2025 BENTLEY INFRASTRUCTURE AI FORUM

AI CONSIDERATIONS

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CONSIDERATIONS

It's normal business practice for regulatory policies to emerge after new technologies, innovations, business models, and new ways of doing things have been introduced.
It stands to reason that regulation will lag behind those who are at the cutting edge of innovation.

Innovation often moves at lightning pace while governance moves more slowly.

Our survey of global infrastructure leaders shows the sector is not just talking about AI as a concept but is progressing with its implementation at varying speeds.

Almost half (48%) of organizations said they are either trialling AI in selected areas or implementing it in daily operations with plans to expand further.

However, within three years, approximately one-third of leaders expect more than half their organization's projects to leverage AI significantly in design, engineering, and construction.

If the expected approach of a third of sector leaders was mirrored in the wider sector, it would mean AI is going to be embedded in billions of dollars of investment.

However, only 20% of leaders currently have an AI policy that includes guidelines for use, governance, ethical implications, safety measures, and related aspects.

Mistakes in Architecture, Engineering, and Construction (AEC) can have devastating consequences in terms of safety, project timelines, and budgets, so businesses need to make sure their AI processes are regulatory compliant and error-free.

Among the pertinent factors organizations need to consider when implementing and adopting AI are:

INTELLECTUAL PROPERTY (IP) PROTECTION AND OWNERSHIP:

40% of leaders told us they are using or actively trialling/investigating AI to optimize or improve the productivity of design and engineering processes such as generative design and multi-factor design optimization.

There is risk involved in the IP ownership of AI-generated outputs. Organizations must establish clear policies on what constitutes proprietary content versus AI-generated content. They must also protect their own designs from being used to train external AI systems.

REGULATORY COMPLIANCE AND STANDARDS ADHERENCE:

AI outputs must still comply with building codes, safety regulations, and engineering standards that were written before AI was created.

Organizations need governance frameworks to ensure AI-generated designs undergo proper human review and validation, and that regulatory bodies can audit AI decision-making processes if required.

CREATING AN AI AUDIT TRAIL:

When AI influences critical project decisions, organizations must be able to explain and defend those choices to clients, regulators, and courts, if required. This means maintaining detailed records of AI designs and models, human oversight points, and decision rationales - essentially creating an "AI audit trail" for each project.

DATA SECURITY ACROSS SUPPLY CHAINS:

Almost three-quarters (71%) of organizations allow suppliers and contractors to use AI, but with fragmented governance. Given the complex and sensitive nature of infrastructure projects, businesses need secure data-sharing protocols to ensure supply chains don't use proprietary designs and confidential information in their AI systems. Audit trails are also required to determine how project data is used by AI systems throughout the supply chain and how decisions were made.

Cybersecurity attacks and data breaches are on the rise across the digital ecosystem, including the financial extortion of businesses through the seizure of sensitive project data. Protecting project data and AI-embedded systems from ransomware attacks is now an increasingly important priority.

CONTRACTUAL LIABILITY AND PROFESSIONAL RESPONSIBILITY:

Traditional professional indemnity frameworks were created before AI involvement. Going forward, contracts must explicitly address liability allocation between human professionals, AI system providers, and project stakeholders. Organizations need to clearly define who bears responsibility if an AI-generated design or project flounders or fails, or if AI-assisted decisions lead to project defects.

In addition to the above considerations, there are many other challenges firms need to be aware of when adopting AI, including skills shortages and technological infrastructure limitations, which we touched on as part of your pre-read materials for the Infrastructure AI Forum.

During the forum, we want to hear more about the considerations and challenges you're facing in your AI journey and approaches your organizations are taking to promote adoption.

AI has the potential to shift the boundaries of productivity and efficiency in the industry, but it must do so within sensible legal, ethical, and moral boundaries set by responsible organizations.