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Mapping the AI Landscape in the Built Environment

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Our work supports policy, strategy, service improvement and decision-making to achieve immediate and longer-term change across public, private and third-sector organisations.

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Foreword

This report reveals a sector at a transition point with its use of artificial intelligence, with significant experimentation but uneven adoption. In many cases, individual use is running ahead of organisational policy, professional guidance, client expectations and assurance mechanisms. That creates opportunity, but it also creates risk.

The central message of this report is that AI should augment professional expertise rather than bypass it. The value of built environment professionals will increasingly lie beyond outputs, instead in framing the right questions, understanding the limitations of tools, assessing the quality of data, challenging outputs and making defensible judgements.

"AI may support the heavy lifting of some tasks, but responsibility and accountability must remain with competent professionals."

The most immediate risk is unmanaged use. AI systems can produce outputs that are fast, fluent and plausible, but without proper verification, they can also accelerate weak processes, amplify poor data or introduce untested material into decisions that affect safety, cost, compliance or client confidence. Verification, challenge and documentation therefore need to become defining habits of AI-enabled professional practice.

The report also highlights a deeper workforce issue. Some of the tasks AI may speed up are also the tasks through which junior professionals acquire judgement and technical understanding. If the sector automates these learning opportunities without replacing them with better-structured development, it risks weakening the future professional pipeline. This is a particular concern for a sector that already faces persistent pressures around capacity, capability and competence.

As a neutral, cross-sector forum operating at the intersection of education, future skills and professionalism, BEFA can help convene and guide employers, professional bodies, educators, clients, insurers and policymakers around a more coherent response to AI.

We would like to thank Harlow Consulting, the expert interviewees and all those who contributed to this research. We hope this report supports a more practical, informed and coordinated conversation about responsible AI adoption across the built environment.

Mark Farmer
Chair, BEFA

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Executive Director, BEFA

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Executive Summary

The built environment sector has reached a pivotal moment in its adoption of artificial intelligence (AI). AI is no longer a future prospect: it is already being used in day-to-day professional activity across design, engineering, planning, construction, asset management and related disciplines. However, adoption is uneven, often informal and frequently ahead of the governance, assurance and skills frameworks needed to make its use safe, consistent and valuable.

This research finds a sector in transition, where AI is not yet delivering wholesale transformation, but where experimentation is widespread and is accelerating. Individual professionals are using AI – particularly generative AI – for drafting, summarising, coding, analysis, search and productivity, while more established applications such as automation, predictive analytics, computer vision and digital-twin-related tools are developing in specific parts of the sector. Organisational adoption, however, remains fragmented, with limited alignment across supply chains, lifecycle stages, clients, professional bodies and regulatory frameworks.

The central challenge is therefore not whether AI can add value, but whether the sector can integrate it responsibly. AI adoption is not simply a technology or IT issue, but a professional practice, workforce and governance issue, cutting across skills, liability, data quality, procurement, assurance, commercial models and public trust. In a safety-critical, highly accountable industry, unmanaged adoption represents the most immediate risk, therefore, because AI can produce quick, polished and convincing responses, meaning it should be used with care. Without robust checks, it may embed flawed practice, reinforce weaknesses in the underlying data, bring unverified information into decisions with safety, cost or compliance implications, and encourage unwarranted confidence in the result.

“The central challenge is therefore not whether AI can add value, but whether the sector can integrate it responsibly.”

The opportunity is nevertheless substantial. Used well, AI could improve productivity, support better decision-making, reduce routine administrative burden, strengthen risk management, enhance safety and contribute to more sustainable asset performance. Over time, AI is likely to become increasingly embedded and ‘invisible’ within professional tools and workflows, much like previous digital technologies such as CAD and BIM.

However, realising this potential depends on addressing foundational weaknesses – particularly in data – which will be exposed if data quality, governance and literacy issues are not addressed. These will need to become core professional areas of competence.

AI is therefore reshaping the nature of professional expertise. It will not remove the need for built environment professionals, but professional value will increasingly lie in framing the right questions, selecting appropriate tools, understanding data quality, interrogating outputs, and making safe, relevant, and defensible decisions. AI can support professional work, but it cannot - and should not - carry professional responsibility.

The sector will require practical AI competency frameworks, role-specific training and stronger assurance norms. Baseline AI literacy will be needed across the workforce, alongside more advanced capability for those procuring, reviewing, governing or approving AI-supported work. Generic AI awareness will not be enough because engineers, architects, planners, surveyors, project managers, cost consultants, contractors, asset managers, public clients and educators will use AI in different ways and face different risks.

Another particularly important issue is early-career development. Many of the tasks AI can most readily accelerate, such as drafting, basic analysis, data handling and routine problem-solving, are the same tasks through which junior professionals traditionally build technical understanding, judgement and confidence. If these learning opportunities are reduced or bypassed without being replaced by new, structured development

“The sector will require practical AI competency frameworks, role-specific training and stronger assurance norms.”

pathways, the sector risks hollowing out its future talent pipeline. To safeguard long-term sector resilience, employers, educators and professional bodies will need to redesign apprenticeships, graduate schemes, vocational learning, professional formation and CPD so that AI supports learning rather than bypassing it.

The sector must also address important structural and workforce implications. For example, AI could widen existing capability gaps, with larger organisations and digitally mature firms benefiting first, while others may struggle to keep pace. Responsible adoption should not become something only large firms with dedicated digital teams can manage. Shared policies, risk assessment tools, training materials, case studies, procurement questions and safe environments for testing low risk use cases would help support proportionate and inclusive adoption.

Procurement will be an important lever for responsible use, with clients and procurement teams increasingly needing to understand not only whether suppliers are using AI, but how they are using it, with what data, under what controls and with what assurance. Procurement should reward transparency, accountability, evidence of checking and good information management, rather than vague claims about AI capability.

Despite the challenges, disruption is expected to be cumulative rather than sudden. For example, in the near term, AI will primarily optimise existing workflows rather than replace them, with deeper structural changes emerging over time.

AI will become embedded in professional tools and workflows whether the sector coordinates its response or not. Adoption could remain fragmented and reactive, or it could become deliberate, governed and aligned with professional values. BEFA's distinctive contribution should be to help define what responsible AI-enabled professional practice looks like for the built environment. The path forward requires a shift from experimentation to disciplined adoption, underpinned by:

- **a people-first approach**, where AI augments rather than replaces professional judgement;
- **clear governance and assurance frameworks**, including verification, accountability and risk management;
- **investment in data quality and interoperability** as critical enablers;
- **protection of early-career development via new pathways** to ensure AI adoption does not fully erode practical learning experiences that build judgement, technical competence and professional confidence;
- **sector-wide collaboration** to avoid fragmentation and support SMEs; and
- **new skills and training models** that embed AI literacy while safeguarding professional development.

Ultimately, responsible AI adoption is not a technology challenge but a leadership challenge. The sector's ability to coordinate its response – across industry, academia, professional bodies and government – will determine whether AI enhances professional practice and delivers better outcomes for people and places or simply accelerates existing inefficiencies and risks.

"Ultimately, responsible AI adoption is not a technology challenge but a leadership challenge."

2

Key findings

Transition from fragmentation to coherence

1 AI is already in use across the built environment, but adoption is uneven and often informal.

The sector is not waiting for a future wave of AI adoption; many professionals are already using AI for drafting, summarising, analysis, coding, search and productivity. However, use is fragmented, with practice often running ahead of organisational policy, client expectations and professional guidance.

2 The sector is at a transition point: experimentation now needs to become disciplined adoption.

AI is moving from individual experimentation into professional workflows. The critical issue is no longer whether AI can be useful, but whether the sector can use it safely, consistently and accountably.

3 AI may widen existing gaps across the sector.

Larger organisations with stronger digital infrastructure and governance capacity may benefit first, as well as AI native micro start-ups. This has the potential to leave a 'squeezed middle' where SMEs, local authorities and under-resourced organisations risk being left behind unless practical, proportionate support is developed.

Leadership and oversight

4 The sector needs coordinated leadership before adoption becomes vendor-led by default.

AI will become embedded in tools and workflows whether the sector takes a strategic approach or not. The choice is between fragmented, reactive adoption and a more deliberate approach that strengthens professional practice, lifecycle outcomes and sector capability.

5 The greatest near-term risk is unmanaged use, change and adoption, not mass job loss.

The most accessible AI tools are fast and fluent, which makes them useful, but also risky. Without verification, AI could accelerate weak processes, amplify poor data and allow untested material to influence important decisions.

6 Procurement and insurance will shape responsible adoption.

Regulatory bodies, insurers, clients and procurement teams will increasingly need to understand not just whether AI is being used, but how it is being used, with what data, under what controls and with what human review.

7 Verification needs to become a core professional habit.

In a safety-critical and highly accountable sector, AI outputs should be treated as drafts or decision support, not authoritative conclusions. The key skill is not just prompting AI, but checking, challenging, documenting and deciding.

Data and infrastructure

8 AI will expose the sector's long-standing data problems.

Fragmented information, inconsistent standards, weak interoperability and unclear data ownership will limit the value of AI. Whilst AI will help to facilitate information management, it cannot be solved wholly by AI and will still require professional judgement. Poorly managed data used by AI will make its consequences more visible, as will the implementation of the 'Golden Thread' which has introduced a more stringent regime around information management.

9 Data capability is becoming a mainstream professional competency.

Data literacy, information quality, provenance, BIM, asset information and interoperability can no longer be treated as specialist digital concerns. They are increasingly central to safe and effective professional practice.

Practice

10 The central challenge is to define responsible AI-enabled practice.

The built environment does not need to chase every new tool. It needs shared expectations about competence, verification, data quality, accountability and the appropriate role of human judgement.

11 AI adoption is a professional practice issue, not simply a technology issue.

The implications cut across skills, liability, data quality, procurement, assurance, commercial models and public trust. Treating AI as an IT matter risks underestimating both its value and its risks.

12 AI will not replace built environment expertise, but it will change what expertise looks like.

Professional value will increasingly depend on the ability to frame good questions, select appropriate tools, understand data quality, challenge outputs and make defensible judgements. AI can support professional work, but responsibility must remain with competent humans.

13 AI could disrupt how early-career professionals learn.

Some of the tasks AI can speed up are also the tasks through which junior professionals build judgement, technical understanding and confidence. The sector will need to redesign learning pathways so efficiency gains do not weaken future capability.

3

Introduction

3.1 Background and purpose

The Built Environment Futures Assembly (BEFA) commissioned **Harlow Consulting** to support a new applied research exercise, **'State of the Nation: Mapping the AI Landscape in the Built Environment'.** The purpose of the work is to build a clearer picture of how Artificial Intelligence (AI) is currently being used, or is planned to be used, across the UK built environment sector, particularly in relation to professional and technical roles, and to better understand the implications for skills, competencies and future workforce development.

The research is intended to help identify emerging practice, avoid duplication and support more joined-up thinking across the sector.

In this document, mentions of the 'Built Environment' refer to the widest interpretation of design, construction, operation and management of human-made structures and the natural environment. As such, the term incorporates the real estate, property and construction industries as well as referring to the Built Environment workplace more generally.

3.2 Research approach and report structure

As part of this exercise, a workshop was held with the members of BEFA's Strategic Advisory Board and 13 in-depth interviews (including one-to-one and group interviews) were conducted with senior sector figures across industry, professional bodies, academia and government to provide perspectives on:

- current AI adoption;
- key opportunities and barriers;
- implications for professional competence and education, and;
- the governance and ethical considerations that may shape future practice across the sector.

The interviews covered the following sub-sectors of the built environment: architecture, real estate, property, construction, cost-consulting, engineering, advisory, surveying, facilities management.

The interviews were supported by a desk review to identify sector initiatives to support AI adoption, as well as real-world examples of AI adoption. This involved:

- Targeted searches of relevant websites to collate reports by government, industry, professional bodies, regulators, as well as university publications/ training, blogs and opinion pieces, news articles and webinars
- Open internet searches for these types of publications, to fill any gaps

Interviews were analysed manually using content analysis to identify the treatment of concepts, which were then used to highlight themes for structuring the report.

The report is arranged as follows:

- **Section 4** sets out what we mean by AI, generally, and in the context of the built environment.
- **Section 5** then goes on to discuss the level of AI adoption and maturity in the built environment, and the potential level of disruption AI will cause.
- The challenges for the sector are discussed in **Section 6**.
- **Section 7** sets out success factors for unlocking capability, and for governance.
- Conclusions and recommendations are in **Section 8**.
- **Appendices** include examples (not intended to be exhaustive) of categories of AI in use in the built environment, as well as examples of AI adoption and initiatives, to contextualise the findings.

4

Application of AI in the real world

4.1 AI systems and tools

> **"The problem is that generative AI has flooded the conversation, so people think AI equals chatbots, which is completely wrong"**

So, what is AI? How is it defined and is there a specific definition, or shared understanding, of what AI means in the built environment?

The OECD (Organisation for Economic Cooperation and Development) updated its definition of AI in 2024 to reflect technological advancements in generative AI.

> An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.
>
> **Organisation for Economic Co-operation and Development (OECD) 2024**[1]

In the context of the built environment, Artificial Intelligence can be understood to refer to a spectrum of machine based, data driven technologies that analyse, learn from, and generate outputs such as predictions, classifications, content, or decisions to augment human expertise across the planning, design, delivery, operation, management and governance of buildings and infrastructure.

Generally, there are two main types of AI in use today; each is suited better to certain applications than the other:

- **Generative AI** is probabilistic and creative, which can lead to different outputs for the same input, making it unsuitable for tasks requiring precise calculations.
- **Analytical or deterministic AI**, on the other hand, is better suited for tasks where consistent and accurate results are necessary, such as engineering calculations.

A layered view

Although AI has been around for many decades, only in very recent years has it been applied in meaningful ways.

Experts contributing to this research implicitly align on a layered view of AI, distinguishing between **capabilities** (i.e. potential ways in which AI can add value or improve productivity), applications (i.e. contexts in which AI can be used), and levels of **autonomy** (i.e. the level of supervision required).

The following categories of AI were described.

Please see Appendix 1: Categories of AI in the built environment.

5

AI adoption and potential

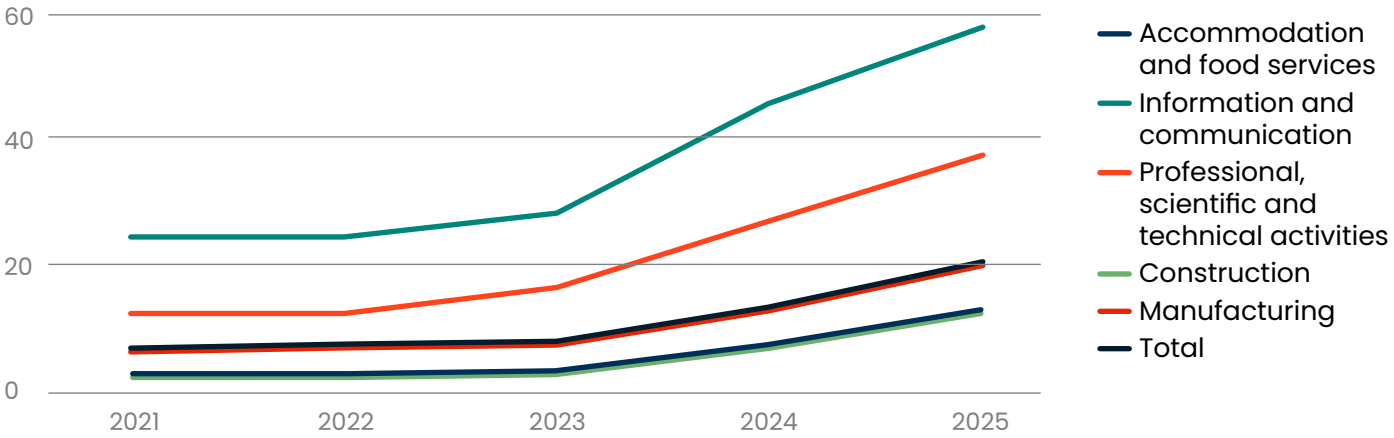
5.1 Immaturity and fragmentation

Although AI adoption has expanded over the last few years, it is highly varied across the built environment sector. Figures from the Organisation for Economic Cooperation and Development (OECD) show that, across all member countries, the construction sector trails other industries, with only 11% of enterprises with more than 10 employees having adopted the technology. However, it is used by 37% of enterprises involved in professional, scientific, and technical activities (which includes the professions in the built environment, e.g. architects, surveyors and engineers) (Figure 1). When you then consider the increasing penetration of AI in the year or so since the OECD research, the current figure is likely even higher than 37%.

The OECD figures mask national differences. Taken in isolation, in 2025, the figures for the UK were stark. AI adoption was led by businesses involved in administrative and support services however, here, only 8% of the sector used AI. This compares with just 0.17% of construction businesses, which is likely skewed by the high proportion (99%) of SMEs in the construction sector. Up to date figures for professional, scientific and technical activities (which includes the professions in the built environment, e.g. architects, surveyors and engineers) are not available. However, research by the AI Institute suggests that 20% of firms have a formal AI policy and fewer than one in three first invest in literacy training.[2,3]

Adoption across the built environment sector is uneven, and multi-layered. This picture is not unique to the sector; it reflects a global trend of uneven uptake across age groups, sectors and nations.

Figure 1: Businesses using AI, OECD area, selected industries (2021-2025)[4]



5.2 Experimentation everywhere, coherence nowhere

At the moment, there is a clear pyramid-shaped hierarchy of AI use in the sector in the UK, with mass take-up amongst individuals, moderate adoption amongst organisations, but very low sector-wide adoption (Figure 2).

Figure 2: Current pattern of AI adoption in the built environment sector in the UK

Low sector-wide adoption

- There is very little joined-up use across supply chains, projects, or asset life cycles
- Adoption is fragmented, there is uncertainty over liability
- Interoperability issues limit shared/ collaborative deployment

Moderate organisational adoption

- Some large firms have adopted AI via enterprise platforms (e.g. Copilot-style tools, embedded AI in existing software)
- SMEs are adopting selectively, often starting with low-cost, off-the-shelf tools

Very high individual-level adoption

- There is almost universal use of generative AI tools (LLMs) by professionals for drafting, searching, coding, summarising, and analysis etc.
- This activity is often unofficial, ungoverned, and organic rather than strategically deployed

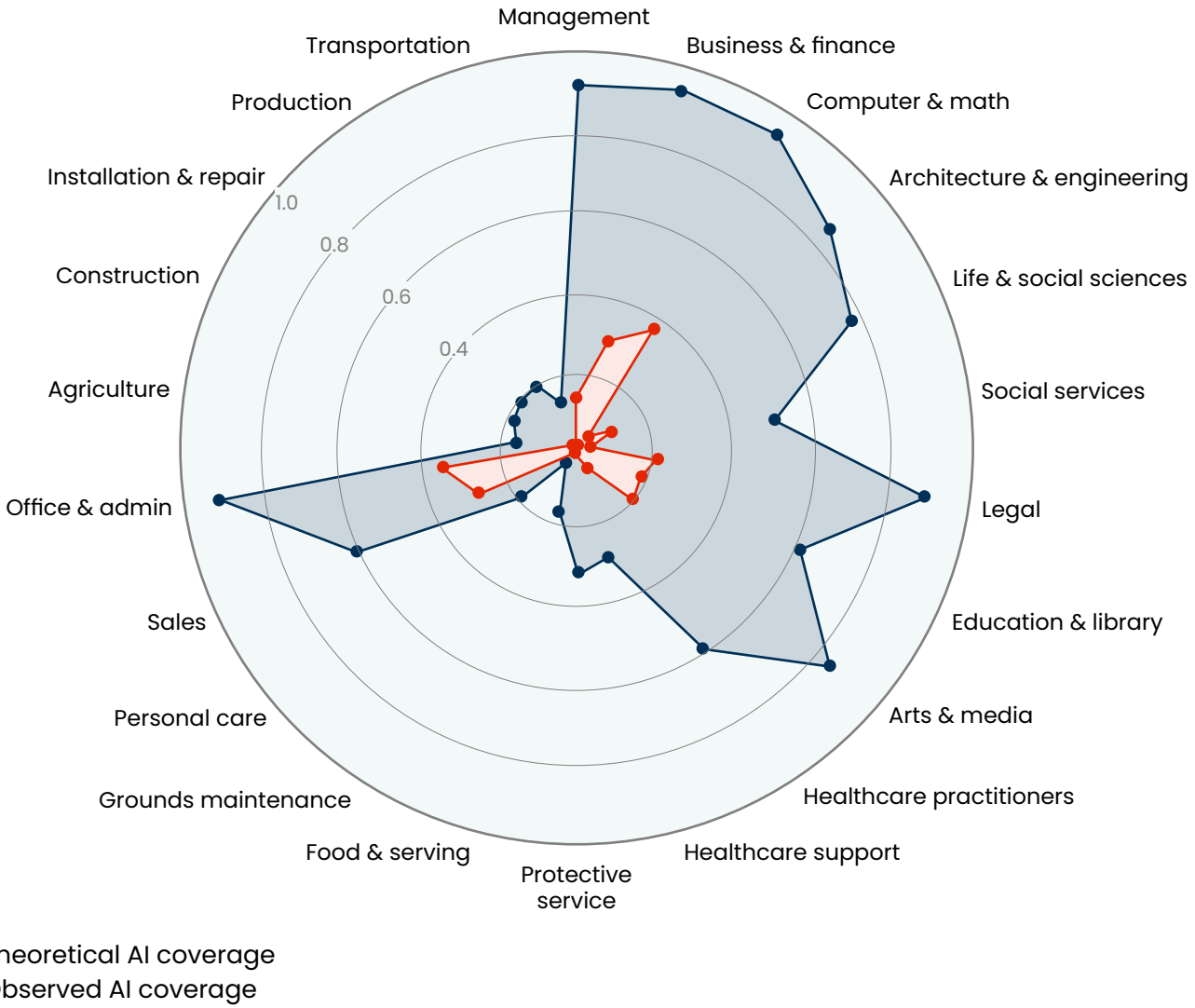
There are various examples of moderate organisational AI adoption – typically by larger organisations – across the built environment sector.

See Appendix 2: Examples of AI adoption by larger firms in the built environment.

5.3 Future potential

Although the extent of impact and change is presently unknown, AI has huge potential for game-changing adoption. For example, data from Anthropic (think Claude) estimates that, although currently 'AI coverage' in professional and scientific services (e.g. architects, surveyors and engineers) is at about 11% industry-wide, it has the potential to reach over 80% (Figure 3). Construction, on the other hand (trades involved in building, and dominated by SMEs), is predicted to reach under 20%. This is based solely on predicted use of Claude – so, in reality, taking into account all platforms and tools – AI coverage is likely to be pervasive.

Figure 3: Theoretical capability and observed usage of AI by occupational category[5,6]



Interviewees describe the primary role of AI in an enabling function – a tool to improve efficiencies and workflow, for example – but not as a replacement for human autonomy, creativity or judgement. Meaning, it can improve decision-making, productivity, safety, performance and sustainability. Firstly, users need to understand their objectives for using AI and the key challenges where AI can help.

> **"Treat AI as your new colleague, your construction assistant, potentially removing the burden from often repetitive data tasks. Work out where it can provide complementary analytical skills, pattern recognition, consistency, and increased processing speed."[7]**

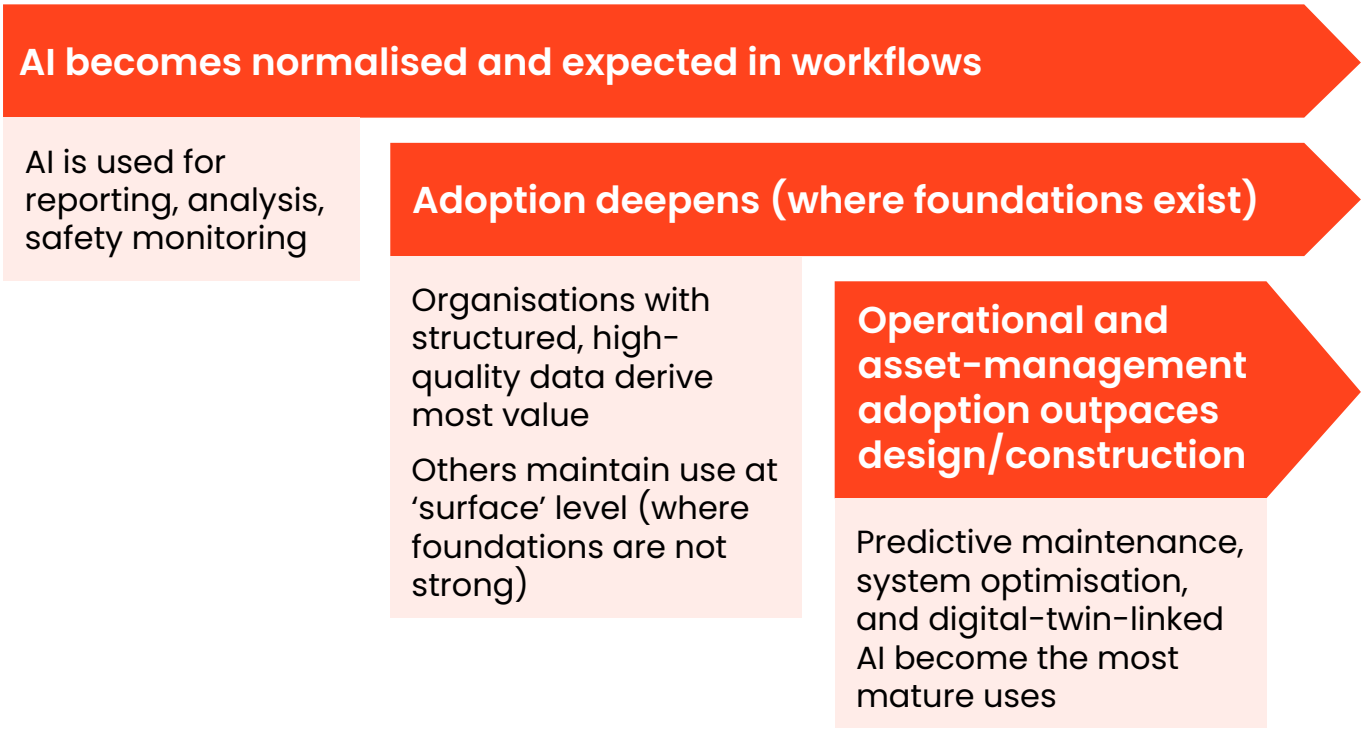
With this in mind, to optimise value, the findings from this research suggest that AI should be applied across lifecycle stages and organisational boundaries, rather than in silos – the reverse of the current situation. The highest current potential is realising time-savings in conducting more menial, repeatable tasks. The AI Institute suggests that investment should be targeted towards high-value, high-risk workflows that define a business' competitive edge: cost estimation, contract review, engineering validation and compliance reporting.[8]

Currently we are beginning to see some gains. For example, research undertaken by the AI Institute identified measurable reductions in time spent completing certain tasks:

- Risk assessments reduced from 157 to 37 minutes
- 10,000-word reports summarised by Copilot in 30 minutes
- Bid preparation reduced from 3 weeks to 3 days[9]

However, the status quo described above is likely to be sustained in the short-term, as experimentation and piloting are rolled-out. In the **medium term**, AI will become normalised and deepen (Figure 4 on the next page).

Figure 4: Possible AI adoption in the medium term



The longer term (7-15 years) is likely to see near-universal adoption of some form, as AI becomes embedded. As with any new technology, it will become invisible and assumed as it becomes embedded into business as usual, in much the same way as word-processing software, spreadsheets and BIM.

However, fragmentation is still likely to exist at a system level unless structural change occurs. For example, without reform of procurement, standards and data governance regimes, adoption is likely to remain siloed. However, with reform, AI has the potential to underpin integrated, lifecycle-wide decision making.

5.4 Disruption

The built environment sector has witnessed disruption in many forms over the last 50 years, from industrialised practices and prefabrication of the 1970s onwards, the health and safety transformation of the 1980s-1990s, as well as the adoption of CAD and BIM in more recent years. Current sustainability agenda and Net Zero goals continue to cause disruption in material choices, design priorities, procurement criteria and operational asset management. The adoption of the 'golden thread' policy has introduced a more stringent regime around information management. Disruption can be empowering if managed well; the greatest risk for the adoption of AI is not disruption per se, but mis-directed adoption, such as over-automation of existing poor processes or loss of organisational knowledge.

The impact of AI will be highly disruptive – in the longer term. Although there is a high degree of fragmentation, industry is talking about this. For example, Pinsent Masons held a roundtable in October 2025 attended by 40 industry leaders and senior executives to discuss the impact of AI on the sector's business model. The consensus was that AI is expected to have an incremental impact on the sector, with significant disruption expected when the benefits of AI become more widely felt. The expected speed of adoption is tempered by the nature of the sector, which is traditionally conservative and slow to adopt technology.[10]

The interviews support this premise, strongly rejecting the idea of an immediate, catastrophic disruption. Instead, they point to deep, cumulative change over time (i.e. change is structural, rather than sudden). In the short term, this is likely to look like **optimisation, not transformation:**

Workflow acceleration, but not replacement: where AI will speed up existing tasks, such as report writing, summarising information and analysis.

Limited job displacement: at a senior level, where critical thinking and judgement will remain crucial. Entry-level and routine tasks are likely to be most affected.

Cultural disruption exceeds technical disruption: at an individual and organisational level, where anxiety pervades and outweighs real structural change.

Table 1: Potential AI disruption over the medium and long term

Medium term disruption	Longer term disruption
● **Disruption of business models** where revenue growth becomes detached/ independent from headcount. ● **Reshaping and upskilling of traditional discipline-specific career pathways:** – Fewer junior roles will be required doing repetitive work (or they are deployed to different business areas, or they are expected to have a diversified skillset). – This invites the risk of hollowing-out the pipeline of experience, if the entry routes/demand shift is not actively managed. – Demand for AI-literate professionals, as well as specialists in software analysis, information and data management, will grow to mitigate risks of liability. Also, there could be greater pressure from clients, insurers and regulators if AI use becomes an expectation to improve safety, reduce risk, cost and error. **"There's a real risk that we remove the training ground without replacing it."** **"Experience doesn't just appear, it's built up over time, and AI changes that pathway."**	● **Job roles will be reconfigured and decomposed, rather than lost wholesale** as tasks that were once manually completed become automated (or at least sped up). The skills profile of professionals will shift, with more emphasis on professional judgement, oversight, systems thinking and integration. ● **Recruitment practices will need to evolve and adapt,** broadening the range of in-scope roles to expand talent pipelines. ● **The structure of the sector will be disrupted** with potential 'disintermediation' as communication challenges/workflows become more streamlined. In this sense, AI is likely to enable a tighter coupling of planning, design, delivery and operation. ● **There is potential transformation of procurement and assurance** if AI becomes demonstrably safer and more reliable. In which case insurers and clients might mandate the use of AI, moving away from the current caution being shown by the insurance sector to the use of such tools during their nascent development and proof of better assurance. ● **There is a risk of unequal distribution across organisations, regions and individuals** if there is uneven access to skills or capital, and inequities in data quality. AI could widen existing – or create new – productivity and capability gaps unless it is actively managed.

6

Friction between potential and reality

6.1 A cross-roads

The sector is simultaneously energised by AI's potential and yet constrained by weak foundations, producing a cross-roads. This is because individual experimentation is accelerating, but organisational and sector-wide value remains hard to realise at scale.

Sector bodies are working to address the challenges and imbalances posed by AI adoption with a range of industry initiatives – e.g. CLC's Information Management Initiative, nima's work on information management, the AI institute – as well as guidance and standards such as BridgeAI, a new BSI Standard (PAS 1958:2026) and various professional body guidance.

See Appendix 3: Examples of AI initiatives, standards and guidance in the built environment sector

What all of these examples – and more – have in common is a focus on the importance of:

- Data quality
- Data governance/AI policy
- Ethics and guidelines
- Skills and Training

The current cross-roads feels urgent because, if AI becomes increasingly embedded and invisible in workflows (as other digital tools have done in the past), but without the enabling conditions (data, governance, shared standards, skills) the sector risks entrenching fragmentation and amplifying existing inefficiencies, rather than addressing them.

The built environment's current challenge with AI is therefore not about whether to adopt it, but about how to integrate it safely, appropriately and efficiently into a sector that is fragmented, risk averse, and highly accountable. This must be done sustainably, without undermining trust, skills, or value.

The result is that many organisations are not AI ready, despite high interest. The industry is experiencing blockers; these are not necessarily technology-led, but are largely data-related and human factors.

1 AI adoption means cultural change, not simply IT deployment

> "The sector has an unknown risk profile right now because individuals are using AI without structure or oversight"

The fundamental barrier is not a technology gap but a change-management gap: organisations struggle to shift habits, incentives, and confidence in new workflows. This comes through in the observation that personal adoption is widespread while organisational adoption remains weak, or inconsistent.

The focus should be on building an environment where people can learn safely and continuously, for example, by creating visible leadership permission for workers to experiment (with guardrails) so that adoption isn't confined to enthusiasts and 'quiet', or 'shadow', use.

This means treating AI rollout as cultural change, rather than IT deployment. For example, many AI initiatives fail because they're rolled out as a software rollout rather than a change management piece requiring governance, security, and continuous training.

Embedding change can be facilitated by nominating designated champions/ cheerleaders who demonstrate practical value and spread practice bottom up, not only via top down mandates from leadership.

2 Some SMEs might be disadvantaged

> "SMEs often don't have the time or capacity to experiment safely"

Cost can be a significant factor driving uneven take-up. For example, costs are incurred for enterprise tooling, per-seat licenses and – for the larger companies – the expense of building internal models or training data **(see Appendix 1: Table 1: Categories of AI in the built environment).**

For SMEs, costs are compounded by limited time and thin margins. That said, some forms of AI tooling are much more accessible than historic enterprise level systems, that incur substantial upfront cost. Some forms of AI, currently being sold as 'pay as you go' (with flexible monthly charging) are more accessible to SMEs than these historic systems. In these circumstances the challenge for SMEs is likely understanding how to mobilise AI within their business and change processes.

Solutions point to the need for shared sector resources and collaboration and staged adoption. For example, shared frameworks and readiness roadmaps that would help organisations to choose the right tool for the right job and therefore avoid wasteful experimentation, or worse. Importantly, this would involve large organisations supporting SMEs through supply chain tooling, rather than leaving SMEs to fend for themselves.

There is a plethora of AI training available; SMEs may also benefit from support in sourcing appropriate training to use tools safely and appropriately.

3 Knowing where liability and risk sit

> **"AI doesn't carry liability – people do"**

Liability and indemnity are of particular concern in regulated design and safety-critical contexts; it is possible that, to mitigate risks, insurers ultimately control adoption rates by insisting on proven AI once it demonstrates safe, or more assured, outcomes than purely human processes. However, there is legitimate concern for those who may take AI outputs at face value which might reference legislation that doesn't exist, and identify obligations that are not true in law. Whilst, historically, cases are rare in the built environment sector in the UK, there is precedent across other sectors and countries.

In legal services

What happened?

Pinsent Masons/High Court, 2026: a junior solicitor used AI to draft misleading letters in an insolvency application. The AI generated false or misleading legal material.

What went wrong?

The solicitor did not check the references, despite the AI itself warning that checks were needed; supervisors also failed to verify the work properly.[11]

In legal services

What happened?

Mata v Avianca: lawyers submitted legal authorities generated by ChatGPT that did not exist.

What went wrong?

The lawyers failed to verify case law before filing it with the court.[12]

Consulting / professional services

What happened?

Deloitte Australia report for government: a report for Australia's Department of Employment and Workplace Relations contained apparent AI-generated errors, including non-existent academic references and a fabricated quote from a federal court judgment.

What went wrong?

AI-assisted drafting appears not to have been properly source-checked before publication.[13]

HR / recruitment	What happened?	What went wrong?
	iTutorGroup hiring software: the company's application software allegedly rejected female applicants aged 55+ and male applicants aged 60+.	Automated screening criteria were allowed to reject candidates in a way that breached age discrimination protections.[14]

The pattern across cases is that serious consequences occur when AI is treated as an authority, rather than as an assistant. This means clearer professional guidance needs to be followed on what constitutes acceptable use, verification, as well as accountability boundaries. There is a need for controlled environments to reduce hallucinations/fabrications and data leakage, especially where organisations block public web-trained models.

4 Optimise inefficiencies rather than redesign them

Parts of the sector are using AI to re-stitch broken workflows, rather than addressing root causes. A good example is individuals generating .pdfs from models and then using AI to reconcile the pdfs – the question is, why is information being flattened into .pdfs in the first place?

This is a systems problem: AI can become a distraction if it is issued to make inefficient and siloed processes marginally faster, rather than enabling a more fundamental workflow or productivity redesign. The risk is a missed opportunity.

This can be overcome with intelligent workflow mapping and productisation. This underlines the importance of 'systems thinking', where benefits realisation depends on earlier-stage integration, for example building in compliance checks within workflows, not only at the end.

5 Fragmented data is a structural blocker

> **"AI is only as good as the data you give it. If your data is fragmented or poor quality, AI will simply amplify that"**

If AI is applied on top of fragmented, inconsistent, poorly governed data, it cannot reliably deliver potentially transformational benefits. For example, in many businesses, data is spread across clouds, .pdfs, spreadsheets, personal drives, and disconnected systems, with limited shared taxonomies and weak lifecycle governance.

The remedy is to do the groundwork, rather than move towards 'more AI'. For example, treating data as a managed asset and investing in structured information and governance that lasts for the full asset lifecycle (30–50 years), not just project delivery. A useful test could be to use readiness gating: assess whether organisations are 'AI ready' and, if not, focus first on digital transformation steps (connecting data sources, governance, skills capacity) before deploying AI.

Whilst AI will help to facilitate information management, it cannot be solved wholly by AI and will still require professional judgement.

Longer term, this will mean sector wide collaboration to build interoperability through shared conventions (naming, classifications, taxonomies/ontologies), so AI can operate across systems and supply chains, rather than within isolated silos.

However, it is worth noting that some AI solutions, via means such as machine learning and deep neural networks, are becoming capable of plugging data gaps, although these still need human verification.

In summary, because successful adoption of AI is about integration, fragmentation will limit impact. Overcoming fragmentation will require alignment between:

- Tools and data
- Individuals and organisations
- Productivity and business models
- Innovation and liability (but structure/standards/regulations should not stifle innovation)
- Short-term gains/quick wins (that might be ill thought out) and long-term, sustainable capability

6 Friction between commercial and business models

> "If AI lets you do a week's work in a day, how do you charge for that?"

If optimisation is achieved, then what does this mean for traditional business models? Clients may presuppose – or even expect – that AI is used to optimise workflows, improving productivity and therefore reducing time inputs. The natural conclusion will therefore be that time saved = saved money. This is not necessarily the case, however. Investing in AI technology is not without cost – it requires investment in the technology itself, time to test and pilot it, developing staff to be able to use it well, and creating guardrails around its use.

So, how do businesses charge if outputs can be produced more quickly, because the input model changes? Pricing structures must adapt; day rates evolve to be based on outputs and outcomes.

There is also an implication of the potential influence of insurance confidence and requirements shaping the speed and nature of AI adoption. This may result in a plausible future shift toward insurers expecting (or even mandating) the use of proven AI.

7 Unease about sustainability and environmental impacts

> "We don't yet have good answers about the environmental impact of large scale AI use"

This topic arose infrequently in the interviews, it is discussed in literature, but there is an evidence gap when it comes to the 'AI footprint'. This is because estimates depend on the parameters and scope of how AI use is defined; for example, whether measuring operation electricity only, or full lifecycle impacts; whether emissions are reported on a location-based or market-based basis. This field also lacks standardised, comprehensive and validated reporting.[15]

An important finding from the OECD is that AI has both direct and indirect environmental impacts:

- **Direct impacts:** from production, transport, operation and end-of-life of computer resources.
- **Indirect impacts:** including beneficial climate applications, but also rebound effects, carbon leakage, and consumption growth.[16]

Although the scale is not known, AI is amplifying an already large digital infrastructure footprint.

7

Appropriate, efficient and safe use

7.1 AI as augmentation, not autonomy – A People First approach

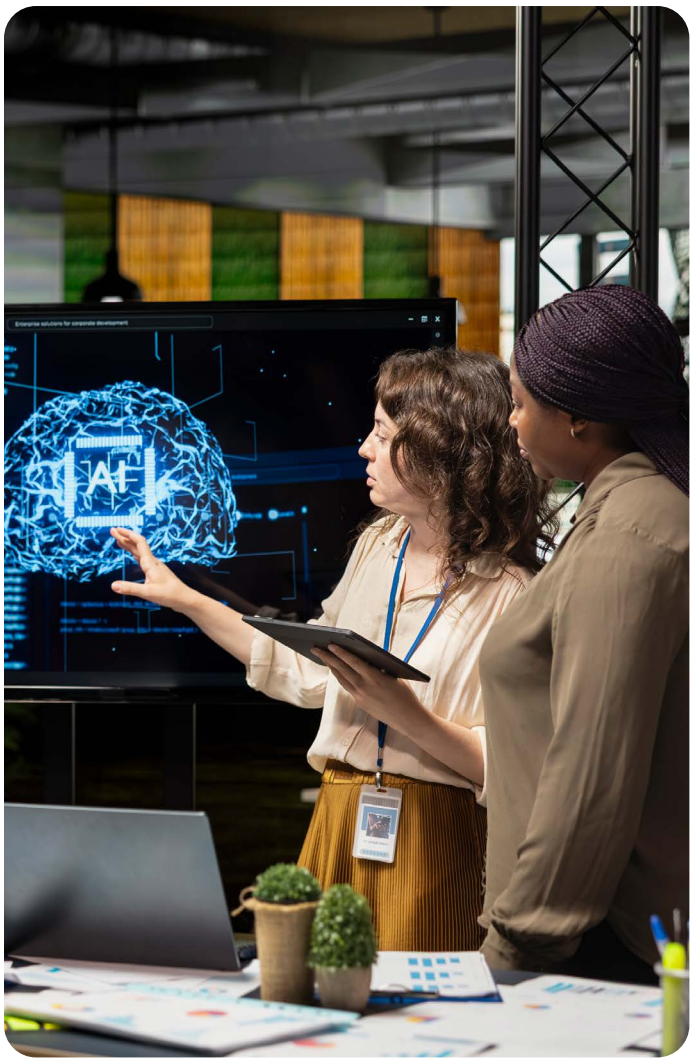
> **"The industry needs to decide what it wants AI to do, not just react to what vendors are offering"**

The findings from the interviews conducted for this research suggest a collective 'Vision for AI' is lacking in the sector. The guiding principle expressed was explicit: the sector's vision "is... not even about AI... It's about people and it's about AI serving people." We suggest what this could look like.

People first vision for AI in the built environment

AI should be adopted as a tool that improves outcomes for people and places – supporting safer, more sustainable and more productive delivery and operations – while keeping human judgement, accountability and professionalism at the centre. In practice, a people first approach means using AI to remove drudgery and elevate human value (context, stewardship, relationships, critical evaluation), rather than automating without assurance or eroding trust in professional services.

In this scenario, professionals remain accountable for decisions and outcomes, whilst AI supports heavy lifting, but does not replace professional judgement. To achieve this means unlocking capability (i.e. ensuring people are appropriately skilled to use AI as a tool) and creating enabling environments where it is safe to do so (guardrails).



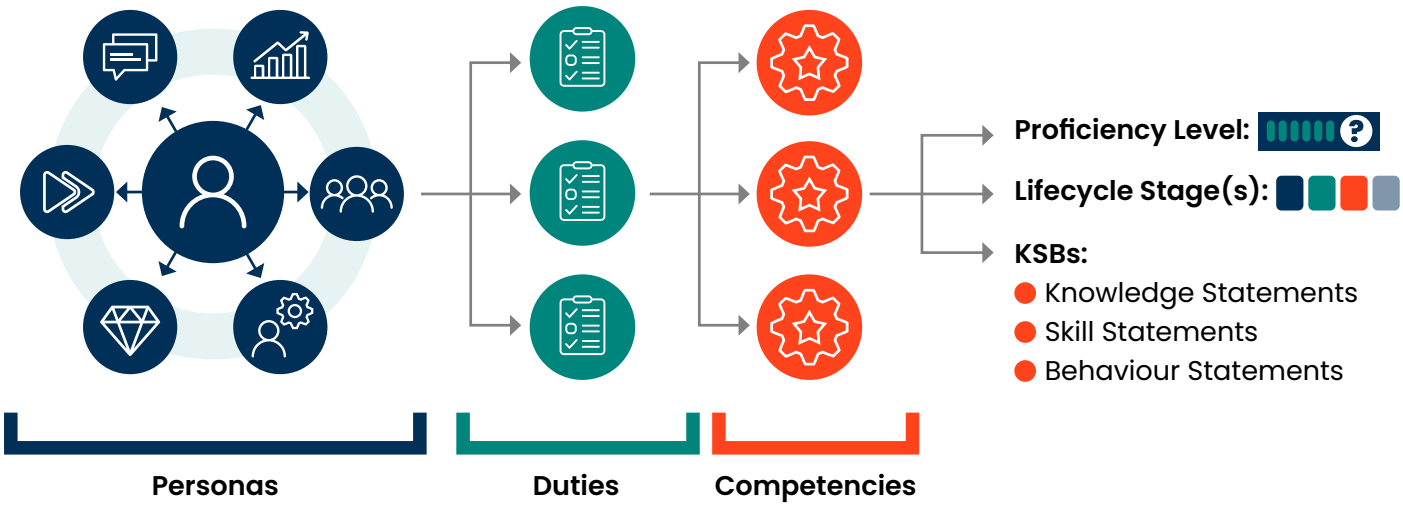
7.2 Unlocking capability

1 Defining AI skills and competence for the built environment

Earlier this year, BridgeAI published version 3 of the AI Skills for Business Competency Framework designed for employers, workforce development leads, further education, higher education and training providers. It covers many of the key skills and functions discussed in previous sections (e.g. applying professional judgement, being aware of AI's capabilities and limitations, safeguarding sensitive information, raising concerns about risks, engaging in training), for a range of different 'personas' that include 'worker', 'professional' and 'leader' (Figure 5).[17]

However, practical competencies for using AI in the built environment, specifically, are largely under-developed because of the myriad issues discussed in previous sections of this report. This means there is a foundational gap in the development of homogeneous skills pathways, and training which, over time, may lead to inconsistencies and divergence in the definition of what it means to use AI competently in the built environment.

Figure 5: Structure of the AI Skills for Business Competency Framework



The findings from our interviews identified areas of competence for AI use that broadly reflect the digital competencies identified by the Construction Leadership Council (CLC) (Table 2).

Table 2: Digital competencies developed by the Construction Leadership Council

Core transferable competencies	Core specialist competencies
● Digital literacy and fundamentals ● Digital communication and collaboration ● Legal and ethical considerations ● Exploring digital opportunities ● Data analytics and decision support	● Design and planning ● Modelling and simulation ● Onsite technologies, automation and robotics ● Asset management ● Business management

However, interviews and the literature also point to a need to define a more nuanced and deeper set of competencies that reflect the discrete needs of built environment professions and sub-sectors, and which will respond to predicted longer-term disruption. Possible areas of competence are listed below (Table 3), which would need to be expanded to reflect the role-specific decisions, risks and accountabilities of engineers, architects, planners, surveyors, project managers, cost consultants, contractors, asset managers and public clients.

Table 3: Examples of competence areas for using AI in the built environment

Ways of working	Data issues
● Approved tools ● Restrictions on sensitive data ● Levels of human review, audit trails ● Disclosure expectations ● Sign-off responsibilities ● Escalation routes	● Security ● Fragmentation ● Inconsistent or poorly governed data ● Understanding provenance ● Interoperability ● AI and BIM ● Asset information ● Common data environments ● Handover information

2 Addressing priority skills needs

There is a pressing need to address two key skills gaps.

AI literacy for built environment professions

> **"Prompting is a skill, but so is critiquing what comes back"**

Skills gaps in the workplace are in unexpected places: i.e. they are not necessarily technical, but they are linked, such as technical literacy, critical thinking and using professional judgement. We know there is a gap, because only 30% of built environment firms provide AI literacy training.[18]

Addressing this skills gap means building baseline AI literacy (tool selection, prompting), validation/critical evaluation, and continuous learning into education and CPD whilst preserving domain fundamentals so that professionals can verify outputs and remain accountable. An understanding of data security is key to this. Two crucial skills areas:

- **Tool selection:** Misuse of AI often comes from applying the wrong type of AI to the wrong task, such as using generative AI for numeric engineering calculations.
- **Prompting:** This includes the practical competency of asking better questions and structuring prompts because AI will confidently answer poor questions and generate plausible, but incorrect, outputs.

Validation, critical thinking and professional judgement

As AI outputs have become – and continue to become – easier to generate, professional tasks shift towards evaluation and quality assurance. For this reason, professionals must retain foundational domain skills to properly evaluate the outputs that AI produces to identify errors and fabrications.

This reinforces the need for a people first approach as responsible use of AI requires human expertise to verify, interpret, contextualise and sign-off outputs. This is crucial for the built environment sector where safety and liability are at stake.

3 Revisiting education and skills pathways

Across interviews, the priority capabilities needed for people first, responsible adoption are not limited to technical specialists; they are presented as foundational professional competencies for all areas of the workforce. However, given the potential for AI to disrupt traditional entry routes and progression pathways (i.e. hollowing out the pipeline of experience), a linked skills pathway should focus on:

- **Traditional discipline-specific entry pathways (education and early career):** Education providers are moving beyond treating AI as a discrete topic or a cheating risk, and instead teaching legitimate, augmented use while preserving domain fundamentals so graduates, apprentices and college leavers can critique outputs rather than accept them uncritically. This is tied to workforce sustainability concerns: if junior tasks are automated away without new education and training models, the sector may undermine its future professional pipeline (loss of time served learning and reduced recruitment), which is both a workforce and safety risk.

Academia has responded in part through education and training, focused on AI in the built environment. For example, the University of the Built Environment recently validated a 2-year postgraduate programme 'MSc Renewable Energy and AI', which will combine "expertise in renewable energy systems with AI and data science, two of the most in-demand skills worldwide." Technical education has also embraced the AI challenge, with new apprenticeship units being available in AI leadership.[19]

There are examples of proactive higher education responses (policies, guidelines, staff training, controlled tool environments) as well as partnerships between academia and industry and research into practical applications of AI:

- **University of Westminster's AI for Quantity Surveying (AI4QS) programme** is an initiative between the University of Westminster and Loughborough University originating from the ongoing AI Competencies in Construction Project funded by UK Research and Innovation (UKRI) and hosted at the School of Applied Management, University of Westminster. The aim of the project is to understand, shape, and advance the role of AI in Quantity Surveying practice and education. Critically, it aims to empower Quantity Surveyors to "lead confidently, think critically, and unlock new forms of value in the data age."[20]
- **Northumbria University is leading a research project** with the aim of enhancing sustainability in the construction industry by integrating artificial intelligence (AI) and innovative waste management strategies. It will develop AI-driven decision support systems to help construction managers identify waste generation points, implement effective handling strategies, and assess project sustainability through new key performance indicators (KPIs).[21]

- **Continuing Professional Development (CPD):** CPD is repeatedly framed as most valuable when it is practical, case based and hands on (i.e. focused on real workflows, tool selection, prompting, validation, and risk awareness) because AI capabilities evolve too quickly for one off training or static curricula to respond. Several interviewees emphasise that safe adoption requires continuous learning and experimentation in controlled settings, rather than passive awareness. The pace of change in AI therefore means that CPD cannot be piecemeal or episodic. A new approach is needed whereby CPD becomes regular – almost constant and embedded – and is practical and applied. The result is that individuals must take responsibility for their own AI literacy.

7.3 Governing AI adoption and use

As evidenced earlier in this report, various entities – led by industry bodies – are already actively looking to support industry in addressing the challenges of AI adoption, not least in setting out guidance and standards. The common areas they coalesce around include: data quality; governance/policy; skills and training; ethics and guidelines. However, much of this work is siloed.

This points to the need for a linked governance agenda across the built environment covering:

1. **Shared frameworks**
2. **Shared data principles**
3. **Organisational policies and controls**
4. **Professional accountability guidance**
5. **Sustainability stewardship**

1 Shared frameworks

A sector level framework would translate the people first vision into repeatable practice, acknowledging that individual adoption is widespread but organisational and cross organisation coherence is weak.

The framework would define how organisations move from informal use to governed use, including readiness steps (digital foundations first), safe experimentation spaces, change management support, and decision points for scaling. Achieving a consistent, sector-wide joined-up movement will also require agreeing deadlines for achieving each step.

This approach should also help organisations avoid AI as a software rollout and treat adoption as change management, with governance, security, training, and continuous learning embedded in daily workflows.

2 Shared data principles

The strongest alignment lever in the interviews conducted for this research is a shared data discipline, because AI cannot reliably deliver value when data is fragmented, inconsistent and poorly governed. A shared data agenda could set out:

- Interoperability expectations (e.g. common classifications, naming conventions, taxonomies/ontologies) so tools can work across organisational boundaries rather than reinforcing silos.
- Lifecycle data governance on how data is curated over decades, not just during design and construction, with particular attention to safety and compliance information continuity.
- Secure data sharing protocols to facilitate sharing of data securely between applications and organisations, rather than trapped in single vendor or single project silos.
- Security and sovereignty guardrails where estates, national infrastructure and sensitive client data constrain what can be used and where it can be processed. This is particularly important in public-sector and sensitive estate contexts, where AI must operate inside strict cyber ring fences and where even basic BIM or document transfer can be constrained. Responsible adoption must include data sovereignty (where data is stored/processed) and safeguards against leakage of sensitive building, client or citizen data.

3 Organisational policies and controls

There is a hidden risk as informal adoption outpaces governance. This can be mitigated by:

- Using protected enterprise environments (e.g. keeping work within Microsoft, or other software ecosystems) to reduce data leakage concerns.
- Creating tailored policies, including assessment 'traffic light' systems for permitted AI use to make expectations explicit and enforceable.
- Using readiness and ethics screening before progressing AI projects, for example, using a responsible AI assessment approach, producing mitigations and, in rare cases, stopping projects that cannot be ethically mitigated.

Some efforts have been made by sector bodies to lead the field in this area. For example, 'The Get it Right Initiative' (GIRI) published a draft policy which was consulted on earlier in 2026, for Safe and Responsible Use of Artificial Intelligence in Construction. The draft set out "principles and practical measures to help organisations deploy AI in a responsible, transparent and risk-aware manner. Its purpose is to support contractors, consultants, clients and the wider supply chain in balancing the benefits of AI with the need to maintain competence, control and quality assurance throughout the project lifecycle."[22] This is the latest publication on AI and following 'Artificial intelligence and error reduction – the opportunities and challenges'.

This is just one example of a tool that already exists to support AI adoption in a safe way. Further examples of practical guidance are provided in **Appendix 3: Examples of AI initiatives, standards and guidance in the built environment sector.**

4 Professional accountability guidance

Interviews conducted for this research repeatedly stressed that professional responsibility cannot be outsourced to AI, and that there is a role for professional bodies to provide practical guidance and reinforce accountability. As discussed earlier, the risk is that, without clear boundaries and QA, AI can lead to catastrophic outcomes and reputational harm, especially if credibility is lost or if PI insurance coverage becomes uncertain.

Table 2 provides various examples of where professional bodies (and others) have moved to address this need, however interviews also suggested that institutions need to think about their identity in this new world – from gatekeepers of knowledge towards gatekeepers of governance and standards. This is important because general access to information changes the professional value proposition – it raises questions about what it means to be a professional, and where does a professional's value now lie?

There is evidence of some professional bodies considering a more fundamental role for AI in professional registration and membership. For example:

- In 2026 RICS published a new pilot pathway to RICS membership (MRICS), which recognises surveyors' achievements in data, analytics and intelligence.[23]
- Engineering Council's Artificial Intelligence (AI) Working Group Close-out Report (2025) (in partnership with the Science Council and the Society for the Environment) recommends use of AI by applicants and professional engineering institutions (PEIs) for professional registration processes.[24]

Examples of other professional bodies exploring how AI may be used include CIBSE, which set up a working group on AI in 2025 to set out the organisation's position on AI. The working group's first objective is to develop a CIBSE Position Statement (yet to be published). The long-term intention is to set up a "dedicated Special Interest Group on AI open for CIBSE members and the wider building services community with an interest in the area".[25]

The Chartered Institution of Civil Engineering Surveys (CICES) published an Artificial Intelligence (AI) Policy governing the organisation's own use of AI, which applies "to all employees, trustees, other volunteers, contractors and third-party representatives working on behalf of CICES". It sets out the organisation's position on governance, management (supporting skills development) and considerations for data protection and privacy, as well as the environment.[26]

This suggests that professional bodies are adopting an enabling role by capturing and evolving best practice. The challenge will be twofold: 1) to achieve this while avoiding rigid standards set too early that could block innovation, 2) to achieve this in a collaborative and joined-up way, across industry.

5 Sustainability stewardship

Widening use of AI has environmental implications linked to expanding data centres, specifically in terms of energy use, carbon footprints, water cooling and wider environmental impacts.

Responsible use of AI therefore must factor in these implications, because sustainability is a potential deal-breaker if it isn't managed well. This requires governance and stewardship, not merely individual choice, because sector wide adoption at scale has systemic impacts.

8

Conclusions and recommendations

The overall conclusion is that the sector has reached a point where coordinated leadership is essential and will shape what happens next. AI will become embedded in professional tools and workflows whether the sector takes a coordinated approach or not.

The choice is therefore not between adopting AI and avoiding it. The choice is between fragmented, vendor-led and largely reactive adoption, or a more deliberate approach in which AI is used to support better professional practice, better lifecycle outcomes and greater sector capability.

AI is already being used across the built environment sector, but adoption is uneven, often informal and moving faster than the governance, skills and assurance systems needed to support it. The sector is not resistant to AI, nor has it been fully transformed by it. Rather, it is experimenting at pace whereby individuals use AI for drafting, summarising, searching, coding and analysis, while more advanced applications such as automation, predictive analytics, computer vision and digital twins are developing in specific parts of the sector.

The key conclusion is that AI is no longer a future issue: it is already part of professional practice. The challenge is not simply whether AI can be useful, but whether the sector can use it safely, securely and effectively. AI adoption therefore needs to be treated as a workforce, governance and professional practice issue, not just a technology issue.

Actions for industry

1. A clearer shared direction is now needed.

The sector should move from experimentation to alignment around a simple principle: AI should augment professional judgement, not bypass it. AI can support professional work, but it cannot and should not carry professional responsibility. This principle should shape guidance, training, assurance and engagement with clients, regulators and professional bodies. AI will not remove the need for built environment expertise, but it will change what competent expertise looks like. Professional value will therefore increasingly lie in knowing how to frame the right question, judge whether a tool is appropriate, assess the quality of the data being used, challenge outputs, recognise gaps and decide whether results are safe, relevant and defensible.

2. Verification should therefore become central to AI-enabled professional practice.

AI-assisted outputs should be treated as drafts or decision support, not authoritative conclusions. Professionals should be expected to use, challenge, verify, document and then decide, particularly where outputs may influence design, planning, cost, procurement, compliance, safety, carbon or asset performance.

Responsible adoption will also depend on proportionate assurance. Organisations need practical guardrails covering approved tools, sensitive data, human review, audit trails, disclosure, sign-off responsibilities and escalation where uncertainty remains. These norms should be developed with professional bodies, employers, insurers, clients and regulators, so that responsible innovation is supported without creating unnecessary bureaucracy.

AI will also expose the sector's longstanding data problems. Fragmented information, inconsistent standards, weak interoperability and unclear data ownership are central barriers to effective AI use. AI will not compensate for poor information management; in many cases, it will make its consequences more visible.

3. Data and information capability should therefore sit at the centre of the AI agenda.

Data quality, provenance, interoperability, BIM, asset information, common data environments and handover information should be treated as core workforce and competence issues, not just technical systems issues.

There is also a major workforce development challenge. Many tasks that AI can speed up are also the tasks through which junior professionals learn. The sector should not preserve inefficient processes for their own sake, but it must protect the learning, judgement and confidence those processes help develop.

Actions for industry in partnership with education and professional bodies

4. This shift requires a practical AI competency framework for the built environment.

This should define baseline AI literacy for all professionals, role-specific competencies for different disciplines, and higher-level assurance and leadership capabilities for those procuring, reviewing or governing AI-supported work. The aim should not be to turn built environment professionals into AI specialists, but to ensure they can use AI responsibly and know when human judgement or deterministic methods are required.

The greatest near-term risk is not mass job loss, but unmanaged adoption. AI tools can produce outputs that are fast, fluent and plausible, but also wrong, incomplete or inappropriate. Productivity gains are only valuable if they are underpinned by effective checking.

5. Early-career learning will need to be redesigned for AI-enabled workflows.

Apprenticeships, graduate schemes, vocational learning and professional formation should combine supervised AI use with technical review, comparison between human and AI-generated outputs, and structured opportunities to understand why an output is right or wrong. Existing professionals will also need CPD to maintain and adapt their skills.

Generic AI training will not be enough. Engineers, architects, planners, surveyors, project managers, cost consultants, contractors, asset managers, public clients and educators will use AI in different ways and face different risks.

6. Training should become more role-specific and grounded in real built environment scenarios.

This would help the sector move beyond broad awareness and towards practical, defensible competence.

There is a risk that AI widens existing capability gaps. Larger organisations with stronger digital infrastructure may benefit first, while some SMEs, local authorities, smaller contractors and under-resourced organisations may struggle to keep pace. At the same time, some smaller firms are moving quickly and creatively, so the picture is uneven rather than linear.

7. Practical shared support will be important for less digitally advanced organisations.

Template policies, risk assessment tools, model governance wording, procurement questions, case studies, short training materials and safe environments for testing low risk use cases could help reduce risk and build confidence without imposing disproportionate burdens. Clients and procurement teams will also need to adapt. They will increasingly need to understand not just whether suppliers use AI, but how they use it, with what data, under what controls and with what assurance.

8. Procurement and insurance should help drive responsible AI adoption.

This means rewarding transparency, accountability and evidence of checking, rather than vague claims about AI capability. Over time, it could help improve data standards, lifecycle information requirements and consistency across the supply chain.

In particular, the parameters of AI use that professional indemnity insurers are prepared to underwrite will also very likely become the 'guardrails' that guide AI adoption.

Finally, AI will affect value, commercial models and long-term sector outcomes. It may reduce the time required for some professional tasks, especially document production, analysis and routine processing. This will challenge business models based heavily on time spent rather than value delivered, and raise questions about pricing, liability, training, client expectations and the role of junior staff.

9. A wider sector conversation is needed about AI's impact on professional value, responsibility and commercial models.

BEFA does not need to resolve these issues alone, but it can help the sector confront them and shape a more deliberate response.

10. Taken together, these recommendations point towards a people-first approach to AI in the built environment.

The sector does not need to chase every tool or predict every use case. It does need to build the competence, confidence and governance required to use AI well. BEFA's distinctive role should be to help define what responsible AI-enabled professional practice looks like, ensuring adoption is shaped by the needs, responsibilities and public value of the built environment sector rather than by technology alone.

Appendices

Appendix 1: Categories of AI in the built environment

Automation and foundational AI: often invisible and widely deployed/mature.	This includes many varied applications ranging from intelligent search and classification, to optical character recognition (OCR), to speech to text and text extraction from documents These are seen as low risk, foundational technologies that underpin many digital workflows in planning, compliance, asset management, and administration.
Machine learning (ML) and predictive analytics: learning from data to identify patterns and trends.	Commonly associated applications include: ● Cost, time, and risk prediction ● Asset condition monitoring ● Performance forecasting ● Demand modelling and optimisation Interviewees emphasise ML's strength in pattern recognition across large datasets as well as replacing or accelerating repetitive analytical tasks. They also point to its strength in supporting decision making, rather than making decisions autonomously Its effectiveness is seen as directly linked to data readiness and interoperability, which is particularly challenging in the fragmented built environment.
Computer vision: AI applied to images, video, and spatial data.	This application is strongly associated with activities such as monitoring and tracking, in contexts such as site safety and defect detection. It also has potential for comparing as built conditions against BIM models. This was repeatedly highlighted as one of the most mature and high value AI applications in construction and operations, especially when integrated with existing digital models.

Generative AI and large language models (LLMs): the most visible and contested form of AI.	A wide variety of supporting applications including many time-saving tasks such as drafting reports, specifications, and tenders; summarising information; early stage ideation and options exploration. It is also highly effective at searching for and synthesising knowledge. Technical applications include coding and scripting. There is a clear distinction between retrieval (search) and generation (new, potentially incorrect outputs). Interviewees agree on several points: ● Generative AI dominates public discourse, often overshadowing other forms of AI ● It offers significant productivity gains, particularly for professional services ● It carries heightened risks (fabrication, bias) ● It must be used with human oversight and QA
Hybrid and systems level AI (including digital twins): combining multiple AI techniques with engineering knowledge.	This includes various applications: ● Physics informed ML (PIML) ● Real time system simulation ● Digital twins integrating sensor, spatial, and operational data ● AI supported system of systems analysis These types of applications are viewed as high value but under adopted, partly because they are dependent on interoperability, standards/standardisation, and governance controls. Hybrid and systems-level AI is particularly relevant to operations, maintenance, sustainability, and resilience.
Agentic AI (emerging and future oriented): systems that can act semi autonomously.	Largely viewed as emergent and speculative, but potentially transformative for workflows and business models. This application requires much stronger guardrails and professional accountability. However, the built environment sector may not yet be ready for widespread agentic AI deployment because of the extent of fragmentation in the sector, as well as issues around trust, verification/QA and governance structures not yet being sufficiently mature.

Appendix 2: Examples of AI adoption by larger firms in the built environment

Adoption in building design and architecture	● **Arup** are developing their own AI system to predict the movement of people in buildings to reduce time spent on building simulations. The approach uses machine learning to accurately predict how people move through workplace environments to enhance human-centred design.[27] ● **Foster + Partners** have adopted AI systems in several aspects of their practice:[28] – The company's Applied Research and Development Team have developed AI-enabled automated systems to optimise workflow processes. These systems allow last minute changes to be made to building designs without impacting on timescales. – F+P have also developed an internal AI Portal, which interfaces with the practice's main design tool. This Portal gives designers a secure space to experiment with generative AI without the risk of violating confidentiality agreements. – The practice has also developed an in-house search engine, powered by large language models, which enables architects to rapidly and accurately search through the company's expansive body of design guides.
Adoption in surveying	● In 2023, **Colas Rail** used an AI-powered underground mapping platform provided by Exodigo to accurately locate hidden underground utilities as part of Birmingham Eastside Metro expansion. Using this platform, 280 utilities, including 51 which had not been detected in previous surveys, were discovered. The AI-enabled surveys therefore "provided more reliable data that could be used to select safer excavation techniques around known services".[29] ● In 2025, **Balfour Beatty** invested £7.2m in Microsoft 365 Copilot as part of its digital transformation strategy.[30] The AI-powered assistant is now being embedded across the company's internal Microsoft systems, with the aim of improving productivity through applications such as automated information retrieval and note-taking. Building on these gains, Balfour Beatty is now using AI to automate site surveys, by combining AI and satellite photographs to carry out site assessments before beginning work.[31]

Adoption in Project Management	• **Cast Consultancy** is building AI capability through a practical, use-case-led approach focused on Gateway 2 submissions under the Building Safety Act. Rather than generic awareness training, the firm partnered with an AI provider to train staff on a tool that identifies inconsistencies, missing information and compliance risks in complex technical documentation. Around half the business, including 10–15 project managers, has engaged in practice-based training. The programme emphasises human judgement, accountability, confidentiality, GDPR and quality assurance, positioning AI as support rather than replacement. Outcomes include greater confidence, critical evaluation of outputs, improved workflows, and an ongoing feedback loop with the AI provider.
Adoption in structural and civil engineering	• In 2025, global professional services firm **WSP** entered into a seven-year partnership with Microsoft which aims to expand roll-out of Microsoft Copilot across its global workforce. The partnership is already yielding productivity gains with 84% of WSP Copilot users reporting time savings through applications such as checking grammar in emails and documents, information retrieval and assistance with coding.[32] • In 2025, engineering consultancy **Mott MacDonald** started a collaboration with Microsoft (Microsoft Azure AI Foundry), to enhance AI adoption across the company.[33] Building on this, Mott MacDonald has now started using AI on real projects. This includes the use of AI solutions and intelligent plant on a recent wetland project on the River Dearne. The team used an AI-enabled Smart Construction Simulator to plan the groundworks before using intelligent plant to carry out the work. The use of AI-driven solutions enhanced site safety, by eliminating the people-plant interface, as well as improving productivity, reducing the whole project by a number of months.[34] • As part of its partnership with Microsoft, **Balfour Beatty** has developed AI-enabled "smart agents" to help improve quality, health & safety and assurance processes. The smart agents are being trialled on the A9 dualling project in Scotland, where they are being used to identify incorrect or outdated Inspection and Test Plans.[35] Using smart agents to automate the review process has led to significant time savings by freeing up engineers to focus on higher-value tasks.[36] • **Bear Scotland** uses structural health monitoring to carry out maintenance of the Forth Road Bridge in Scotland. Sensors located at different points on the bridge gather data on different structural variables for which artificial intelligence can be used to model the bridge's long-term performance.[37]

Adoption in construction site safety and risk assessments	● **Kier Highways** on the National Highways Area 13 contract have been using the AI-enabled Fyld app to improve site safety. The Fyld app helps fieldworkers and managers to identify hazards, converting videos and images into video risk assessments.[38] Using the app, the Kier Highways Team have reported that they have been able to complete risk assessments up to 85% faster.[39] ● As part of the ongoing 105 Victoria Street project, **Skanska** has been using Schindler Robotic Installation System for Elevators (RISE), a self-climbing robot designed to install components on lift shafts. Use of these robots has reduced human involvement in this part of the project, leading to improvements in safety.[40] ● **Bureau Veritas UK** developed an in-house AI tool, based on a large language model, to automate collection of data from different building professionals to streamline the collation of risk registers and wider CDM processes.[41]
Adoption in asset verification and digital handover	● **HS2's Requirements Management team** was partnered with AI company Buildprompt to develop an AI solution to streamline infrastructure asset and document verification. The HS2 team had to manage an enormous number of documents (37,983 requirements across 19 distinct areas and 89 modules). Buildprompt's solution combined multiple AI approaches which automated the verification process, resulting in significant time savings (2-week manual process was completed in 35 seconds) and £5.6m in efficiency savings.[42]
Adoption in facilities management	● In 2025, a team at the **University of Cambridge** developed an AI-driven platform for built environment teams designed to make the management of healthcare facilities across the NHS more efficient. NHS estates management staff have to navigate multiple internal and external information repositories. This platform uses large language models and semantic search functions to enhance information retrieval, leading to a 53% improvement in quality of responses to technical queries. The system significantly reduced the time spent searching for information, enabling more operational efficiency and resulting in a 35% increase in productivity.[43]

Adoption in partnership with academia

- AI:Lab (Artificial Intelligence for Low Carbon Building) is a collaborative project between **Lancaster University and Grimshaw Architects** to embed AI directly into the live workflows of an architect's studio. The project tested how AI could influence sustainable architectural thinking across interrelated fronts for the practice's Eden Project Morecambe.[44]
- **Buro Happold** is currently undertaking a Knowledge Transfer Partnership (KTP) with **Birmingham City University** "to enhance productivity and automate aspects of CAD drawings, using AI and machine learning to draw on existing engineering data." In part, it involves developing a drawing assistant with machine learning to help find and interpret drawings more efficiently, changing how engineers interact with and extract value from technical engineering drawings and data.[45]
- In 2023, the Innovation Team at **Galliford Try** embarked on a Knowledge Transfer Partnership (KTP) with **Kingston University's School of Built Environment and Geography**, "to launch a new research project utilising artificial intelligence (AI) to improve quality and risk management, and minimise waste within construction."[46]

Appendix 3: Examples of AI initiatives, standards and guidance in the built environment sector

Industry Initiatives

- The Construction Leadership Council (CLC) and nima[47] launched the **Information Management Initiative (IMI)** in late 2024, with the aim of "progressively transforming information management practices across the built and natural environment sector". This builds on CLC's desire to build sector-transforming capability in applying emerging technologies such as AI, the internet of things (IoT) and digital twins.[48]
- Earlier this year, nima published a **Position Statement on Artificial Intelligence** in the built environment, aimed at information managers, asset managers, technologists and product specifiers to guide AI decision-making and information management processes. A key message is "be sceptical".[49] That followed a position paper in 2024, on quality data and artificial intelligence.
- In 2024, Building Magazine launched **the Building the Future Think Tank**, which built upon the predecessor Building the Future Commission. The purpose of the Think Tank is to produce "in-depth research and reports on behalf of the industry." The Think Tank's programme for 2025 focused on five key areas: AI and digital construction, implementing net zero, workplace and productivity, building safety, and people and skills.[50]
- **GenAI Adoption in Built Environment Firms** was published by the AI Institute in 2025, based on interviews with senior executives from the sector in the UK and Ireland combined with academic research. It includes a Playbook for AI Success, consisting of a three-point approach to realise the full potential of AI: 1) Create an AI Policy, 2) Train Everyone Immediately, 3) Build or Buy Customer Solutions.[51]

New professional standards and guidance in AI for the built environment

- **Innovate UK's Bridge AI programme** is designed to empower organisations in high growth potential sectors, such as construction, to harness the power of AI. This is driven by an ambition to deliver on the low carbon agenda – enabling the construction sector to provide smart, resilient and successful cities and communities – as well as delivering on the Construction Sector Deal.[52]
- The development of a new **BSI standard (PAS 1958:2026)** is intended to support the adoption of AI by businesses involved in data and information management in the built environment sector by providing guidance to help businesses navigate existing data and information standards.[53] Importantly, workshops held by Innovate UK with construction sector professionals concluded that no new standards were needed, but clarification of relationships between the built environment data and digital standards. For example, between the built environment focused ISO 16739-1 (on IFC) and ISO 19650 series (BIM) and standards relating to AI (ISO 42001 on AI management systems.[54])

Published guidance for AI implementation in the built environment

- **Engineering Council** considered the implications of AI for registration and programme recognition, as well as explored the opportunities and challenges associated with the growth of AI. A working group tasked with exploring these topics made a series of general recommendations, recommendations for guidance, and recommendations for the forthcoming Standards review.
- **RICS** professional standard for use of AI in **surveying practice** with the aim of helping members and regulated firms to establish guardrails to maintain professional judgement while adapting to the use of AI. It covers practical elements such as data governance, risk management, AI procurement, output reliability and assurance protocols as well as transparency requirements for client communication.[55]
- **RTPI Advice Note: An introduction to Planning and AI** (2025), which provides advice and best practice on AI tools for planners, plus opportunities and challenges planners face when working with AI.[56]

- **CIOB Artificial Intelligence (AI) Playbook 2024**. Written by members of CIOB's Digital Innovation and Advisory Panel, it provides practical advice and insights for implementing AI applications in construction firms. The Playbook includes a 12 Step Strategy for implementation, as well as analysis of opportunities and uses of AI including machine learning, deep learning and digital twinning.[57]
- **Institution of Structural Engineers (IStructE) guidance for structural engineers** looking to implement AI within their organisations, consisting of a set of practical questions for starting to use AI, including setting out the organisation's AI policy. The guidance aims to align with ISO 42001:2023.[58]
- Further guidance from **IStructE** includes an **ethical framework for AI** in structural engineering, which examines the opportunities (such as greater optimisation, enhanced productivity and more sophisticated analysis) and risks (e.g. misapplication, dependence on black-box outputs and poor data quality and representativeness causing biased outputs).[59]
- For Civil Engineering, the **Civil Engineering Contractors Association (CECA)** authored a series of 10 recommendations in relation to the use of AI in its report Artificial Intelligence in UK Construction. The recommendations address risk management (including promoting the use of existing standards), cross-industry collaboration to support existing initiatives and to develop a construction implementation plan, and highlighted the importance of training including role-specific training and a focus on AI security and ethics.[60]
- Although not built environment specific, **Skills England's 'What Works for AI Upskilling in the UK'** provides a useful learning framework concept, with evidence-based guidance, practical principles and tools to help employers improve AI workforce capability. As referenced in Appendix 2, it also includes a built environment case study about how Cast Consultancy, a leading, technology enabled construction consultancy, use AI to improve workflows.

Endnotes

1. OECD (2024) 'Explanatory memorandum on the updated OECD definition of an AI system': Explanatory memorandum on the updated OECD definition of an AI system (EN)
2. AI Institute (2025) 'GenAI Adoption in Built Environment Firms, Insights on AI Adoption across Ireland and UK': AI_ Institute_200dpi
3. The extent of adoption is likely to have expanded since these figures were published, as the rate of adoption accelerates.
4. OECD (2026) 'AI adoption by firms continues to expand': Artificial intelligence | OECD
5. Anthropic (2026) 'Labor market impacts of AI: A new measure and early evidence': Labor market impacts of AI: A new measure and early evidence \ Anthropic
6. The approach to measuring exposure combines data from three sources:
   1) The O*NET database, which enumerates tasks associated with around 800 unique occupations in the US.
   2) Anthropic's own usage data (as measured in the Anthropic Economic Index).
   3) Task-level exposure estimates from Eloundou et al. (2023), which measure whether it is theoretically possible for an LLM to make a task at least twice as fast.
7. CIOB (2024) 'Artificial Intelligence (AI) Playbook': CIOB AI Playbook (2).pdf
8. AI Institute (2025) 'GenAI Adoption in Built Environment Firms, Insights on AI Adoption across Ireland and UK: AI_ Institute_200dpi
9. Ibid
10. Pinsent Masons (2025) 'The challenge of AI adoption in the built environment sector': The challenge of AI adoption in the built environment sector
11. Legal Futures (2026), 'Junior solicitor used AI to draft misleading letters to court': Junior solicitor used AI to draft misleading letters to court - Legal Futures
12. Justia US Law (2023) 'Mata v. Avianca, Inc., No. 1:2022cv01461 - Document 54 (S.D.N.Y. 2023)': Mata v. Avianca, Inc., No. 1:2022cv01461 - Document 54 (S.D.N.Y. 2023) :: Justia
13. AP News (2025), 'Deloitte to partially refund Australian government for report with apparent AI-generated errors': Deloitte Australia to partially refund $290,000 report filled with suspected AI-generated errors | AP News
14. US Equal Employment Opportunities Commission (2023): iTutorGroup to Pay $365,000 to Settle EEOC Discriminatory Hiring Suit | U.S. Equal Employment Opportunity Commission
15. OECD (2022) 'Measuring the environmental impacts of artificial intelligence compute and applications': Measuring the environmental impacts of artificial intelligence compute and applications | OECD
16. Ibid

17. BridgeAI (2026) 'AI Skills for Business Competency Framework': AI Skills for Business Competency Framework
18. AI Institute (2025) 'GenAI Adoption in Built Environment Firms, Insights on AI Adoption across Ireland and UK': AI_Institute_200dpi
19. Skills England (2026) AI Leadership – AI strategy and opportunity – Apprenticeship unit: AI leadership – AI strategy and opportunity - Apprenticeship unit / Skills England
20. AI4QS (no date) 'AI for Quantity Surveying Practice (AI4QS)': AI4QS - AI Solutions for Quantity Surveying Practice and Education
21. Northumbria University Newcastle (2025) 'Using AI to cut construction waste and advance sustainability': Using AI to cut construction waste and advance sustainability | Northumbria University, Newcastle
22. Get It Right Initiative (2026) 'Draft policy for consultation: Safe and responsible use of Artificial intelligence': https://getitright.uk.com/resources/articles/draft-policy-for-consultation-safe-and-responsible-use-of-artificial-intelligence
23. RICS (2026) 'RICS calls for expressions of interest in new data, analytics and intelligence pathway': RICS calls for expressions of interest in new data, analytics and intelligence pathway
24. Engineering Council (2025) 'Artificial Intelligence (AI) Working Group Close-out Report and Recommendations': AI Working Group Report
25. CIBSE Journal (2025) 'CIBSE assembles AI working group to shape future of building services': CIBSE assembles AI working group to shape future of building services - CIBSE Journal
26. CICES (no date) 'Artificial Intelligence (AI) Policy': ai-policy.pdf
27. SCOSA AI Working Group (2025) 'AI and the Future of Architectural Education in the UK': AI_ARCHITECTURAL_EDUCATION_REPORT.pdf
28. Ibid
29. T. Moore (2023) 'Harnessing AI for efficient urban planning', Civil Engineering Surveyor: CES / CES September 2023
30. Harmsworth (2025) 'Balfour Beatty unveils £7.2m AI investment with Microsoft', Construction News: Balfour Beatty unveils £7.2m AI investment with Microsoft | Construction News
31. A. Bunker (2025), 'Breaking new ground: How Balfour Beatty is using Copilot to drive productivity at scale', Microsoft UK Stories: Balfour Beatty: Using Copilot to drive productivity at scale
32. Microsoft Customer Stories (2026) 'WSP empowers engineers and scientists with Microsoft 365 Copilot': WSP empowers engineers and scientists with Microsoft 365 Copilot | Microsoft Customer Stories
33. Mott MacDonald (2025) Mott MacDonald takes its digital evolution and AI enablement to the next level with Microsoft Azure Foundry': Mott MacDonald takes its digital evolution and AI enablement to the next level with Microsoft Azure AI Foundry | Mott MacDonald
34. Mott MacDonald, 'Nature-based solution optimised by responsible AI': Nature-based solution optimised by responsible AI | Mott MacDonald
35. Harmsworth (2025) 'Balfour Beatty unveils £7.2m AI investment with Microsoft', Construction News: Balfour Beatty unveils £7.2m AI investment with Microsoft | Construction News

36. Balfour Beatty (2025), 'Balfour Beatty unveils £7.2 million AI investment: transforming how Britain builds':Balfour Beatty unveils £7.2 million AI investment: transforming how Britain builds

37. Institution of Civil Engineers (2025) 'State of the nation: Infrastructure in 2025': ice-state-of-the-nation-2025.pdf

38. FYLD (no date) 'Simpler and safer field work': https://fyld.ai/field-workers

39. D. Chevin (2025) 'Artificial intelligence – your new assistant', Project Safety Journal: Artificial intelligence – your new assistant - Project Safety Journal

40. Ibid

41. Ibid

42. CM Staff (2025) 'BuildPrompt's AI revolutionises HS2's document verification', Construction Management: BuildPrompt's AI revolutionises HS2's document verification - Construction Management

43. C. M. von Behr (2025) 'New AI Plat-form Promises to Streamline Access to Guidance and Transform Collab-oration Across NHS Estates', CIBSE IBPSA-England Technical Symposi-um 2025, April 2025: go.cibse.org/ts-2025-carl-magnus-von-behr-2?_gl=1*1qbetsm*_ga*MTQ5MDMxNjMzOC4xNzc0MzY0Mzg1*_ga_3DLX2C630B*czE3NzUxMjcwMzYkbzEkZzE-kdDE3NzUxMjg3MTQkajYwJGwwJG-gw*_gcl_au*MTQ3Mjk0MjUzNy4xNzc0MzY0Mzg3

44. RIBA (2025) 'RIBA AI Report':RIBA AI Report 2025

45. Buro Happold (no date) 'AI in the built environment': AI in the built environment - The Edit 2025

46. Kingston University London (2023) 'Kingston University and Galliford Try launch transformative artificial intelligence quality management tool project to increase productivity in construction industry': Kingston University and Galliford Try launch transformative artificial intelligence quality management tool project to increase productivity in construction industry | Kingston University London

47. Formerly the UK BIM Alliance

48. CLC, nima (2024) 'Construction Leadership Council and nima launch Information Management Initiative': CLC-Press-Release-11-November-2024-Construction-Leadership-Council-and-nima-launch-Information-Management-Initiative.pdf

49. nima (2026) 'Artificial Intelligence (AI) considerations for information managers in the built environment': https://wearenima.im/artificial-intelligence-ai-considerations-for-information-managers-in-the-built-environment/

50. Building (2026) 'The Building the Future Think Tank': https://www.building.co.uk/building-the-future

51. AI Institute (2025) 'GenAI Adoption in Built Environment Firms, Insights on AI Adoption across Ireland and UK': AI_Institute_200dpi

52. Innovate UK (no date) 'Bridging the gap in artificial intelligence': BridgeAI - Innovate UK Business Connect

53. BSI (2026) 'PAS 1958:2026 Built environment. Data and information standards landscape. Guide': PAS 1958:2026 | 31 Mar 2026 | BSI Knowledge

54. nima (2025) 'Building the AI standards landscape – PAS 1958 now open for public comment': Building the AI standards landscape - PAS 1958 now open for public comment - nima

55. RICS (2026) 'Responsible use ofartificial intelligence in surveying practice': https://www.rics.org/profession-standards/rics-standards-and-guidance/conduct-competence/responsible-use-of-ai#tabs-d5e1a1816d-item-a690c12f82-tab

56. RTPI (2025) 'An introduction to Planning and AI': An introduction to Planning and AI | The Royal Town Planning Institute

57. CIOB (2024) 'Artificial Intelligence (AI) Playbook': CIOB AI Playbook (2).pdf

58. The Institution of Structural Engineers (no date) 'Implementing AI in structural engineering, What organisations need to be aware of when implementing AI': Artificial intelligence guidance - The Institution of Structural Engineers

59. Wala, R (2025) 'An ethical framework for AI in structural engineering: from promise to practice', IStructE: An ethical framework for AI in structural engineering: from promise to practice - The Institution of Structural Engineers

60. CECA (2025) 'Artificial Intelligence in UK Construction, A Civil Engineering Contractors Association report': CECA-AI-in-UK-Construction-Report-May-2025.pdf

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