# Construction firms embrace AI amid challenges



Construction firms are at the forefront of embracing artificial intelligence (AI) as they navigate a transformative era marked by rising costs, enduring skills shortages, and increasing regulatory pressure. Recent research from Bluebeam indicates a significant enthusiasm for AI within the architecture, engineering, and construction (AEC) sector, although challenges remain in the integration and application of this technology.

In the AEC industry, the rate of technology adoption during the design and planning phases stands at nearly 80%, driven largely by tools such as building information modelling (BIM), computer-aided design (CAD), and various project management systems. However, the general adoption of technology decreases notably during the operational and maintenance phases, with usage rates dropping to 49% and 43%, respectively. The adoption plummets further to just 25% in the repurposing or disposal phase. Despite the growing interest in AI, its integration lags: only 48% of firms are using AI during design, 27% during construction, and around 21% at the operational and maintenance stages.

While some firms are committing a substantial portion of their IT budgets—up to 25%—to AI technologies, the research underscores a stark reality: approximately a quarter of AEC firms currently do not utilise AI at all, leading to unrealised benefits across various facets of their operations.

AI's contributions to the construction industry are diverse, offering tools that enhance all phases of the building lifecycle from design through to disposal. A primary advantage lies in the optimisation of project management. AI algorithms analyse extensive datasets, forecasting project timelines while identifying potential delays and overruns. This predictive capability allows firms to allocate resources more efficiently, freeing up time that would otherwise be spent on time-consuming analyses. Moreover, AI tools bolster quality control by significantly reducing errors and rework. Research from the Get It Right Initiative (GIRI) highlights that avoidable errors can cost projects up to 20% of their value, underscoring the critical importance of AI in preempting these issues through tasks such as automatic cross-checking of blueprints and timetables.

The construction sector is grappling with a substantial skills shortage, projected to require an additional 251,000 workers by 2028, according to the CSN Industry Outlook. The shortage stems from a trend of more professionals exiting the industry than entering it. Amidst the enthusiasm for adopting new digital tools—including AI—firms have reported difficulties in sourcing adequate training for employees to utilise these technologies effectively. Survey findings suggest that a lack of technical skills among existing staff is perceived as the foremost challenge to digitalisation (36%), while resistance to change follows closely at 26%.

Interestingly, concerns regarding budget constraints for technology investment ranked lower, indicating a willingness among companies to invest in technology but a struggle in cultivating the requisite skills for successful application. In addressing these challenges, ongoing training and development are essential for firms aiming to remain competitive in an increasingly tech-driven landscape.

Additionally, regulatory compliance is a pressing concern for construction firms in the UK, especially in light of recent legislative changes and high-profile failures. AI can facilitate adherence to UK Building Regulations by automating checks related to structural integrity, fire safety, and energy efficiency, ultimately ensuring projects align with legal standards and best practices. Anticipation of formal regulations for AI usage suggests that the industry must navigate an evolving landscape, balancing innovation with compliance.

The King's Speech has alluded to forthcoming laws regarding AI, although current regulatory frameworks exhibit a predominantly "light-touch" approach. As the ethical use of AI takes precedence, software providers and customers alike must establish clear parameters for its implementation, fostering transparency in usage.

The intersection of AI and the AEC sector presents numerous opportunities, with firms leveraging this technology to enhance productivity and project outcomes. Those who adopt AI effectively may find themselves better positioned in a rapidly evolving industry landscape.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.constructionindustryai.com/articles/ai-adoption-rates-construction-are-finally-the-rise> - Corroborates the growing recognition of AI's value in the construction industry, including its potential to improve efficiencies and mitigate bidding and contracting obstacles.
* <https://construction-today.com/news/the-rise-of-artificial-intelligence-in-construction/> - Supports the benefits of AI in construction, such as increased efficiency, improved accuracy, and enhanced safety, as well as its role in risk management and resource optimization.
* <https://www.jll.ca/en/trends-and-insights/investor/how-the-construction-industry-is-adopting-ai> - Highlights the investment in AI startups and cloud-based technologies to address issues like delays, rising costs, and labor shortages, and the use of AI in project management and safety.
* <https://www.forconstructionpros.com/construction-technology/machine-grade-control-gps-laser-other/article/22921962/burger-consulting-group-navigating-ai-adoption-for-the-construction-industry> - Discusses the key steps and considerations for successfully adopting AI in construction, including predictive analytics, robotics, and the need for education and careful planning.
* <https://www.deloitte.com/au/en/services/economics/analysis/state-digital-adoption-construction-industry.html> - Provides data on the increasing use of AI and other digital technologies in the construction industry, as well as the challenges such as skills gaps and budget constraints.
* <https://www.constructionindustryai.com/articles/ai-adoption-rates-construction-are-finally-the-rise> - Details the benefits of AI in improving project performance, including delivering projects under budget and on time, and the financial benefits associated with adopting additional technologies.
* <https://construction-today.com/news/the-rise-of-artificial-intelligence-in-construction/> - Explains how AI enhances safety on construction sites by predicting potential safety incidents and reducing workplace accidents.
* <https://www.jll.ca/en/trends-and-insights/investor/how-the-construction-industry-is-adopting-ai> - Describes the use of AI-driven tools for tasks such as virtual site walk-throughs and the optimization of resource allocation, highlighting their impact on efficiency and cost savings.
* <https://www.forconstructionpros.com/construction-technology/machine-grade-control-gps-laser-other/article/22921962/burger-consulting-group-navigating-ai-adoption-for-the-construction-industry> - Addresses the challenges of AI adoption, including project complexity, risk management, and workforce readiness, and the importance of a strategic approach to integration.
* <https://www.deloitte.com/au/en/services/economics/analysis/state-digital-adoption-construction-industry.html> - Highlights the barriers to digital adoption, such as digital skills gaps and budget constraints, and the strong returns reported by businesses that invest in new technologies.
* <https://construction-today.com/news/the-rise-of-artificial-intelligence-in-construction/> - Discusses the future of AI in construction, including the potential for autonomous machinery and the transformation of industry processes through data-driven and innovative methods.
* <https://www.pbctoday.co.uk/news/digital-construction-news/ai-use-in-construction-is-rising-but-how-much-will-change/146405/> - Please view link - unable to able to access data