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Building

# Ensuring future skills to reinvent career pathways and talent mobility in the built environment

BUILDING the FUTURE THINK TANK

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## Methodology

This research, conducted by Building in conjunction with Gleeds, was carried out via group and individual interviews with experts in the field from across the sector to provide the answers to a selection of qualitative questions. The research was undertaken between spring and autumn of 2026. Interviews were conducted by Building head of events content Jordan Marshall, who also produced the report.

## Acknowledgments


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The feedback gathered through interviews and surveys contributed to the conclusions and recommendations in this report. However, the views expressed in this report are those of the Building the Future Think Tank, and participants cannot be assumed to have endorsed the final findings.


After the success of the Building the Future Commission in 2023, Building established its own editorial research hub, known as the Building the Future Think Tank, dedicated to producing more in-depth research and reports on behalf of the industry.

This think tank's programme has produced reports on topics including immigration, net zero, building safety and workplace and people.

# Introduction: Preparing for a workforce that does not yet exist

The built environment has spent years talking about skills shortages. The challenge now is becoming more complicated. It is no longer simply a question of whether the industry can attract enough people to fill the roles it already has. It is whether it is preparing people for the work those roles will involve in 10, five even three years' time.

The sector is being reshaped by digital technologies, artificial intelligence, automation, robotics, new construction methods and sustainability requirements. At the same time, it continues to face persistent shortages, an ageing workforce and difficulties attracting and retaining talent. The result is a difficult question for employers, universities and professional institutions alike: how do you train people for a future whose requirements are changing faster than traditional education and career pathways can adapt?

The research brief for this report identifies three connected areas of concern. The first is the changing skills requirement created by digital transformation. The second is the emergence of new technical competencies and what they mean for career progression and lifelong learning. The third is the need to broaden entry routes and enable people to move between roles, disciplines and sectors rather than treating careers in the built environment as fixed pathways.

The discussion underpinning this report suggests that these issues cannot be treated separately. Technology is changing what people need to know, but it is also changing how people learn, how organisations structure work and potentially how professional services are bought and sold. That, in turn, changes the skills the industry needs and the routes through which those skills can enter the sector.

The pace of change is particularly significant. Previous technological revolutions often gave institutions and workforces considerable time to understand what was happening and adapt. The discussion for this report suggests that artificial intelligence is compressing that adjustment period dramatically. Technologies that would have appeared implausible only a few years ago are already becoming familiar, while the next generation of agentic AI and physical robotics are beginning to move towards practical application.

> “ The response to the skills challenge needs to be a fundamental rethink of workforce capability, education, professional development and talent mobility

That creates an uncomfortable possibility. The industry could respond to its skills shortage by simply trying to train and recruit more people into existing roles, only to find that the nature of those roles has changed substantially by the time those people qualify.

The alternative is to make the workforce itself more adaptable. That means giving people strong professional foundations, but also developing their ability to work with technology, exercise judgment over its outputs, move between disciplines and continue learning throughout their careers.

This report therefore argues that the response to the skills challenge cannot simply be more recruitment. It needs to be a fundamental rethink of workforce capability, education, professional development and talent mobility.

The findings presented here are based on the Building the Future Think Tank people and skills working group discussion that was held in May 2026 and the research brief supplied for the report. The views discussed do not necessarily represent the views of every participant or organisation involved.

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# Section 1: Digital transformation and the skills required for the future workforce

The most immediate challenge created by technological change is that the industry does not yet have a settled picture of what the future workforce will look like. Artificial intelligence is already changing professional workflows, while the next stage of development is likely to extend beyond tools that generate text, images or analysis towards systems capable of carrying out tasks. Beyond that lies the potential for robotics and physical AI to affect construction itself.

The discussions this report is based on highlighted the danger of treating these developments as a conventional technology roll-out. AI cannot simply be handed to an IT department and treated as another piece of software to be installed. Its impact reaches into professional judgment, organisational culture, workflows, commercial models and ultimately the definition of individual roles.

That makes the question of skills more difficult than simply identifying which software packages employees need to learn.

### The danger of training for yesterday's work

The industry's traditional response to skills shortages has been to increase recruitment and training. That remains important, but the discussion suggests that it is no longer sufficient.

There is a lag between someone entering an apprenticeship or university course and becoming an experienced professional. If the technological landscape changes significantly during that period, there is a risk that people are being trained for a version of the industry that no longer exists when they enter it.

The challenge is particularly acute because AI, robotics and data analytics are developing simultaneously. The future workforce may need fewer people performing some highly repetitive tasks while requiring more people capable of managing technology, interpreting its outputs, applying professional judgment and orchestrating complex systems.

Construction provides an especially important example because the impact of technology is not confined to office-based work. Robotics and physical AI have the potential to move into construction sites, with machines increasingly capable of carrying out defined physical tasks. Discussions in our roundtables and think tank research pointed towards the possibility of robots being equipped with specific capabilities for tasks such as welding, plumbing or scaffolding.

That does not necessarily translate into straightforward job displacement. The sector already has a shortage of people, and the removal

of some repetitive or hazardous work could instead change the composition of the workforce. New roles could emerge around programming, operating and managing automated systems, including the co-ordination of multiple machines working together.

Universities and training providers cannot wait until these technologies are commonplace before considering the associated skills. They need to look at the signals coming from technology and other industries and consider what people entering the sector will need to understand.

This does not mean abandoning traditional technical knowledge. Rather, technical foundations will become more important because professionals will need enough understanding to assess and challenge technology-generated outputs.

> “AI's impact reaches into professional judgment, organisational culture, workflows, commercial models and ultimately the definition of individual roles

### From knowledge to judgment

One of the most important changes identified is the changing relationship between professional expertise and information. Professional institutions historically played a major role as gatekeepers of knowledge; qualifications showed an individual had acquired the knowledge required to practise as a surveyor, engineer, architect or other professional.

AI changes that relationship because access to information and analytical capability is easier. The value of professional expertise therefore increasingly lies in knowing how to interpret information, make judgments, understand context and take responsibility for outcomes.

That creates a distinction between knowledge and judgment. A machine may be able to generate an answer, analysis or recommendation, but a professional still needs to determine if that output is appropriate, accurate and suitable for the circumstances in which it will be used.

For professional institutions, this creates an opportunity to reconsider their role. Competency frameworks need to incorporate areas such as data governance, data sovereignty, cyber security, data analytics and the ability to assess technology-generated information. At the same time, they need to preserve the professional, ethical and technical judgment that gives those competencies meaning.

Discussion around new competency pathways illustrates the difficulty. Any framework designed around a particular technology risks becoming obsolete. The more useful approach is therefore to identify enduring capabilities that remain relevant as individual technologies change.

This points to an increasingly layered model of competence. Traditional technical knowledge remains the foundation, but it is supplemented by digital literacy, data understanding, technology governance, ethical judgment and the ability to work alongside automated systems.

### AI adoption is a change-management issue

The technology itself is only part of the challenge. Firms also need to address the human response to it. The discussion identified resistance to AI across different parts of the workforce, but cautioned against assuming that attitudes divide neatly along age or seniority lines. People with extensive professional experience may be among the most effective adopters; younger workers may fear that technology will reduce opportunities or undermine the value of their skills.

That suggests firms need to create an environment in which experimentation and learning are accepted rather than treating AI adoption as something that happens to employees. Giving people access to tools is not enough. They also need permission to use them and a clear understanding of what responsible use means.

This is particularly important because a lack of organisational policy can encourage what is commonly described as shadow AI. If employees cannot access approved tools, they may use consumer versions independently, potentially exposing company or client information.

The response should therefore not simply be to prohibit AI. A prohibition without an alternative risks pushing use outside organisational oversight. Firms need governed tools, clear policies, appropriate training and an understanding of where data is going and how outputs are checked.

The principle running through the discussion was that responsibility remains with the professional. AI can support the process, but it cannot remove accountability for outcomes.

### From automation to reinvention

There is also a risk that organisations approach AI too narrowly. The obvious starting point is to take an existing process and automate part of it. That can deliver efficiency but does not examine whether the process itself remains appropriate.

The discussion took procurement as an example of a process that has developed over time and become accepted as normal. Traditional procurement can involve multiple contractors and subcontractors spending significant time and money preparing bids, despite most of them ultimately losing the work. Technology could make that existing process faster, but a more fundamental question is whether the process should operate in that form at all.

This distinction between automation and reinvention is important. If organisations simply automate existing processes, they may make an inefficient system marginally more efficient. If they use technology as an opportunity to reconsider how work is organised, they can create entirely different operating models.

That also has implications for workforce planning. A genuinely transformed process may require a different combination of skills rather than simply fewer people performing the existing tasks more quickly.

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# Section 2: Emerging technical skills and the evolution of career pathways

The changing technology landscape makes lifelong learning increasingly important. The traditional model in which people acquire most of their core knowledge at university or at the beginning of their careers and then progressively apply it is becoming harder to sustain.

The skills discussion instead points towards a more fluid model in which people continually update their capabilities as their roles change.

### Skills that can survive technological change

The central challenge for education and professional development is deciding what should be taught when the technologies themselves are changing rapidly.

A competency framework that is too specific can quickly become obsolete. A framework that is too general risks failing to provide useful guidance.

The emerging answer is to focus on a combination of enduring technical and professional principles alongside technology-specific skills that can be refreshed as required.

Data governance, cyber security, data sovereignty, data analysis and professional responsibility are examples of capabilities that are likely to remain relevant even as particular AI tools change. They provide a foundation on which more specific skills can be built.

Graduates entering the sector will still need to understand why buildings are designed, procured and constructed in specific ways even if technology increasingly performs parts of those processes.

The discussion compared this to other technological transitions in which people continued to learn the underlying principles of a process after the original manual technique had been automated. The purpose is not to preserve obsolete tasks for their own sake, but to ensure that professionals understand what technology is doing and can identify when its output is wrong.

That distinction will become increasingly important as AI-generated work becomes more convincing. The ability to spot an error requires enough domain knowledge to understand what a correct answer should look like.

### Creating a culture of continuous learning

The availability of training is not necessarily the main barrier. There is now an enormous amount of freely available material from technology firms, software providers and other organisations. Construction technology platforms also provide extensive learning resources. Apprenticeship funding and shorter training modules provide additional routes for people to develop skills.

The problem is increasingly one of navigation.

Individuals can be overwhelmed by the quantity of available information and unsure where to begin. They may also be uncertain whether using AI or spending time learning about it is genuinely encouraged by their employer.

Organisations need to communicate clearly which capabilities matter, provide opportunities to develop them and make learning part of working life rather than an optional activity.

But responsibility cannot rest entirely with employers. Individuals must also take ownership of their own digital literacy, because careers and employers change. A skill that is valuable today may become less valuable tomorrow, while a capability now peripheral may become central.

A practical approach discussed in the research is for individuals to regularly experiment with tools in a safe environment, supported by structured learning where necessary. Small, regular investments of time can help people become familiar with technology rather than waiting for a formal transformation programme.

This is particularly important because confidence cannot always be created through passive learning. Using tools, testing them and understanding their limitations can provide a different kind of knowledge from simply attending webinars or reading guidance.

> “The central challenge for education and professional development is deciding what should be taught when the technologies themselves are changing rapidly

## Protecting professional judgment

As AI becomes more capable, the skills that distinguish a professional from an automated system may increasingly centre on judgment.

That does not mean technology literacy is separate from professional expertise. The two need to become more closely integrated.

A professional using AI needs to understand what the tool is capable of, its limitations, what information it has used and if the result is useful. This requires enough technical understanding to interrogate the output, and enough professional experience to understand its implications.

The concept of keeping a human involved in the process is more meaningful when understood as responsibility rather than simply oversight. Professionals must frame the problem correctly, give technology appropriate instructions, assess its output and retain ownership of the result.

This reinforces the importance of judgment as a transferable skill. It can move with an individual between technologies, employers and roles, even when the specific tools change.

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## Rethinking how people learn the job

There is a further challenge for entry-level career pathways. Many professionals traditionally developed expertise by carrying out routine tasks before gradually taking on more complex responsibilities. If technology automates some of those routine tasks, people entering the industry may lose some of the conventional opportunities through which experience was accumulated.

This does not mean the traditional foundation of professional education becomes irrelevant. It means organisations and institutions may need to rethink how practical understanding is gained.

A graduate may increasingly review, validate or interpret technology-generated work rather than producing every component manually. That still provides useful learning, but only if the individual understands the principles behind the output.

The industry must avoid a false choice between traditional skills and new technology. The objective should be to preserve the underlying understanding while changing how it is applied.

## Rethinking the commercial model

Technology could also change the relationship between skills, productivity and professional services. The current model in much of the consultancy and contracting market remains heavily based on inputs. Even where a project is sold at a fixed price, the calculation often starts with the number of people required, the time they will spend and their associated rates. AI challenges that model because it can increase output without a proportional rise in hours.

The discussion suggested that clients may focus increasingly on the outcome they receive rather than the volume of professional input required to produce it. This could put pressure on established charging structures and create a distinction between organisations that compete primarily on the cost of inputs and those that demonstrate superior outcomes.

This transition may be tricky, particularly for businesses whose commercial models have developed around selling professional time. But it creates an incentive to use technology to increase value delivered rather than just reduce headcount.

This has implications for skills. If organisations are increasingly rewarded for outcomes, employees may need a broader combination of technical knowledge, technology literacy, problem-solving ability and client understanding.

# Section 3: Talent mobility and new entry routes into the built environment

The changing nature of work creates an opportunity to rethink where the industry finds its talent. The discussion identified increasing evidence that built environment organisations are already recruiting people whose backgrounds would have been unusual in the sector a decade ago. Data scientists, machine learning specialists, data analysts and other digital professionals are increasingly relevant to construction and consultancy businesses.

This suggests the industry's response to its skills shortage should not be confined to traditional recruitment channels.

### Looking beyond conventional career routes

People do not necessarily need to have followed a conventional built environment degree to make a contribution to the sector. The discussion highlighted the value of people arriving from other disciplines and bringing different ways of thinking. Individuals who have not been trained within the sector can challenge assumptions that established professionals may no longer notice.

That outside perspective can be particularly valuable when organisations are trying to redesign processes rather than just automate existing ones.

However, talent mobility cannot be one-directional. People arriving from technology, data or other industries also need to understand the built environment. The sector has its own language, commercial structures, fragmentation and technical requirements, and a lack of domain knowledge can undermine otherwise strong technological capability. The most effective model is therefore likely to involve capability moving in both directions. New entrants bring knowledge from outside the industry while developing sufficient understanding of the built environment to apply it effectively.

This creates a stronger case for flexible career pathways that recognise transferable capability rather than treating qualifications as the only measure of suitability.

### Making the industry more permeable

Talent mobility also means enabling people already within the built environment to move between disciplines. As roles change, rigid career structures become less useful. A person with a traditional surveying background may develop into a data-focused role. A construction professional may move into technology management. An architect may develop expertise in digital delivery, sustainability or data. A data specialist may move into a role requiring deeper understanding of project delivery.

Such movement can help retain people whose roles are being transformed rather than losing them from the industry. It also provides a practical response to the risk of training for the wrong work. Rather than treating technological change as a reason to replace an existing workforce, organisations can use it as a reason to redeploy and retrain people whose underlying professional knowledge remains valuable.

This requires employers to think in terms of capabilities rather than job titles. A job description may change, but the ability to understand clients, projects, risk, design or construction can remain valuable when combined with new technology skills.

> Talent mobility means enabling people to move between disciplines. This can help retain people whose roles are being transformed

### Rethinking university pathways

The strongest industry-wide intervention identified in the discussion was reform of university education. The concern is not that traditional technical education has no value. Rather, accredited courses need to reflect the environment into which graduates are entering.

Professional institutions have a potential co-ordinating role because they influence accreditation and competency requirements. A more deliberate relationship between institutions and universities could help ensure students acquire both traditional foundations and the digital capabilities increasingly required in practice.

The difficulty is keeping curriculums current. If universities simply add a course on whichever AI tool is currently popular, the curriculum will rapidly become outdated. The more durable approach is to embed concepts such as data literacy, responsible AI use, cyber security, digital collaboration and technology-enabled professional judgment within existing disciplines.

The result should be graduates who understand both the fundamentals of their profession and the technology increasingly used to deliver it.

### A more flexible definition of experience

The same principle needs to apply to recruitment. If employers continue to treat conventional qualifications and linear career progression as the dominant indicators of capability, they will restrict the pool of people able to enter emerging roles.

The discussion suggested that the industry is already becoming more comfortable with people entering from different academic backgrounds. That approach can be extended as the sector's requirements become more interdisciplinary.

However, this should not mean abandoning standards. The challenge is to distinguish between competencies that genuinely require a specific professional foundation and those where transferable skills can provide an effective starting point.

This is particularly relevant to digital roles. A data scientist does not need to become a traditional construction professional before contributing to a construction business. But they do need sufficient understanding of the sector to apply their expertise effectively. Equally, an experienced construction professional does not need to become a software engineer to benefit from AI. They need enough digital literacy to understand what the technology can do, where it can be trusted and where professional judgment remains essential.

That creates a much more fluid conception of career development, in which people add capabilities throughout their working lives rather than completing one qualification and following a predetermined route.

### Technology as an opportunity to relieve the skills bottleneck

The discussion also offered a more optimistic interpretation of automation. The sector's skills shortage is itself a bottleneck that limits the number and complexity of projects it can deliver. If AI, automation and robotics can remove some of that constraint, the effect may not simply be to reduce the number of people required. Instead, greater productivity could enable more projects to be delivered, creating additional demand for professional and construction expertise.

The experience of other industries suggests technology does not always eliminate the underlying profession. It can change the nature of the work and increase the volume of work that becomes possible.

That creates a potential virtuous circle. Technology reduces some repetitive work and increases productivity. The industry can then undertake more projects. Demand for people with the judgment, technical expertise and project experience required to deliver those projects remains strong, but the composition of the workforce changes.

The ability to realise that opportunity depends on whether the sector prepares for the change rather than simply reacting to it.

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# Recommendations

**1. Start with the workforce of tomorrow**

The most immediate sector-wide opportunity is to reconsider what students are being taught before they enter the industry.

Professional institutions and universities should work together more closely in order to ensure that accredited courses incorporate digital literacy, data, responsible AI use, cyber security and technology-enabled professional judgment alongside traditional technical foundations.

The objective should not be to chase individual technologies. It should be to develop graduates who can adapt as technologies change.

**2. Make AI literacy a core professional capability**

AI literacy should become a normal part of professional development.

Different people will require different levels of expertise. Not everyone needs to understand how an AI model is trained, but professionals using these systems should understand their capabilities, limitations, risks and appropriate applications.

Firms should therefore assess the capability gaps within their workforce and provide training proportionate to individual roles. Short courses, micro-learning and existing training resources can form part of that approach, provided employees have clear direction on what they need to learn.

**3. Treat technology adoption as organisational change**

AI should not be treated as an IT project. Successful adoption requires leadership, communication, governance and cultural change. Firms need clear policies explaining which tools can be used, what data can be entered, how outputs should be checked and who remains responsible for the resulting work.

The aim should be to create a controlled environment in which people can experiment and learn rather than driving use underground through blanket prohibitions.

**4. Build career pathways around capabilities rather than job titles**

As technology changes the content of jobs, organisations should make it easier for people to move between roles.

That means identifying transferable skills within existing workforces and creating opportunities for retraining and redeployment. It also means recognising that a person can enter

the built environment with valuable capabilities developed elsewhere.

Career pathways should therefore become more permeable. People should be able to move between technical, digital, analytical, project and professional roles as their skills develop.

### 5. Recruit from outside the industry's traditional talent pools

The sector should make greater use of people who come from other industries and disciplines, particularly where emerging skills are concerned.

Data science, machine learning, technology, analytics and other capabilities can add value to built environment organisations even when they have not historically been part of their workforce.

This requires appropriate sector induction and domain learning, but it also brings an important benefit: people from outside the sector can challenge established assumptions and identify opportunities to redesign processes rather than simply automate them.

### 6. Rethink what entry-level experience looks like

As automation takes over more routine tasks, firms and educators need to consider how early-career professionals acquire practical understanding.

Graduates may increasingly be reviewing and interpreting AI-generated work rather than producing every element manually. That makes the underlying principles more important, not less. Education and early-career development should therefore focus on understanding why work is done in a particular way, how technology is reproducing or changing that process, and how to identify when an automated output is inappropriate.

### 7. Move from automation to reinvention

The industry should resist the temptation to use technology simply to make existing processes faster.

Every major technology deployment should prompt a more fundamental question about whether the underlying process still makes sense.

The greatest gains may come not from automating a poor process but from redesigning it altogether. This requires organisations to challenge established practices and involve people from different disciplines who can bring fresh perspectives.

### 8. Recognise that the pace of change requires permanent adaptation

The final recommendation is perhaps the broadest. The industry should stop treating the current wave of technological change as a single transformation programme with a defined end point.

The evidence discussed for this report suggests that the pace of development is accelerating. AI has moved from a relatively specialist technology to a mainstream tool in a remarkably short period, while agentic systems and physical robotics are developing alongside it.

Workforce planning therefore needs to become more adaptive. Organisations should regularly reassess their skills requirements, competency frameworks, training provision and recruitment strategies, rather than assuming that today's workforce model will remain appropriate.

The opportunity is considerable. If technology can resolve the industry's existing productivity and skills bottlenecks, it could enable more projects to be delivered and create new demand for people with the judgment and expertise required to manage them.

But that outcome is not automatic. It depends on the sector being willing to change the way it educates, recruits, develops and retains people.

The future workforce will not simply be a larger version of today's. It will need to be more digitally capable, more adaptable and more comfortable moving between disciplines. Its members will need to understand technology without surrendering professional judgment to it, and organisations will need to recognise that the most valuable skills may increasingly sit at the boundaries between traditional built environment expertise and capabilities developed elsewhere.

The task for the sector is therefore not to predict exactly what the workforce of 2030 will look like. It is to build the capacity to keep adapting as it arrives.

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