



Perspectives

# Deloitte Flash for Construction

## Unlocking GenAI’s potential in construction

Welcome to the Deloitte Flash for Construction—a quick read from Deloitte designed to provide you with insights into today’s business issues related to construction. Our current Flash highlights simple GenAI use cases for construction.

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THE ISSUE:

Nearly 80% of business executives anticipate that Generative Artificial Intelligence (GenAI), a subset of AI that focuses on creating new content, will bring substantial transformation to their industries within the next three years.<sup>1</sup> Opportunities within GenAI vary widely in scale and scope across industries, but straightforward, cost-effective, and low-risk use cases are available. Within the construction industry, owners and constructors alike possess proprietary data that can be a catalyst for streamlining GenAI implementation and calibrating GenAI models to meet specific requirements of value-driving use cases.<sup>2</sup> With so many opportunities available, it can be difficult for leaders to select the most impactful use cases for their organizations. Applications with a low time and cost barrier to entry may be particularly attractive and have the potential to drive operational efficiencies and process improvements, optimize functional activities, and jump-start a wave of GenAI adoption throughout your organization.

INSIGHTS:

GenAI applications that leverage proprietary data derived from the activities of owners and constructors, including historical project data, can perform routine tasks and analyze project information to derive insights to enhance the predictably of various elements of project delivery. Example applications that utilize foundational features of GenAI include:

- **Deploying a GenAI cash flow model to predict expected cash:** A GenAI agent can help prepare cash flow spending for a portfolio of projects over a given time period. Accurate cash flow forecasting is a business imperative for owners and constructors managing large or mega projects. A GenAI model built on top of or in collaboration with existing tools, such as simulation analyses tools, can improve the reliability of expected cash flow projections, transforming static “S-curves” into fully customizable models that are continuously updated with the latest company information.
- **Utilizing a GenAI digital assistant in the fields of Environmental, Health, and Safety (EHS):** A GenAI digital assistant can help transform EHS management within construction by automating complex processes, enhancing decision-making, and predicting risks with greater accuracy. GenAI applications such as digital assistants can rapidly analyze vast data sets, identify hidden patterns, and predict potential incidents before they occur, thus enabling proactive risk management. Additionally, digital assistants can enable decision-making in real time by providing timely recommendations on critical actions to address incidents as they happen. Furthermore, GenAI digital assistants can streamline compliance by automatically updating systems with the latest regulations and generating compliance reports, thereby reducing manual workload and human error.
- **Adopting a GenAI document review application:** As organizations continue to search for efficiencies within their administrative functions, a document review application powered by GenAI can quickly and efficiently perform regular reviews for documents such as contracts, leases, purchase agreements, applications for payment, invoices, or change orders. Training the GenAI agent on existing document data sets, while having the organization’s employees act as humans-in-the-loop, can drive administrative efficiencies throughout the project life cycle.
- **Implementing a GenAI-enabled predictive maintenance system:** By analyzing data from Internet of Things (IoT) sensors, if available, and historical maintenance records, GenAI can assist with predicting when machinery and equipment are likely to fail or require maintenance. For both constructors and owners, a proactive approach to equipment maintenance can minimize downtime, reduce repair costs, and extend the lifespan of equipment.
- **Deploying robotics and drones leveraging GenAI during construction execution:** The use of advanced robotics that can autonomously capture 3D scans of construction sites can help transform construction site monitoring. This data can then be fed into a GenAI-enabled application or agent that evaluates the job percentage completion, quantities of materials onsite, quality assurance/quality control, and other critical metrics. By continuously assessing job progress and tracking the location of workers and equipment, these GenAI-powered systems provide real-time insights into the status of various subprojects.

HOW DELOITTE CAN HELP:

Deloitte’s *Infrastructure & Capital Projects* team has a demonstrated track record and specialized experience crucial for helping owners and constructors strategically navigate and prioritize GenAI use cases specific to their capital planning, engineering, and project delivery team organizations. Our practitioners can also leverage Deloitte’s expansive network of professionals that have experience with developing proprietary GenAI applications with the ability to scale to meet an organization’s strategic goals.

Deloitte can:

- Evaluate potential GenAI application use cases for owner, design, and construction teams to identify opportunities for enhancing efficiency, productivity, predictability, and decision-making processes.
- Provide GenAI strategy services, including assessments of platform alternatives, technology architecture planning, and roadmap development to establish a strong foundation for GenAI initiatives.
- Evaluate in-flight GenAI projects and assist in achieving value-added benefits during deployment by verifying alignment with project goals.
- Identify data sources that may serve as inputs to transformative GenAI use cases, confirming data availability, readiness, and strategy prior to launching an effective GenAI implementation.
- Prioritize potential GenAI opportunities within an organization and provide recommendations to proceed, focusing on high-impact areas that align with strategic objectives.
- Build trustworthy AI<sup>3</sup> and scale and support the integration of advanced GenAI capabilities throughout the organization.

For more information, please contact one of our leaders. We look forward to assisting you on your AI journey.

<sup>1</sup> Laura Shact et al., *Four futures of generative AI in the enterprise: Scenario planning for strategic resilience and adaptability*, Deloitte Insights, October 24, 2024.

<sup>2</sup> Beena Ammanath et al., *The Energy, Resources & Industrials Generative AI Dossier: A selection of high-impact use cases*, Deloitte, 2023.

<sup>3</sup> Ed Van Buren and Tasha Austin, “*Developing and deploying trustworthy AI in government*,” Deloitte, 2021.