

Member Communication Experience

Which Construction Technology Investments Actually Move The Needle On Profitability?

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Feeling bogged down by all the new choices for construction technology? Don't feel pressured to adopt them all.

Construction companies are compelled to adopt the many new technologies promising significant return on investment (ROI). However, it's critical to step back and distinguish between transformative tools and mere buzzwords in the industry to avoid preventable financial losses.

CONSTRUCTION TECHNOLOGY THAT ACTUALLY WORKS

Construction technology should target sources of profit loss, such as downtime, rework, budget overruns, and safety incidents. Here are proven investments with measurable ROI.

BUILDING INFORMATION MODELING

The concept of 3D modeling has been valuable in producing geometric representations of blueprints. Building information modeling (BIM) takes it a step further by creating and managing extensive project data, including costs, materials, and schedules.

Companies can expect better stakeholder collaboration and reduced rework when they connect on these crucial elements and stay aligned. BIM is already expected to increase from \$10.27 billion in 2026 to \$27.12 billion by 2034 with a CAGR of 12.90%.



REALITY CAPTURE AND MACHINE LEARNING

Reality capture through drones and sensors is versatile, as these tools can be used for site surveys, progress monitoring, and safety inspections. Combined with machine learning, progress reports become accurate enough to improve worksite safety for workers.

The collected data can also be used to improve equipment quality and lifespan. Use it as a basis for predictive and preventive maintenance, helping companies experience 52.7% less unplanned downtime than those using reactive maintenance.

CENTRALIZED PROJECT MANAGEMENT SOFTWARE

Centralized project management software can streamline communication, documentation, and scheduling all in one platform. A report found that 77% of optimized users saw increased profit margins.

The software also offers productivity gains. By unifying project tasks and enhancing real-time visibility into project progress, construction businesses can reduce their administrative errors and minimize field delays.

OVERVALUED TECH WITH UNCERTAIN ROI

As important as technology is, certain buzzwords have innovative potential but are risky or have low ROI. Firms should practice more careful consideration to avoid poor technological investments and implementations.

METaverse

The metaverse has become more possible through a combination of virtual reality, augmented reality, and artificial intelligence. It has the potential to improve virtual visualization and 3D modeling, thereby impacting energy efficiency and reducing construction waste.

However, despite its power, technological limitations and data privacy concerns still hinder its widespread adoption in the construction industry. Investing in it now without proper development might involve little to no return.

BLOCKCHAIN FOR SUPPLY-CHAIN MANAGEMENT

Tracking materials and other resources from a factory to a jobsite can involve numerous documents. Integrating blockchain solutions can boost operational efficiency by 25% while reducing fraud by 50%, which improves transparency between workers and stakeholders.

However, it's hard to ignore the high implementation costs associated with blockchain. It can also be complex to understand, which isn't ideal for construction start-ups that may prefer simpler options, such as centralized project management software.

GENERATIVE DESIGN

Another application of AI is generative design, which entails creating plans with minimal human input. It's intended to simplify the planning process, but there are concerns about the unethical use of this technology, given GenAI's challenges with domain knowledge and model accuracy.

Generative design is prone to hallucination and mistakes. Removing the input of experienced architects and engineers early on in the process can also lead to further delays and expenses in the long run.

HOW TO CHOOSE THE RIGHT TECHNOLOGY FOR THE FIRM

Differentiating between technological investments that deliver measurable results and those that are simply buzzwords can be challenging. It's important to take the time to analyze these prospects. Here are tips to help construction industry professionals choose the right ones.

1. Identify Problems Instead of Products

Instead of chasing technological solutions based on what's popular, focus on what problems the construction business is actually facing. For instance, to improve equipment lifespan, predictive maintenance analytics would be most effective.

Start by defining a problem and then work from there. If there are no clear areas for improvement, take the initiative to identify what would positively impact the company's profits.

2. Consider the Investment Risks

As high as the ROI may be for certain technologies, it's still important to understand any risks associated with their implementation. Small- to medium-sized companies, especially, should be vigilant about where they invest their money.

For instance, BIM is ideal for improving planning. However, implementation costs can be relatively high, with some services charging monthly or annual fees, depending on the scale and complexity of the project.

3. Implement a Pilot Project First

Before widespread technology adoption, it's safe to implement

a pilot project first. This will involve a limited number of users to evaluate functionality and gauge the budget and resources required to use the tool effectively. It's best to have an IT specialist who can help lead its integration.

A pilot project should have a specific timeline and a list of goals that would warrant its implementation. Profitability is a key performance indicator, but it's also important to assess other elements, such as reduced delays and errors compared to traditional methods.

4. Get Employees Involved Through Training

Incorporating new technologies can become much smoother when employees are involved in the process. Managers should provide adequate training sessions to familiarize construction teams with using these tools, ensuring greater success and better results.

Training can also translate to a more positive evaluation of the pilot project and encourage buy-in from business leaders. Seek their feedback to explore any adjustments in the implementation process when it goes companywide.

BE INTENTIONAL WITH TECHNOLOGY ADOPTION

Technological adoption should enhance profitability and productivity in the construction industry. Evaluate industry solutions before integrating them into the project process to ensure that upcoming investments have a real impact. 



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