



How tech is attracting the next generation of construction

Imagine buildings acting like living beings, using technology to learn and predict human behaviour. It may sound like sci-fi, but experts claim many of the places where we work, rest and play will be sentient within five years.

This will mark a major milestone in the merging of property and the construction process with technology – or proptech and contech. It will also be the culmination of the hard work property and construction has put into modernising itself in recent years.

“The impact of digital tech and AI will mean the opportunities are endless.”

Hannah Moss

Willmott Dixon

“The impact of digital tech and AI [artificial intelligence] on the construction sector will mean the opportunities are endless,” says Hannah Moss, head of digital engagement at construction group Willmott Dixon, which is heavily active in the Midlands.

“AI can help to save time and reduce the risk of human error – this all means that in the future we should be able to ensure people are working on the really valuable tasks that have the biggest benefit to our services and customers.”

“AI allows you to do more with fewer people,” adds Tony Mitchell, director of Leamington Spa-based SME civil engineering business O’Brien Contractors. “It’s the future, and you have to embrace it.”

AI for detail

The construction sector is a traditional, even conservative, industry with processes that have been well established. Because of this, digital tech is set to have a big impact, more so than in many other industries.

“Advancements in Building Information Modelling (BIM), programmable automation systems (PAS), the adoption of AI-driven robots, 3D printing, drones for site surveys and data-driven project management software

Stepnell employees using tech at one of its sites



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McLaughlin & Harvey is a privately owned construction and civil engineering business with **over 170 years of experience**. Founded in 1853 and now operating throughout the UK and Ireland, the business employs over 800 people and has office locations in Belfast, Glasgow, London, Birmingham and Bristol.

With a focus on its three core values of **collaboration, commitment and care**, the business delivers construction, civil engineering and fit-out projects - and provides facilities management services - to public and private sector clients in various industries.

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**McLaughlin
& Harvey**

are just some ways technology is collectively enhancing efficiencies in the sector,” says Tom Vear, IT manager at construction group Stepnell.

“Digitisation is helping drive efficiencies and opening-up new ways for us to develop and enhance the buildings of the future,” adds Moss.

“It’s also providing opportunity to reassess the way our industry works, helping us streamline existing manual processes and introduce new roles, data and insights that we have never had before.”

Benefits range from relatively simple things like digitalising manual processes to reducing the cost of errors and allowing customers to visualise and experience buildings before they are constructed.

However, high-tech processes are not something that can be implemented easily – they take time and experimentation to really unlock the benefits. Identifying the opportunities to streamline and automate tasks that are time consuming and require a lot of detail and data.

“In the future we should be able to ensure people are working on the really valuable tasks that have the biggest benefit to our services and customers,” says Moss.

“And with technology evolving as it is, it’s predicted our cities will be sentient in five years, using technology to learn and predict our needs.”

However, despite all the incredibly attractive possibilities AI could bring, adoption of the technology in construction is still in its early stages and many companies are yet to embed it into their daily activities. Currently, the biggest users tend to be larger businesses which are incorporating AI across a variety of areas.

“Apprehension around its integration is likely to be based on the perceived cost of this technology, the need to ensure it is fit for purpose for the company’s needs, doubts around the quality of data and information that it generates, and an ongoing concern about the impact that it has on the human aspect of the business,” says Anshu Williams, assistant director – employer engagement at South & City College Birmingham (SCCB).

“AI should enhance, not replace, working practices and roles – and when done successfully it can be an incredible source of information and capability that saves time and enables the team to focus far more on the bricks and mortar parts of the business.”



Students learn to use bespoke equipment at South & City College Birmingham

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Anshu Williams
South & City College Birmingham

The government, which sees construction as key to driving growth, is keen to get more businesses in the sector embracing AI. In August it unveiled £32m worth of AI projects to improve productivity and public services in various sectors including construction.

Among those projects is V-Lab, which has received £165,006 to develop software powered by AI to help people train in the construction sector. The system offers virtual simulations of real construction sites to train workers on risk assessments and safety protocols.

All this is music to the ears of O’Brien’s Mitchell, one of those SMEs. He looks forward to the huge benefits he believes that technology can bring – both to his business and the wider industry.

“We’re going to see an acceleration of technology in construction in the next few years,” he added.

“Job titles and descriptions will change

and you’ll have digital managers working in construction who’ll be managing, manipulating and using data in a project.

“We have technology that provides augmented reality to ensure work is carried out more accurately and efficiently.”

Building skills

The construction sector is facing a huge skills shortage. UK Trade Skills has said that more than 240,000 qualified apprentices are needed to fill the skills gap by 2032. Therefore, investing in skills to attract and train the next generation of workers is vital.

“As the workforce ages and experienced workers retire, the industry is facing a growing skills gap and a shortage of qualified and skilled workers to fill roles,” says John Carlin, regional director of construction group McLaughlin & Harvey. “The biggest challenge, to the most efficient deployment of the tech, is having the skills necessary to design, deploy and operate the tech in the first place.”

That means senior sector leaders need to embrace the digital revolution, says Moss. He believes it also needs investment in R&D and the creation of ‘safe space to fail’ to drive innovation, which is going to be key to how quickly the sector grows.

“Attracting new talent is fundamental, different skills are now needed – there are roles available that simply didn’t exist a few years ago,” she adds.

Construction review

PROPERTY

"The construction industry is changing. It's becoming more diverse in terms of the people joining and the roles available. It's a great time for people to consider a career in construction.

"It's no longer just hard hats and muddy boots, but now needs skilled digital managers, AI experts, transformation and innovation specialists to work hand-in-hand with our experienced workforce. The options are ever increasing and those who get involved now have the chance to build an incredibly exciting career."

However, for a sector keen to lure young people, construction is still too often seen as a yesterday industry. It needs to change the traditional image of construction as being labour-intensive, low-tech and lacking in career progression opportunities, says Williams.

As construction adapts to new materials, techniques and technology, there is a growing need for more tech specialists than ever.

This is where young people can be a fantastic asset to a business, and universities and businesses must collaborate so that it does not miss out on skilled young talent,

"Any perception of it being for low achievers couldn't be further from the truth," Williams adds. "The current school curriculum doesn't always encourage children towards 'hands-on' roles, instead deferring to more office-based jobs. These are, of course,

important, but it means some students miss out on a brilliant opportunity.

"Young people aren't always aware of the diverse range of roles within construction, perceiving it to be just bricklaying and the like. They're very tech-orientated and expect to use technology in their future jobs. If they assume a role won't include tech or career growth, they're put off the sector as a whole."

However views are changing; young people are now seeing a lot more opportunity in construction, particularly when they see the digital tech involved, believes Mitchell.

"Young guys when they leave school have a choice of working on a construction site or working in an IT centre, and the cabs of diggers are now a lot more comfortable, with air conditioning, better seating and easier controls," he adds. "We're hoping to attract more young people."

"We also use AI to measure what progress has been made on a project via a drone."

Tony Mitchell
O'Brien Contractors

Sustainable story

The construction industry accounts for 40 per cent of global CO2 emissions, so efforts to make it more sustainable will be essential to its future.

A lot of work has gone into introducing techniques, materials and energy sources in recent years to give the sector a green makeover.

There is a "big opportunity" for those with innovative ideas about creating a more sustainable construction sector, says Moss, adding that digital data is set to play a critical role.

"Digital technology drives insights and more intelligent decision making and offers better planning and visualisation tools, reducing reworking, waste and time," she adds.

"It means better understanding of how a building ultimately behaves in terms of carbon output and lifecycle."

Maximising tech is key, but SMEs need help when it comes to adopting new techniques and acquiring the skills needed to use them.

Technological advancements have led to more robust and lighter building materials, allowing buildings to be built faster and made more energy-efficient. Water management tech has also helped irrigation and reduced water waste. Meanwhile, smart monitoring has helped optimise lighting, heating and cooling.

"To meet this need, SCCB has built two houses intended as dynamic teaching spaces that provide first-hand exposure to environmental upgrades and energy-efficient retrofitting and allow students to immerse themselves in the practicalities of creating future-ready, eco-conscious living spaces," she adds.

We're providing employers now with the opportunity to upskill their workforces so they can embrace the opportunities ahead."

For Mitchell, opportunities are enhanced by the increased efficiency tech provides. This includes using AI systems which ensure accurate weather forecasts, saving time and money during construction.

"We also use AI to measure what progress has been made on a project via a drone and provide predictions about how long it will take," he says.

"I can also monitor what one of our extractors is doing from 100 miles away, which saves time and money, as well as road miles."



A construction student in a workshop at SCCB