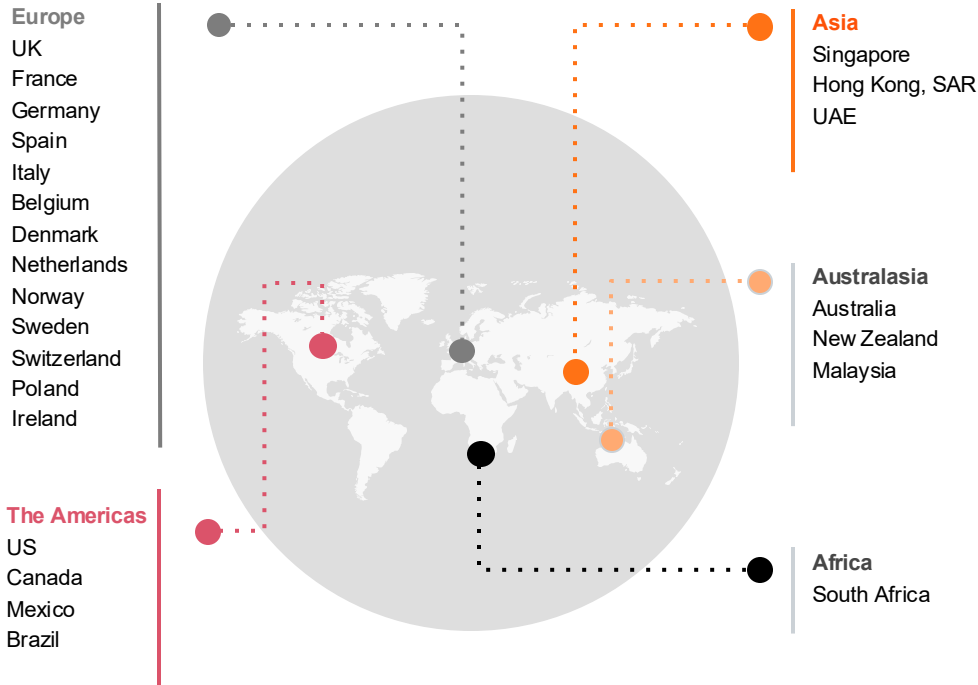
## AI Skills and Economic Growth

15 September 2025



# PwC analysed close to a billion job adverts from six continents to uncover AI's impact on jobs, skills, wages, and productivity

## AI Jobs Barometer global analysis



- We have been reviewing job ads across **24 countries** for 2 years, to examine how AI could impact jobs, skills, wages, and productivity
- **840 million** job ads have been reviewed to date
- We looked at different aspects of jobs, including:
  - **Demand for AI skills** across sectors over time, with increased emphasis on augmentation and automation-related capabilities
  - **Demand for different occupations** based on their exposure to AI, including those vulnerable to augmentation and automation due to AI
  - **Demand for qualifications** over time

# The results show that AI skills are critical – they are already reshaping the job market

## Impact of AI on the labour market

**14 million**

Workers across UK sectors by 2035 will be in roles where AI will be part of their role or responsibilities in some form

**100%**

Of industries are increasing AI usage including industries less obviously exposed to AI such as mining and agriculture

**3x**

Higher growth in revenue per worker in industries more exposed to AI

**2x**

Faster wage growth in those industries most exposed to AI compared to those least exposed

**56%**

Wage premium for AI skills comparing workers in the same job with & without AI skills. Workers also report higher job satisfaction

**66%**

Faster skill change in AI-exposed jobs up from 25% last year. Change is fastest in automatable jobs

**Conclusion:** AI will soon start driving divergence – and inequality – if adoption gaps remain unaddressed.

# Case study: AgriFood is an example of a sector already lagging behind in a rapidly accelerating AI landscape

## Current demand for AI skills in the Agriculture and Food Processing sector

### Rapid growth in demand for AI skills...

Demand for AI skills grew between 2018 and 2024 at a rate that was around twice as high as the growth rate for non-AI skills from 2018 to 2024 across the four sectors.

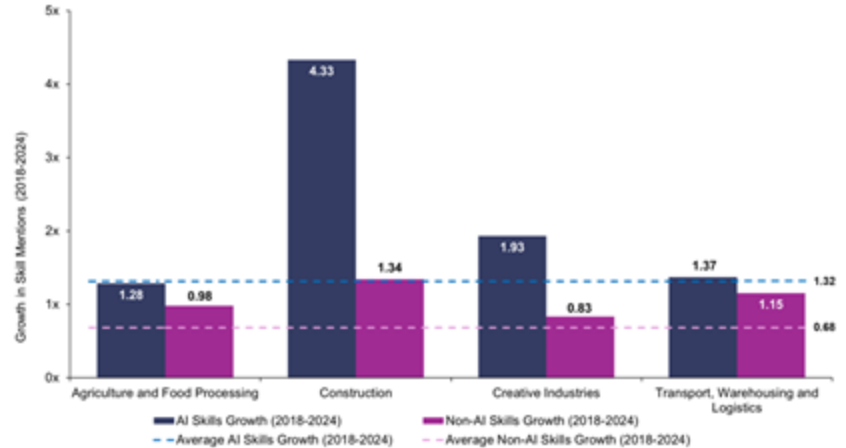
### However, Agriculture and Food Processing is lagging behind.

Growth in AI skills in the sector fell below the sector average and showed only a slow increase compared to non-AI skills between 2018 and 2024.



*“There are uncertainties about the cost and potential benefits. I think people will be sceptical as to what AI would bring. Is it worth the cost? Is it worth the effort?”* BRO, Agriculture and Food Processing

### Growth in demand for AI and non-AI skills by Sector (2018-2024)



# The rise of AI skills is redefining competitiveness across countries, sectors and individuals

## Context for the AI Skills Hub



AI Skills are now becoming an economic differentiator at country, sector, and individual level.



Without investment in AI, inequalities will continue to rise between countries and business that are early adopters, and individuals with these skills.



Research consistently shows that a lack of skills is the top barrier that is holding employers back from adopting emerging tech, such as AI



This is the context that led to UK Research & Innovation commissioning a new service for businesses – the UK's first free to access AI Skills Hub

# Introducing the AI Skills Hub



[aiskillshub.org.uk](https://aiskillshub.org.uk)

The UKRI-funded AI Skills Hub was created to help employers tackle two key questions:

- 1) Where do I start with adopting AI into my business?
- 2) How do I access the skills to deliver on my AI adoption plans?

## 4 key sectors



**Agriculture and Food Processing**



**Construction**



**Creative Industries**



**Transport, Warehousing and Logistics**

## 4 key stakeholder groups

### Employers

Large corporations, small and medium enterprises, nonprofits and NGOs and recruitment and staffing agencies

### Training and learning providers

Institutions and organisations providing and / or developing training regarding AI-related skills

### Technology partners

Organisations supporting AI innovation and infrastructure  
Incubators supporting AI startups

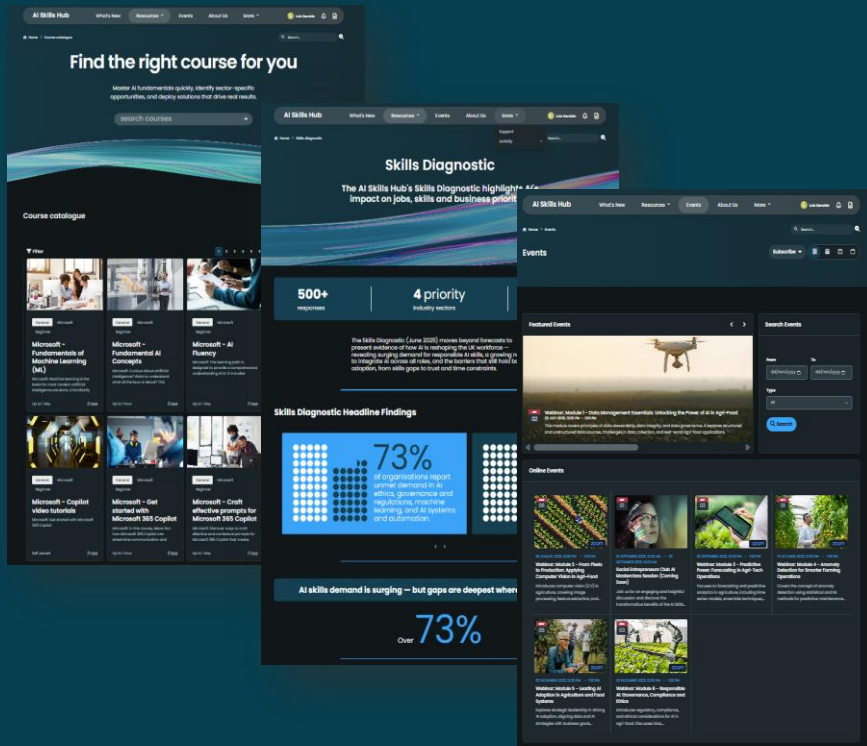
### Learners

Entry-level careers, job seekers with prior experience, currently employed workers and freelancers and contractors

# The AI Skills Hub provides access to training, research and AI experts



aiskillshub.org.uk



The AI Skills Hub connects employers and workers with sector-specific use cases and trusted, high-quality training to help build AI skills. This includes:

- **Training and Development:** Find a wide range of courses and training in AI, from beginner to advanced levels.
- **Personalised Learning Pathway:** Upskill and prepare yourself with tailored course recommendations.
- **Data and Insights:** Access reports and market data on AI trends, skills demand, and workforce needs, helping both employers and workers stay ahead of the curve.
- **Connection and Collaboration:** Meet fellow sector professionals and AI experts through the Hub's various events.

# Curious to find out more? Follow the QR code to explore the free AI Skills Hub

## Get Involved

- **Sign-up to the Hub for free** by following the QR code opposite. The registration process takes less than a minute to complete
  - Create your own **tailored training pathway**, with personalised upskilling materials based on your sector, prior experience, and learning aims
  - Already know what you want to learn? Head straight to our course catalogue where you can review the **full suite of over 500 courses**
  - Learn how other employers are building AI into their business through **sector specific use cases**
  - **Connect directly with training providers and technology partners** by commenting on our blogs, forums, and more.
- 📍 **Upcoming: Speak to other employers about AI adoption during industry-wide discussions on 18/11 & 20/11. Visit the Events page to stay updated.**



**Scan to explore  
the AI Skills Hub**

[aiskillshub.org.uk](https://aiskillshub.org.uk)



# Q & A




# Thank you

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Annex A:  
Trends in agri-food  
and use cases for AI



# The Agriculture and Food Processing sector is faced with long-standing challenges, which AI has the potential to address

## Key challenges

### Food security

- Ensuring a stable, sufficient food supply amid climate change and population growth.
- *AI solution: Predictive analytics and yield forecasting help optimise production and reduce waste.*

### Sustainable farming

- Productive farming underpinned by sound environmental land management.
- *AI solution: Precision agriculture powered by AI enables targeted use of inputs, reducing emissions and resource use.*

### Animal welfare

- Monitoring animal health and behaviour at scale.
- *AI solution: Computer vision and sensor data analysis detect early signs of distress, improving care and outcomes.*

### Water management

- Efficient use of water in irrigation and processing.
- *AI solution: AI models analyse weather, soil, and crop data to optimise irrigation schedules and conserve water.*

### Fish stocks and marine environment

- Overfishing and ecosystem degradation.
- *AI solution: AI-powered monitoring and modelling support sustainable quotas and marine biodiversity protection.*

### Protection of animals and plants from health risks

- Preventing and managing disease outbreaks.
- *AI solution: Early warning systems using AI detect anomalies in health data, enabling rapid containment and treatment.*



# Despite these challenges, there are already powerful real-world examples of AI transforming the sector, showing the opportunities

## Use cases across the Agriculture and Food Processing sector (1/3)

### *Use Case 1: Enhancing dairy farm efficiency through AI-driven heat stress*

#### Context

*Galebreaker*, which specialises in optimising environments for dairy cows, and *Smart Bell*, which provides animal monitoring via ear tags, have partnered with each other to leverage AI for detecting early signs of heat stress in cows. This collaboration used ear tags, behaviour modelling, and real-time analysis to identify heat stress earlier than traditional methods, resulting in happier, healthier cows that produce more milk. Targeting the UK housed dairy sector — valued at £4.4 billion in 2020 (Elise Uberoi, 2021) - this initiative aims to address the resistance to technological change in a market with an ageing population. With the potential for significant financial losses from heat stress amounting to around £31,000 per average herd annually, and AI-assisted ventilation devices costing about £70,000 with a payback period of just over two years, this AI-driven solution promises to enhance farm efficiency and revolutionise data utilisation through improved animal welfare and productivity.

#### Key skills required

- Machine learning
- Data science
- Deep learning frameworks

#### Impact of AI

- Faster response times
- Reduced frontline workload
- Improved animal welfare
- Data-driven decision-making



# Despite these challenges, there are already powerful real-world examples of AI transforming the sector, showing the opportunities

## Use cases across the Agriculture and Food Processing sector (2/3)

### *Use Case 2: Transforming agriculture and food processing with Diometer's intelligent platform*

#### Context

*Diometer*, in collaboration with the *University of Suffolk*, has developed the Flexifarm™ platform, an innovative solution that integrates real-time analytics, automation, and decision support tools to transform farming and food production. By collecting and analysing data from soil sensors, crop imaging, and operational systems, the platform delivers actionable insights on crop health and soil conditions, enabling more precise and sustainable agricultural practices. For food processors, automated monitoring enhances quality control and reduces waste, while compliance tools streamline operations. Across the supply chain, improved forecasting and logistics minimise spoilage and boost responsiveness. The result is a measurable increase in productivity and efficiency, fostering a resilient, data-driven agri-food ecosystem.

#### Key skills required

- Machine learning
- Data literacy
- Neural networks
- AI Systems design & automation

#### Impact of AI

- More sustainable farming practices
- Optimised supply chains with better forecasting and logistics
- Streamlined quality control and reduced waste
- Improved productivity and efficiency



# Despite these challenges, there are already powerful real-world examples of AI transforming the sector, showing the opportunities

## Use cases across the Agriculture and Food Processing sector (3/3)

### *Use Case 3: Integrating Visual Intelligence and ChatGPT into a Mobile Solution for Sustainable Pest Management*

#### Context

*Mutus Tech Ltd, the University of Sheffield and ADAS* are collaborating to develop a smart AI-powered app, PestGPT, that revolutionises integrated pest management (IPM) in agriculture. Building on a successful *Innovate UK* project, the solution combines mobile visual intelligence with ChatGPT technology to detect and quantify crop pests in real time. It contextualises pest levels against regionally relevant economic thresholds and delivers tailored management advice directly to growers. By expanding detection capabilities to key pests in rapeseed and potato crops, the app empowers farmers with accurate, accessible pest identification and decision support. This innovation addresses major barriers to IPM adoption, such as limited taxonomic expertise and unvalidated thresholds, resulting in improved pest control, reduced insecticide reliance, and more sustainable, economically sound farming practices.


#### Key skills required

- Machine learning
- Neural networks
- Natural language processing

#### Impact of AI

- Improved pest detection
- Informed decision-making
- Increased sustainability
- Optimised crop protection





Annex B: New  
research findings on  
AI in agri-food from  
the AI Skills Hub  
White Paper

# The Agriculture and Food Processing sector is lagging behind in a rapidly accelerating AI landscape

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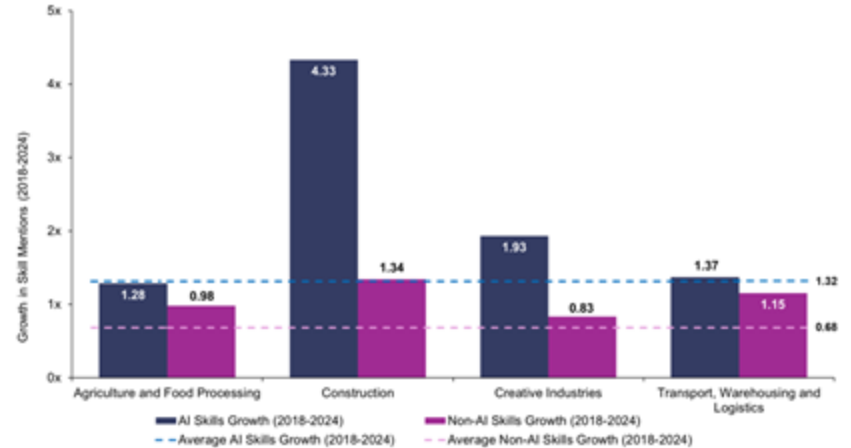
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## Growth in demand for AI and non-AI skills by Sector (2018-2024)



# 96% of employers surveyed said that they had an AI skills gap; 91% said they had a gap in five AI skills or more

## AI skills gap in the Agriculture and Food Processing sector

*The AI skills gap is a sector wide challenge...*

96%

of Agriculture and Food Processing employers surveyed said that they had an AI skills gap

91%

of the above said they had such a gap in five AI skills or more

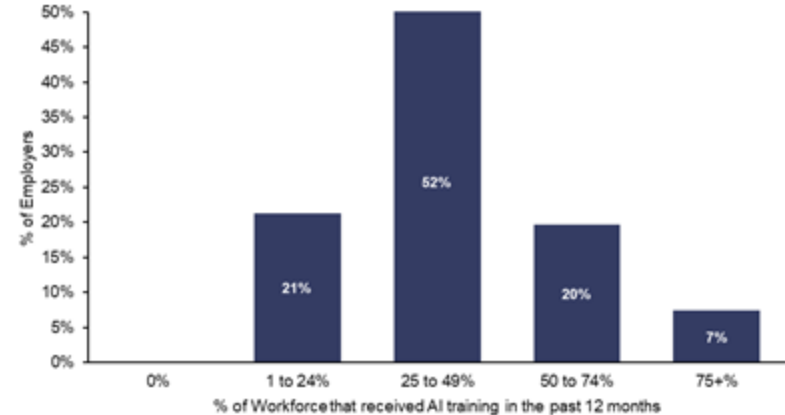
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*Everyone is selling themselves as an AI expert and wants a piece of the action. AI is everywhere. We need a partner with real AI expertise, not just in it for the money, to complement our business growth.”*

BRO, Agriculture and Food Processing

*... and training isn't keeping pace.*

## Proportion of workforce trained in last 12 months in Agriculture and Processing



While **96%** of Agriculture and Food Processing employers identified a skills gap within their organisations, the majority (**73%**) of employers have only been able to provide training for **up to half** of their workforce.

# Visual Image Recognition and Problem Solving were the top skills where gaps were identified

## AI skills gaps in the Agriculture and Food Processing sector

### Top technical AI skills gaps

#### 1. Visual Image Recognition (74%)

Vital for **automating crop monitoring, detecting diseases early, and ensuring quality control** in food processing through AI-powered visual analysis.

#### 2. Neural Networks (72%)

Key to enabling **predictive modelling for yield forecasting, climate adaptation strategies, and optimising resource allocation** in agricultural operations.

#### 3. Data Literacy (70%)

Critical for **interpreting sensor data, managing farm management systems, and enabling precision agriculture.**

### Top behavioural skills gaps

#### 1. Problem Solving (75%)

Helps **address real-time challenges such as unpredictable weather, pest outbreaks, or equipment failures** using AI-supported strategies.

#### 2. Self Development and Lifelong Learning (73%)

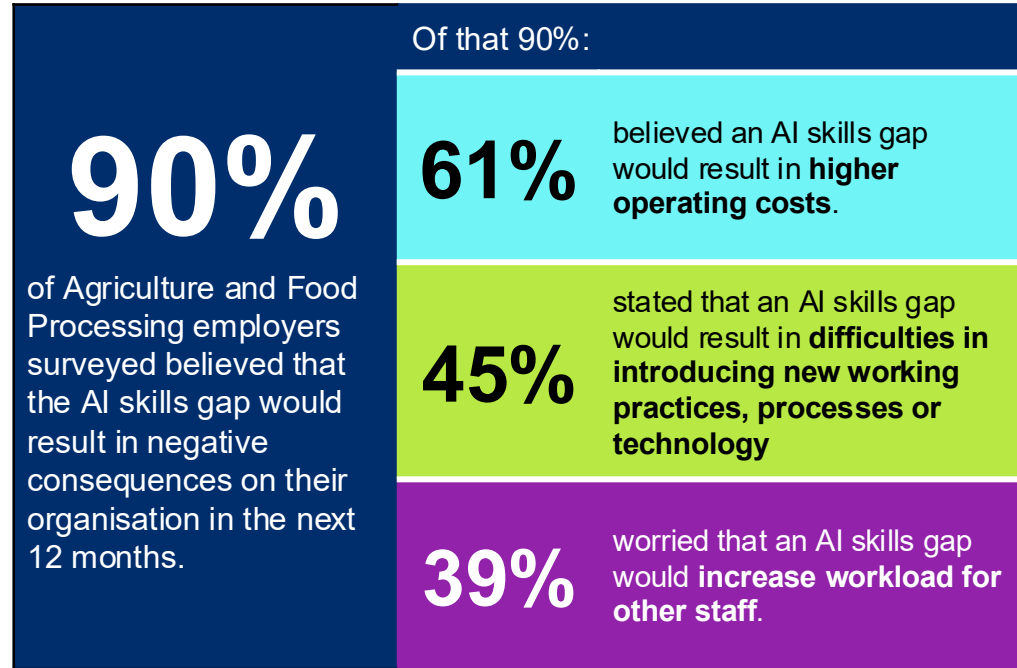
Important for remaining current with **emerging AI tools and techniques, fostering adaptability, and continuously improving agricultural practices.**

#### 3. Critical and Analytical Thinking (70%)

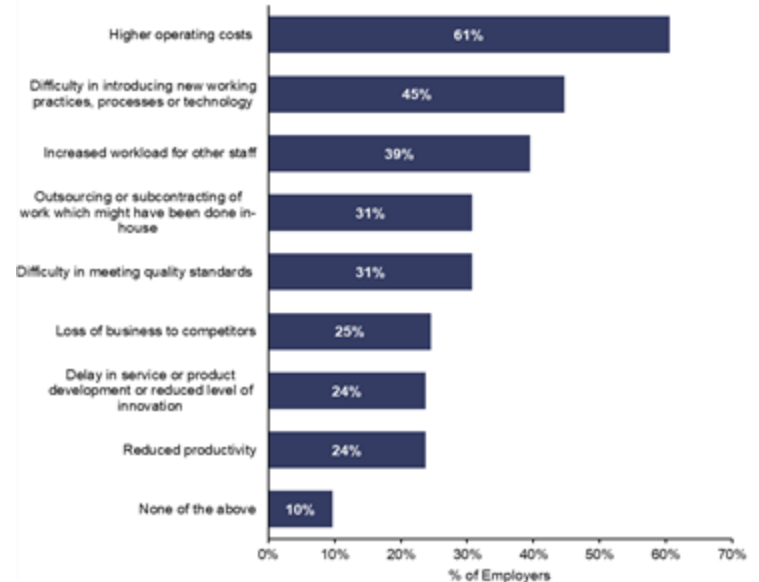
Essential for **evaluating AI-generated insights, questioning assumptions, and making informed decisions** in complex agricultural settings.

# The cost of inaction is already being felt, with these skills and training gaps predicted to result in negative consequences

## Impact of skills and training gaps on the Agriculture and Food Processing sector



## Impact of AI skills gaps on organisations in Agriculture and Food Processing



# Organisations who advertised for AI related roles cited applicants' capability as the biggest barrier to recruitment

## Barriers to resolving the skills and training gaps in Agriculture and Food Processing

### Barriers to recruitment for AI related roles

**48%** of employers believe applicants **lacked the required specialist skills, knowledge or qualifications.**

**38%** of employers believe applicants **lacked the required behaviours, attitude, motivation or personality**

**38%** of employers cited **competition from organisations in other sectors.**

Other key barriers included **37% of employers experiencing challenges in recruiting from abroad**, while **17% indicated that there were not enough applicants.**

### Barriers to providing AI training

**46%** of employers believe there is **not enough time for training.**

**31%** of employers believe **existing training covers the wrong skills/capabilities.**

**27%** of employers believe training is **too expensive.**

**24% of employers** were either of the view that **staff do not require training** or were **unaware of the available training provision.**