HBF Home Builders Federation

Pluto FINANCE

AI and skills in home building

Examining the role of Artificial Intelligence in the home building industry.

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Forewords

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The country is currently facing two major challenges: delivering the homes the country urgently needs and ensuring that the next generation has access to secure, meaningful employment.

At the same time, the rapid development of artificial intelligence (AI) is transforming how many sectors operate, raising important questions about the future of work. This report highlights how the home building industry sits at the intersection of these issues and why it represents a vital opportunity for the economy.

While artificial intelligence is reshaping many parts of the labour market, home building remains fundamentally a people-powered industry. The construction of new homes relies on the skills, judgement, and craftsmanship of a wide range of trades and professionals working together on site.

AI is beginning to play a role in improving efficiency, enhancing design, and supporting better planning and forecasting, but it acts primarily as a tool that supports workers rather than replacing them.

At the same time, the scale of the UK's housing challenge means the industry must grow. To meet the national ambition of building 300,000 homes a year, the sector will need to recruit hundreds of thousands of additional workers across the supply chain over the coming decade. These are skilled, well-paid roles that form the backbone of a productive economy.

Expanding the workforce will require stronger pathways into construction through apprenticeships, technical education, and improved careers guidance so that more young people understand the opportunities available to them.

For policymakers, this presents a clear opportunity. By aligning housing policy with the right changes to our skills and training systems, the UK can simultaneously tackle the housing shortage, reduce youth unemployment, and build a resilient workforce for the future.

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As one of the UK's leading providers of development finance for housebuilders, we are only too aware of the impact that the construction industry skills shortage has on housing delivery.

The scale of the challenge is stark. The average construction worker is now in their mid-forties. Nearly 350,000 workers have left the sector since 2019. We are training apprentices but losing almost half of them before they complete. And to hit the government's target of 300,000 homes a year, the industry needs to recruit roughly 300,000 additional workers across the supply chain. Without those people, no amount of planning reform or capital will close the housing gap.

There is, however, genuine cause for optimism – and it comes from an unexpected direction. While AI is displacing entry-level roles across much of the economy and pushing youth unemployment to three times the national average, construction is a different story.

AI adoption in the sector remains under 20%, and where it is being used, it is overwhelmingly to train and upskill workers, not replace them. Housebuilding can offer something increasingly rare: a secure, long-term career in an industry where technology enhances productivity without threatening livelihoods.

We are proud to support this research in partnership with the Home Builders Federation. This is a really exciting moment for the sector – the challenge is now for housebuilders, lenders and policymakers to work together and maximise the opportunity to put the skills shortage behind us.

Introduction

The rapid advancement and widespread adoption of artificial intelligence (AI) have become a defining feature of modern economies, prompting significant attention from governments and policymakers worldwide, with the integration of AI technologies into day-to-day business operations becoming increasingly commonplace. In response, governments have begun developing policies aimed at regulating AI use, encouraging responsible innovation, and preparing the workforce for technological change through education, reskilling initiatives, and labour protections.

Currently, 16.1% of people aged 16 to 24 are unable to find work, compared to a national unemployment figure of 5.1%. Across the board, businesses are increasingly automating white-collar, entry-level roles, making it more difficult for those leaving education to find work. However, construction has been demonstrated to be one of the most “AI-proof” industries. While AI is poised to revolutionise construction efficiency, its role is primarily as an enhancer, rather than a substitute for human hands-on labour and decision-making.

Current use of AI in the home building industry and opportunities

The home building industry is increasingly adopting artificial intelligence to enhance design options, improve efficiency, and optimise project outcomes. AI-powered design tools can generate and refine floorplans based on site conditions, budget constraints, and buyer preferences, allowing for faster iteration and more customised housing solutions. Predictive analytics supports more accurate cost estimation, material planning, and scheduling, helping builders reduce waste and minimise delays.

AI is also being used to navigate the UK's complex planning system. Machine learning models can analyse historical planning decisions from local authorities to predict approval likelihood and identify design elements that may trigger objections.

Developers can also use AI to incorporate data analytics to improve land appraisal, planning risk assessment, and development viability modelling. From a financing standpoint, improved planning predictability will shorten decision cycles and support more certain cash flow profiles, increasing lender confidence.

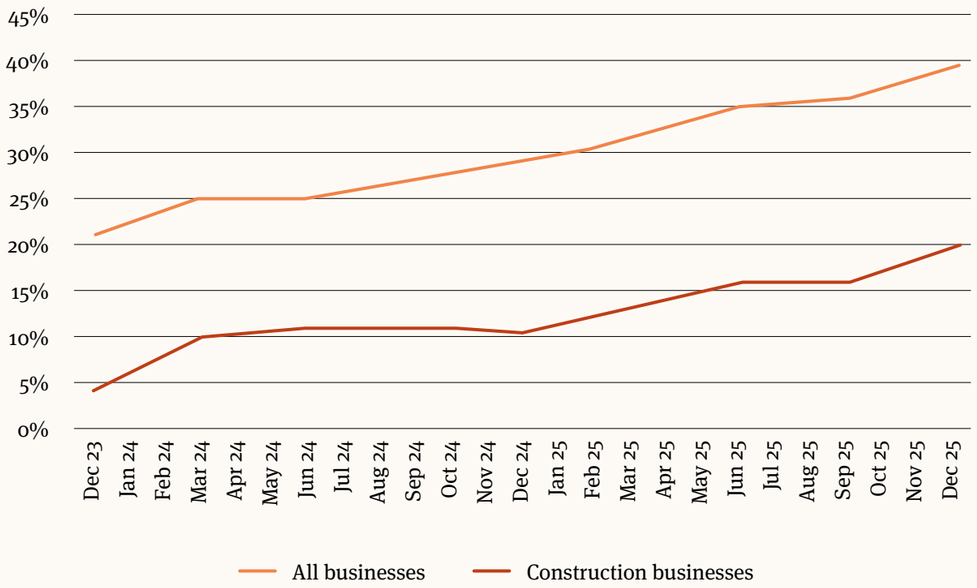
Sustainability is a major driver of AI adoption in UK home building, particularly in response to net-zero targets and Future Homes Standard requirements. AI contributes to sustainable building practices through energy modelling, environmental impact analysis, and smart home system integration.

Forecasted impact on jobs

While the UK home building industry is increasingly harnessing artificial intelligence, most roles within the sector remain fundamentally “AI-resistant” due to the physical, site-based, and relationship-driven nature of the work. It is helping to improve efficiency and boost productivity, producing better outcomes more quickly rather than replacing skilled workers.

Insights from lending partners indicate that, in construction, AI is driving productivity gains and reducing costs in the professional services that sit around construction, while onsite trades continue to rely on human skill and expertise, supported rather than displaced by technology. The Office for National Statistics’ Business Insights and Conditions Survey data collects information and trends regarding AI usage by industry. As demonstrated in the graph below, as of December 2025, AI uptake is lower among construction businesses than the overall proportion.

Proportion of construction businesses compared to all businesses using AI



Just under 20% of construction businesses are currently using AI, compared to almost 40% of total businesses.

As a result, while 7.2% of total businesses said using AI had reduced their company headcount, the result for construction businesses was close to 0%. In comparison, 9% of information and communication companies, 6% of wholesale and retail trade companies, and 5.3% of manufacturing companies said the use of AI had reduced company headcount.

Of the construction companies using AI, the most prominent use is to train or retrain existing staff, demonstrating the industry’s commitment to workforce improvement and retention rather than automation, and a third of construction companies respond that they intend to integrate AI for this purpose in the coming months.

Looking forward, just 6% of construction businesses expect AI adoption to reduce company headcount in the future, compared to 11% of total businesses.

Home building is inherently hands-on. Trades such as bricklaying, carpentry, roofing, plumbing, groundworks, and electrical installation require physical dexterity, situational judgement, and adaptation to changing on-site conditions, factors that are difficult to fully automate, particularly on bespoke or small-to-medium residential developments typical across the UK. Even where robotics and automation are introduced, they tend to supplement and enhance rather than replace skilled trades.

For example, modular and off-site construction facilities incorporate advanced automation and data analytics, yet still rely heavily on skilled operatives, supervisors, and quality inspectors. AI may optimise production lines or scheduling, but human expertise remains central to assembly, quality control, and compliance with Building Regulations.

On traditional housing sites site managers, quantity surveyors, and health and safety officers perform complex coordination tasks that involve negotiation, leadership, regulatory interpretation, and real-time decision-making. AI can provide risk alerts and cost forecasts, but accountability and final judgement sit with experienced professionals.

Customer-facing roles are also protected. Sales consultants and customer care teams handle nuanced buyer relationships, manage expectations, and resolve issues with empathy and discretion. While AI can assist with routine enquiries, trust and reputation in residential development still depends heavily on human interaction.

In practice, AI in UK home building is more complementary than disruptive. It automates repetitive administrative tasks, improves forecasting accuracy, enhances design modelling, and reduces inefficiencies, but it does not eliminate the need for skilled tradespeople, managers, and professionals. As a result, while the industry is embracing AI to improve productivity and performance, most roles in home building remain resilient due to their physical complexity, regulatory accountability, and reliance on human judgement and craftsmanship.

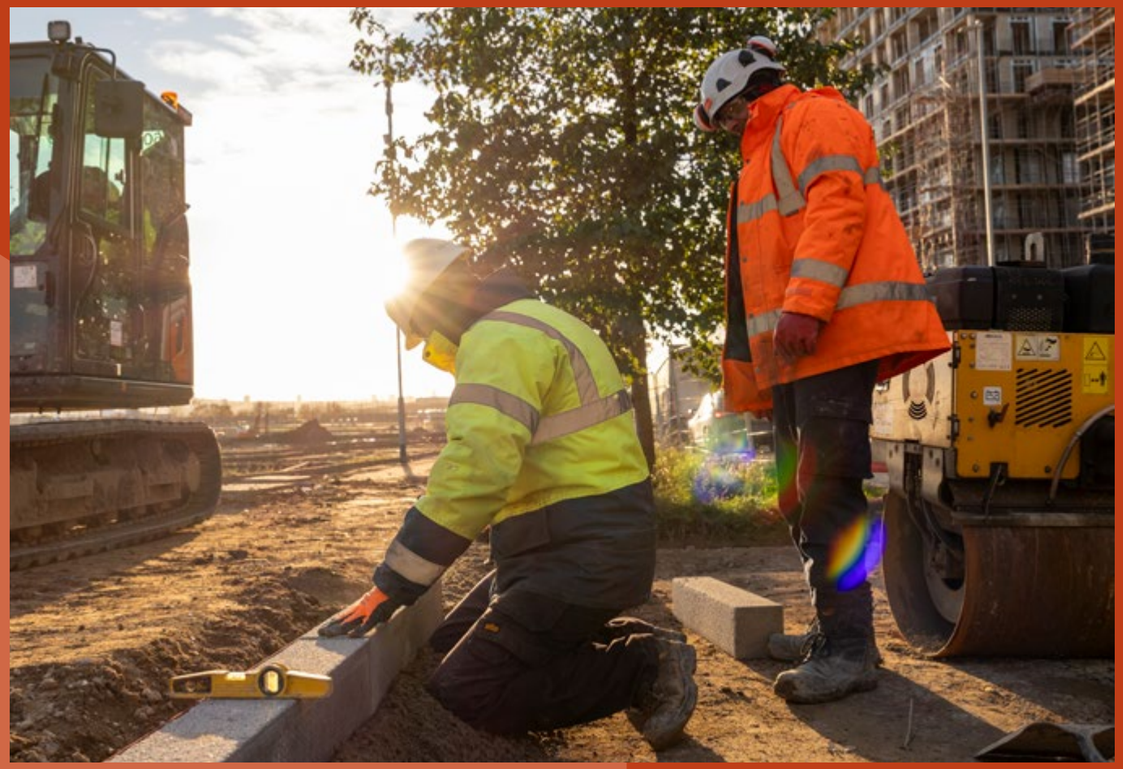
Polling of new entrants to industry

HBF recently polled a group of newer entrants to the industry to ascertain more information as to how AI is impacting career decisions.

90% of respondents to the survey said that the job security that home building offered was an important consideration when joining the industry. Additionally, 70% of respondents said that the protection that home building offered against rising automation was a motivation to join the industry.

82% of new entrants said that AI will change how people work in home building over the next 10 years, and 67% of respondents agree that jobs in home building are less likely to be replaced by AI than jobs in many other industries.

This confidence is consistent with delivery pipelines of lending partners, SME developers continue to prioritise graduate and apprentice intake alongside digital upskilling.



Addressing the skills gap

While the Government's ambitions for home building are welcome, how successful they are will, in part, depend on the necessary skills and labour being available. At present, the industry has a workforce that allows it to deliver current levels of output, but delivery levels are far below where we need to be.

To move from current output of around 200,000 homes per year to the target of 300,000 homes per year, the industry must recruit an additional 300,000 people across the supply chain. The roles required are predominantly skilled, site-based and technical occupations that cannot be fully automated. They include:

- **25,000** bricklayers
- **25,000** groundworkers and plant operatives
- **10,000** carpenters
- **4,000** plasterers and dry liners
- **4,000** site managers
- **3,000** plumbers
- **3,000** electricians
- **3,000** roof slaters and tilers

These figures reflect structural pressures that have been building for over a decade:

- There is a recruitment shortfall. Too few young people are entering construction pathways, and of those studying construction-related higher education courses, only around a quarter move into home building.
- The sector is still dealing with the aftereffects of the previous recession, during which 40–50% of skilled labour left the industry. Many did not return. This created a hollowing out of experienced workers that continues to affect capacity.
- The demographic profile of the workforce presents a looming challenge. A quarter of the home building workforce is aged over 50. As retirements accelerate over the coming decade, the industry faces a potential 'cliff edge' in skills lost unless sufficient numbers of new entrants are trained and retained.

AI does not remove this labour requirement. As set out above, home building remains fundamentally hands-on and site based. AI can enhance efficiency, but it cannot lay bricks, install roof trusses, or plaster walls. Rather than substituting labour, AI increases the productivity of skilled workers, making it even more important that there are enough of them.

As such, home building represents a significant opportunity for addressing youth unemployment. Apprenticeships, traineeships, and vocational routes into trades and site management can provide clear pathways into long-term careers.

To achieve government housing targets, policy must therefore focus not only on planning reform and land supply, but on workforce expansion. Scaling apprenticeships and early career routes, combined with digital literacy, will be critical to unlocking both productivity and finance at pace.

This requires:

- Expanding apprenticeship capacity and reducing administrative burdens on employers.
- Improving careers advice to highlight construction as a high-skill, high-value sector with strong progression prospects.
- Supporting retraining programmes for career changers.
- Ensuring further education colleges are funded and equipped to deliver trade-specific training at scale and produce work ready graduates.
- Encouraging greater diversity in the workforce, particularly with regard to gender.

Without decisive action on skills, housing targets will remain just targets. With the right interventions, the industry can not only deliver the homes the country needs, but also provide hundreds of thousands of secure, skilled jobs in a sector that is technologically evolving yet fundamentally human at its core. This provides an opportune moment to address both increasing youth unemployment and our ever-growing housing crisis.

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About the Home Builders Federation

The Home Builders Federation (HBF) is the principal representative body for private sector home builders and voice of the home building industry in England and Wales.

HBF member firms account for some 80% of all new homes built in England and Wales in any one year, and include companies of all sizes, ranging from widely recognised national firms, through regionally-based businesses and small local companies.

About Pluto Finance

Pluto Finance is a leading investor and provider of credit solutions for property developers and investors. It offers a range of funding options, including bridging, development and investment finance, tailored to meet the needs of its clients.

Through its 34-strong team of property finance experts, Pluto Finance has an in-house origination network that covers the UK and major European markets. The firm's borrower-first customer service and flexible, pragmatic funding solutions have established it as a trusted partner in the property finance sector.