Skills England

# What Works for AI Upskilling in the UK: Insight briefing based on research

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Author: Dr. Nisreen Ameen
The British Academy Policy-Led Innovation Fellowship in partnership with Skills England
Royal Holloway, University of London

The British Academy

ROYAL HOLLOWAY UNIVERSITY OF LONDON

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# 1.0 Introduction

This insight briefing is part of the SKAI programme, *Skills for AI: What Works for AI Upskilling in the UK*. The programme brings together national evidence on AI skills to inform both policy and practice. It produces four linked outputs: an employer guide, supporting case studies, a detailed research report, and this insight brief.

The purpose of this brief is to highlight what works in AI upskilling and what is getting in the way. It draws on evidence from national workshops, a UK-wide employer survey, and case studies to identify the key barriers organisations face, as well as the conditions that enable successful adoption.

This brief complements Skills England's AI skills framework for AI courses by identifying the conditions needed for effective AI upskilling at scale. It builds on the AI skills categories set out in the AI Skills for the UK Workforce report: technical, non-technical, and responsible/ethical AI skills.

The evidence from our survey shows that while AI use is already widespread, over 44% of organisations report using AI tools daily, workforce capability is often developing unevenly and without structure. Many organisations lack the time, resources, and governance needed to embed AI effectively, creating risks to productivity, inclusion, and safe use.

In response, this brief sets out practical, evidence-based principles for effective AI training. It shows that the most successful approaches are those that are embedded in day-to-day work, easy to access, and designed to grow over time. These principles underpin the approaches outlined in this brief and are brought together in the PRIMES framework.

This document is intended to support policymakers in understanding the current landscape, the risks of inaction, and the actions needed to support effective AI upskilling at scale. It should be read alongside the full *Research evidence, analysis and methodology report* for detailed findings, and the *Supporting Case Studies* for real-world examples.

# 2.0 Implications of evolving AI for skills

## 2.1 AI adoption is moving faster than workforce capability

AI is now used in every major sector of the UK economy. Many firms and workers are using generative tools, and there is growing interest in more autonomous, agent-based and agentic AI systems. These technologies are already reshaping everyday work tasks, job roles, and decision-making processes.

Our survey evidence confirms that AI is already embedded in everyday organisational workflows, with 66% of respondents using AI features integrated into standard software and 49% using conversational AI tools such as chatbots.

Workforce capability has not kept pace with this rapid adoption. Most organisations remain at early stages of adoption, with over 40% concentrated in awareness (21%) and exploration (19%), and only 1% reaching scaling. Use is often unclear, disjointed, and based on personal effort rather than planned workflows. Many employers find it hard to help staff use AI safely, confidently, and effectively, even where tools are available.

This highlights a clear gap between widespread AI adoption and the slower development of workforce capability and training systems. The gap between access to AI tools and building skills can limit productivity and raise operational and governance risks. Survey evidence shows that employers also report challenges across AI skills categories, particularly in technical skills (67%), alongside responsible and ethical AI (32%) and non-technical skills (10%), indicating a gap between AI adoption and workforce capability.

## 2.2 A growing reliance on informal and uneven upskilling

Many workers are learning AI skills informally. This is a common finding from workshops and sector case studies. Learning often happens through trial and error, peer support, online videos, or vendor-led prompts. It is less often supported by structured training linked to job roles. This pattern appeared across multiple parts of the evidence base, including construction, the creative industries, social care, and small to medium-sized enterprises (SMEs), rather than being confined to one sector.

Informal learning can help people experiment quickly, but it creates uneven outcomes. Some workers build confidence and practical capability, while others do not because they lack guidance, clarity, or permission to use AI at all. This leads to wide differences in how AI is used within and between organisations, with no shared understanding of what safe, appropriate or effective use looks like in practice.

## 2.3 System-level training infrastructure is too slow for the pace of AI change

There is a structural mismatch between the speed of AI adoption and the capacity of the training system to respond. Formal qualifications, apprenticeships and occupational standards require governance and quality assurance processes, which are important but can make rapid updating difficult. At the same time, AI use is evolving quickly through

everyday work, and skills such as prompting, validation, judgement and workflow integration are not always consistently embedded, signposted or recognised across available training routes. Training provision is growing, but it remains scattered. While frameworks such as the AI Skills Framework and the occupational standards provide an important foundation, they are still evolving in relation to AI and are not yet consistently translated into clear, shared benchmarks for emerging capabilities. This makes it hard for employers and learners to know what effective AI training should be.

Employers responding to the survey reported persistent gaps in training design and quality. The most frequently missing features were flexibility and accessibility in the format, timing or delivery of training (51%), clear and aligned AI skills frameworks (35%), and practical, contextualised learning (34%). This indicates that the challenge is not simply access to training, but the quality, relevance and usability of provision.

This issue is compounded by shortages of trainers who have both AI and sector expertise. Many further education providers and smaller training providers delivering AI-related provision also have limited capacity to refresh content quickly. This means that the training system needs support not only to expand provision, but to improve the quality, relevance and speed of course development.

Survey results show that unresponsive training infrastructure is a design issue, not a demand problem.  Employers want flexible, modular training options and protected time for staff to participate, rather than signposting alone. Without better coordination and clearer guidance, informal and uneven AI upskilling is likely to continue filling the gap.

## 2.4 Capacity, not awareness, is the binding constraint on workforce upskilling

Employer interest in AI training is high, but participation is limited by practical constraints. Employers most often cite three main barriers to engaging in AI training: lack of protected time, limited staff capacity, and affordability. Awareness or perceived value are raised less frequently. This is reflected in survey findings, where flexibility (50%), cost (46%), and staff capacity (44%) are identified as the most important enablers of participation. Together, these findings reinforce that engagement is limited by practical and psychological barriers rather than lack of awareness.

Flexible and modular training formats are the most requested. Employers also highlighted the importance of having time and affordable routes to participate in training. These reflect the operational pressures many sectors face. Workshop evidence shows that AI learning competes with daily tasks. This is especially true in SMEs and frontline services, where staff can’t easily leave their core work.

Training is more likely to succeed when it is delivered in short, job-embedded formats. These formats fit well into existing workflows. Where time and capacity constraints are not addressed, AI upskilling can be harder for smaller firms.

# 3.0 What works for AI upskilling

The evidence points to several consistent features of effective AI upskilling. These features are relevant to policymakers, employers and training providers because effective delivery depends on shared action across the skills system:

- Training should be practical and task-based, linked to real work rather than generic AI awareness. The evidence suggests that training linked to real job tasks and decisions is more likely to support meaningful workplace adoption.
- Structured approaches, with clear pathways improve productivity, safety and consistency.
- Upskilling is a journey, not a one-off intervention, as AI tools and workplace uses continue to change.
- Modular and flexible formats increase participation, especially where time, cost and capacity are barriers. This requires providers to design shorter, complementary learning options and employers to create time for participation.
- Training embedded into workflows is more likely to have impact, because staff can apply learning immediately. Employers therefore need support to connect AI training with everyday systems, tools and governance.
- Leadership support and clear rules around use of AI training reduces risk, giving staff confidence to use AI safely and appropriately. Employers have a central role in setting expectations. Shared principles and guidance for employers can also support uptake.
- Inclusive design expands reach and builds confidence, particularly for groups with lower digital confidence or access barriers.
- Recognition and progression help sustain engagement, by making AI skills visible and valuable. Employers and training providers should help learners see how AI skills connect to role development, confidence and future progression.
- Sector tailoring is essential, but the underlying principles are shared, because risks, workflows and governance needs vary by context. Training providers and employers should adapt AI upskilling to sector-specific needs while using shared principles to support quality and consistency.

# 4.0 PRIMES and insight

PRIMES (Table 1) is an evidence-based framework designed to guide the design, delivery, and assurance of AI training across sectors. It translates insights from extensive research (including workshops, case studies, and survey data) into a practical model for building an AI-ready workforce.

It focuses on ensuring AI training is effective, inclusive, scalable, and aligned with real-world use.

PRIMES sets out **six core principles** for high-quality AI training:

- **Practical**, Focused on real tasks and decision-making in the workplace
- **Reachable**, Accessible to all workforce groups, including those with low confidence or digital skills
- **Integrated**, Embedded within existing roles, systems, governance, and professional standards
- **Modular**, Delivered in flexible, bite-sized formats that fit different roles and schedules
- **Expandable**, Scalable across organisations, sectors, and levels of expertise
- **Sustainable**, Designed to evolve with technology and support ongoing learning and safe use

Together, these principles form a flexible framework rather than a fixed model, allowing adaptation across sectors and organisational contexts.

For policymakers, PRIMES offers a practical bridge between evidence and action as it:

- translates complex, sector-specific research into clear, testable principles for training design
- supports consistency without uniformity, allowing flexibility while setting shared expectations
- supports sustained workforce capability-building rather than one-off courses

Using PRIMES can create the conditions for effective, inclusive, and lasting AI upskilling. This supports productivity and growth while reducing the risk of uneven adoption, skills gaps and unsafe or low-trust AI use.

Therefore, activities linked to the target to upskill 10 million workers in AI should support accessible, good-quality and inclusive training for everyone, with particular attention to those likely to be most affected.

## Table 1 Criteria for meeting PRIMES principles of effective AI training

| PRIMES principle | Accreditation criteria |
|---|---|
| **Practical** | ☐ Training links clearly to real tasks and decisions in the learner's role. |
| | ☐ Learners practise using AI tools in work-relevant scenarios. |
| | ☐ Training makes clear when AI should and should not be used. |
| | ☐ Training recognises and builds on existing informal or self-taught AI use within roles. |
| **Reachable** | ☐ Training is accessible in time (duration and flexible timing), format and language. |
| | ☐ Learners are given paid time or protected time to take part. |
| | ☐ Materials are suitable for people with different levels of digital experience. |
| | ☐ Personalised support is available for learners who need it. |
| | ☐ Training design explicitly considers intersecting barriers (e.g. income, age, disability, gender) rather than treating learners as single categories. |
| | ☐ Training is designed to build confidence alongside skills, particularly for learners with prior exclusion from digital or technical education. |
| **Integrated** | ☐ Training fits within existing systems so that workers find practical value and can immediately apply learning to their roles. |
| | ☐ Content aligns with relevant professional standards, qualification or skills frameworks. |
| | ☐ Training reflects sector-specific values and responsibilities, such as safety, accountability, or person-centred practice. |
| | ☐ Provision supports benchmarking, quality assurance, and clear recognition of learning outcomes. |
| | ☐ Employers and learners can identify training that is reliable, relevant to their work, and appropriate for their level of AI use. |
| | ☐ Training aligns with organisational data infrastructure and digital systems to ensure practical and safe application. |
| | ☐ Baseline AI training is mandatory before staff use workplace AI tools, particularly where AI use involves organisational data, confidential information, regulated activity, safety, or professional judgement. |
| | ☐ Training helps learners understand relevant next steps, including further learning, safer AI use, or AI-related responsibilities where appropriate. |
| **Modular** | ☐ Training is broken into short, manageable units. |
| | ☐ Learners can complete training in different formats and at different speeds. |
| | ☐ Content allows learners to enter at different levels of training according to their AI skills and return when needed. |
| **Expandable** | ☐ Training develops transferable AI skills that can be applied across different tools, systems, roles and organisations where possible. |
| | ☐ Core content remains consistent while allowing local or role-specific adaptation. |
| | ☐ Provision can support rapid growth in demand as AI use spreads. |
| **Sustainable** | ☐ Training can be updated as AI tools and uses change. |
| | ☐ There are plans to review and refresh learning after delivery. |
| | ☐ Providers monitor outcomes, including whether training improves confidence, quality of use, and decision-making. |
| | ☐ Responsible use of AI is embedded as a core and enduring capability that remains essential as AI tools evolve. This includes confidentiality, data protection, transparency, and human oversight. |
| | ☐ Learners are given opportunities to reflect on how AI is used in practice and identify further learning needs and progress towards more effective AI use. |