AI and the Optimization of Construction Projects

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buildings or improve water eff ciency in homes and off ces,

entering a new era of learning as they turn their attention to the benef ts of artif cial intelligence (AI).

While human involvement will continue to be paramount, AI has the potential to assist in creating informed decisions, for example by suggesting sustainable, durable materials or cost-effective, but still safe, practices.

The possible applications of AI for the construction industry could be transformative across design, procurement, construction, operation, and decommissioning. In fact, research suggests designers and contractors are already applying AI and

the design of buildings, the planning of construction projects, and the day-to-day operations of sites.

DATA AND DESIGN

According to BSI's recent Trust in AI Poll , a global su   reduced by about 20%.

alike. The Trust in AI Poll shows that within seven years, 41% of people expect they will even be using AI at home. Just as the introduction of computer-aided design transformed the practice of building design, the use of AI tools could transform the built environment from start to f nish.

SAFETY AND STABILITY

Another area being looked at is whether AI could help improve safety overall in the sector. The expectation is that it could

have a positive impact, for example, by assisting in monitoring safety via sensors, cameras, predictive trend data, and modeling to determine ways to make construction work zones safer and more efficient.

In addition, AI-powered tools – like drones – could assist in managing large and high construction zones. Being able to view these complicated zones from multiple advantage points would potentially allow for increased safety by determining any risks that cannot be seen from the vantage point of workers and thus the safest way to proceed.

Finally, drones could be used to better assist in spotting defects in projects. Rather than wait for an issue to rear its head, contractors could soon be routinely using drones, sensors, and modeling to help identify areas of weakness before they become major problems.

TOMORROW'S HELPERS TODAY

In the discussion around the future of construction, AI could step forward as a game-changer, blending human creativity with cutting-edge technology to shape a safer and more reliable built environment. While human input, intel, and interaction will still be essential, AI offers the opportunity

entire construction processes and lifecycle. In fact, 52% of respondents to the Trust in AI Poll say they would trust AI to do some of their job, including the menial parts.

As AI becomes an integral part of the construction landscape, organizations will still benefit from putting a human touch on AI learning and development, prioritizing enhanced safety. This technological evolution can empower the industry to tackle challenges head-on, yielding a future where data-backed decisions result in designs that are not just environmentally friendly but also practical. A future where the adoption of automated carbon data collection can be the catalyst for a transformative shift in the industry, opening doors to increased project capacity while making a positive impact on people and planet.

EDUCATION IS KEY

Although AI is top of mind in the media and our collective consciousness, the majority of those polled don't know they are already using AI with day-to-day interactions, for example with

smart doorbells (64% didn't know this employs AI), curated playlists (62%), smart speakers (56%), or automatic driving assistance features (56%). Perhaps unsurprisingly, 55% of people believe we need to be training young people now on how to work in an AI-powered world.

Ultimately, education will be a key building block in ensuring the construction workforce can seamlessly integrate AI tools across all stages, from initial design sketches to the finishing touches on a completed facility. While we will always need people at the heart of the construction process, AI's potential to enhance site safety, support sustainability, and enable a people-centric approach should position it at the forefront of positive change in the built environment. ✒

About the Author

Rahul has direct experience working for and with asset owners, main contractors, architects, engineers, and manufacturers. With over 23 years of experience, he has held leadership roles responsible for driving digital transformation, leading on BIM strategy, and implementing programs globally. During his career, Rahul has gained experience implementing various digital initiatives on a diverse range of projects, including hospitals, airports, residential, commercial, data centers, mixed-use public spaces, stadiums, and metros.

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