

Five Ways Technology Can Ease Project Risk Management

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The construction industry is going through a major transformation. The way we build, operate, and maintain buildings has changed dramatically in the last decade.

Agile and lean methodologies that focus on delivering value quickly are replacing the traditional practice of project management. Construction engineers like you are no longer building concrete shells but rather creating intelligent buildings that can adapt to their tenants' changing needs.

This shift has created uncertainty on the jobsite and in the back office. On top of that are the ongoing changes in the market, weather, material costs and other influences that can affect project delivery. It has resulted in projects becoming increasingly complex, fast-paced and cross-functional, which means they need to be planned with precision and executed with care.

That complexity is making your risk management and mitigation efforts that much more of a challenge. And it's also highlighted the need for good, accurate data on the current state of your project. It's much easier to predict what might happen if you have a solid understanding of where you are right now, and where you're headed.

This means taking a more proactive approach to project risk management is a must. Having the right technology in place can give you more control over both the anticipated and the unexpected – and their effect on project outcomes. Here



are some key ways technology can make planning for and managing project risks easier and more effective.

Aids in Contingency Planning For Future Risks

The best way to manage risk is to plan for it; and by planning for it, you can better control it. With risk management software you can do just that, and it'll rely heavily on the data you input.

Do you have past project data you can import, specifically the actual risk factors that occurred and their impact on costs and schedules? You're sitting on a gold mine of project risk insights.

Is historical data for similar projects nonexistent or unreliable? You can still input risk factors you want to account for; the software will generate likely outcomes based on current, localized values.

Think of risk management software as an indispensable tool to answer all the “what if” questions: what if a severe weather event, a material price increase, a late equipment delivery, or a critical design change occurs? What does the software indicate would be the corresponding effect on costs, timelines, materials, and labor? You can even adjust the scenarios – if a risk factor took longer, cost more, caused more damage – to see the varying impact.

Knowing these measurable consequences helps you create “what should you do” responses, the contingency plans that are ready to launch for each what-if risk scenario. Those plans, rather than being guesstimates, are data-driven, risk-mitigating strategies that ultimately give you more control over project progress.

Detects Emerging Risks in Real Time

What about the things you can't plan for? With construction being risk-prone, it's inevitable the unanticipated will happen. You need to be able to detect and mitigate them before they have a significant impact on your project – and you can't do that without real-time insights into what's happening. That's one of the strengths of risk management software, giving you real-time visibility into your project's status and allowing you to respond as changes occur. For this to work, data collection should be at the core of your risk management strategy.

When you're working with substantial capital projects, however, that's a lot of data being gathered. You don't have time to scour all those details. Instead, look to performance metrics that constantly monitor how cost and schedule data are performing against the estimate.

The most efficient way to track those metrics is through dashboards that serve as a sort of single source of truth for project status. Software with this dashboard functionality condenses and organizes your data in one place in user-friendly visual formats that make real-time data analysis

infinitely easier. To further allow you to focus your time and attention where it's needed most, you should be able to set up alerts to notify you and key stakeholders when a metric swings beyond its operating range. This proactive risk-mitigation approach gives you a heads up that something is developing that requires attention, and a head start on devising a solution.

Opens Communication Channels to Reduce Misunderstandings

Having so much current, accurate data won't mean much if your team isn't able to access, share, and collaborate on it – making it impossible to have substantive discussions or make timely, informed decisions.

And yet, poor communication has long been known as a top risk that contributes to sub-par productivity and therefore poor project outcomes. Of course, the sheer size of such projects can exacerbate this; the more people that are involved, the more likely you'll have communication issues. It's hard to effectively manage a project, let alone risks, if no one is on the same page.

Most people collaborate using email or instant messaging; while this is a start, critical details can be lost and the feedback or answers from others may not come in until it's too late.

A good cloud-based risk management solution mitigates these risks by opening communication channels. Acting as a centralized communications hub, it provides a forum for discussing and sharing information and documents in real time, ensuring everyone knows what's happening without missing an important update or document that impacts their workflow.

The full benefit of this is realized if that communication channel is also mobile-device friendly. Jobsite risks become preventable when you're able to collaborate with the appropriate disciplines no matter where they are and ensures everything from change orders to safety risk updates to reach those who need it when they need it.

Identifies and Prevents Personal and Jobsite Safety Risks

Perhaps the most important of all risks that can benefit from leveraging technology revolves around physical safety – both personal and jobsite.

A range of technologies are increasingly becoming part of the jobsite landscape, from building information modeling (BIM) to field technologies. Implementing any or all of them can help you reduce the incidence of injury and death on your projects.


BIM is a digital 3D representation of all the elements that make up a structure. The most obvious use of BIM in a risk sense is using it to visualize the impact of changes before they're made, thereby reducing the likelihood of design error and therefore the risk of rework. So, it may come as a surprise that BIM has potential as a safety risk management tool. That same 3D model, when explored through a virtual fly-through or walkthrough, can be used to identify possible hazards such as structural deficiencies or obstructions that would have been difficult or impossible to detect in person. The exploration exercise can also reveal dangerous areas that may not be avoidable, giving you the opportunity to create protocols to work safely around it.

Where using BIM can be more preventive in helping you discover safety risks before they're an issue, field technologies help you detect and track on-site safety conditions in real time. Drones and wearables are among the more popular field technologies to consider because of the valuable data and insights you stand to gain.

Drones can be used to survey sites before workers arrive, alerting them to potential hazards before they step foot on site – saving time and lives. In the same vein, they're being used in place of workers to conduct formal safety and quality inspections that would have put health and life at risk. Aerial views also provide a valuable perspective into how a site is being utilized and whether workers are performing their tasks correctly. This information can be used to create new safety protocols or identify potential hazards before they become issues.

Wearable devices, including smartwatches, monitor workers' health and alert them to potential issues such as dehydration or heat stress. They can also be used to prevent injuries by notifying supervisors when workers begin experiencing fatigue or overexertion – two leading causes of workplace accidents. Sensors and other data collection devices can help identify and evaluate existing conditions such as extreme heat or cold weather exposure that could affect workers' health and safety. Beyond personal health, they also give you real-time visibility into worker behavior, allowing you to see if there are any problems with compliance or unsafe practices occurring before an incident occurs.

A Special Benefit of Risk Management Technology

One other thing technology can deliver: assurance. This isn't the same as a guarantee. Rather, it's more of a certainty in knowing you're accounting for everything you possibly can, from the planning stage through to commissioning and even beyond. So, you can answer the "what if?" questions with confidence. 



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