



How Automated Resource Monitoring Improves Construction Profitability



Unplanned activities can account for more than 30% of time spent on construction sites. These on-the-spot improvisations increase spending, lead to rework and contribute to bad workflow. To manage complex projects, construction managers need a better way to witness site activities and to communicate to relevant parties what needs to be done.

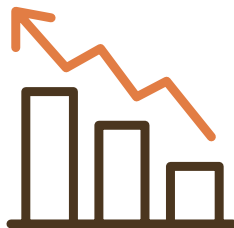


of activities are unplanned on construction sites

Analysis shows a critical requirement of effective project management is easy sharing of vital information, such as the location of construction resources: labor, equipment and materials. With the right strategy, careful resource monitoring can result in:



Improved productivity.



Higher margins.



Less waste.

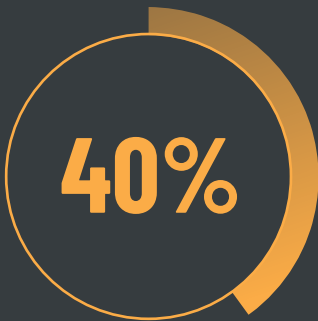


Better quality.

Deciding what to monitor

Achieving these benefits, however, requires selecting a technology partner that optimizes efficiency by supplying a solution, instead of only providing data. It also requires a strategy detailing what is monitored.

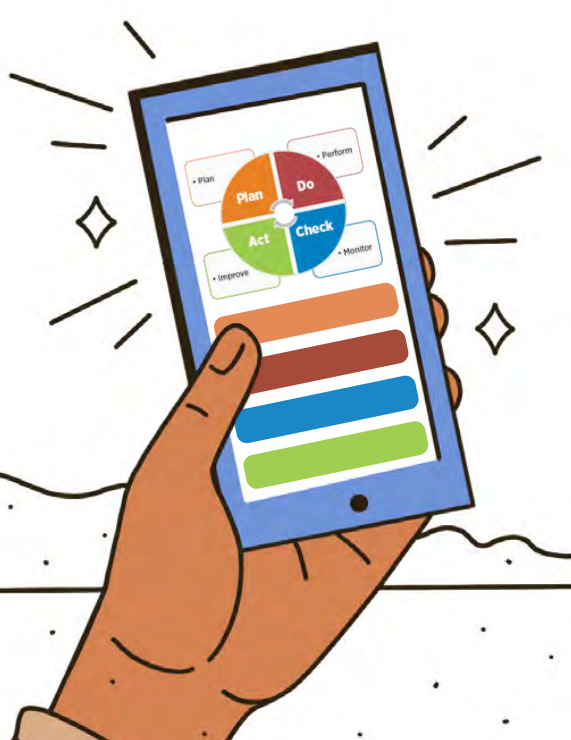
Partly because of a lack of resource location transparency, construction efficiency lags that of other industries. In 2017, McKinsey estimated that gains in construction efficiency were only [a third that of the global economy](#) during the previous 20 years, leading to a productivity gap of about [30%](#). That [same size of a shortfall](#) still existed in 2021.



Everything that has a significant impact on the budget and the schedule of a construction project should be monitored. This includes crew members, senior staffers, visitors, materials and equipment. Of these, workforce monitoring should take the highest priority because labor accounts for as much as [40% of a project's cost](#). Construction workers also are mobile and play a major part in the roles of materials and equipment.

All resource monitoring is critical, though, as it provides data required for continuous improvement of site operations and for informed decision-making. In lean methodologies, this is the “check” part of “plan-do-check-act.” Checking that what is done is the right thing at the right time can lead to a threefold improvement in project completion ahead of schedule and to a 1.8-times increase in a project’s chances of completion under budget, [according to the Lean Construction Institute](#).

Resource monitoring combines software with physical presence, whether it be in the form of manual reports, internet of things devices for automated monitoring or [infrastructure to connect everything together](#). Field managers are often busy, so resource monitoring should be as frictionless as possible. The same is true for reporting and data analysis, which should be available on the go so workers can use them when walking a site.



Realizing benefits

A strong monitoring system is unobtrusive but also inclusive. To ensure this, a monitoring system should support other increasingly important [construction technologies](#), such as building information modeling, robotics and 3D printing. Many of these technologies rely on the type of reliable, up-to-the-minute data that resource monitoring systems provide.

Monitoring enables real-time situational awareness through [integration with BIM](#), for example, allowing better workforce and project management. Robots, which may soon be part of everyday life on construction sites, also require good data. A material-fetching robot needs to know where that material is when assigned to move it from one location to another. To maximize safety, a robot's movements may change, based on accurate knowledge of where people are. Digital-twin programs, which create virtual representations of a project, are another increasingly popular tool that relies on accurate data – including resource data.

Benefits of resource monitoring aren't limited to incorporation with leading-edge technologies, though. Any time resources are constrained, project durations can increase significantly. Materials shortages caused project delays for 75% of construction firms [surveyed](#) by the Associated General Contractors of America, and 61% blamed labor shortages.

Resource monitoring lets project managers act quickly, which is particularly advantageous because that reduces the cost of implementing a fix. Improvements in operational efficiency from resource monitoring can raise a project's profitability 2% to 3% in the short term and can lead to more gains in the long term.

Regardless of technologies available on a project, project reporting is necessary. Resource monitoring software provides report standardization and enhanced reporting capabilities, saving site managers time. Resource location data can generate daily and other reports automatically, assess safety hazards and facilitate communication. Construction managers can then focus on other critical project areas. Better reporting capabilities enhance transparency and accountability by identifying and quantifying waste, as well as progress toward eliminating it.

Materials shortages caused project delays for



75%

of construction firms, and



61%

blamed labor shortages.

Sourcing a monitoring solution

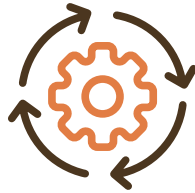
Yet if project managers are to realize the full benefits of resource monitoring, certain factors must be considered when choosing a technology and solution partner. Along with the partner's expertise, factors that need consideration include the system's:



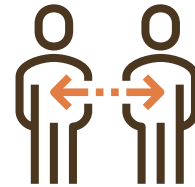
Flexibility.



Ease of deployment.



Ease of maintenance.



Interoperability with project-management and scheduling software.

These factors influence one another and affect solution performance. For instance, flexibility in a resource monitoring solution means the solution should work with tools already in use at a project or by a project manager. Consider a case in which everyone on-site uses one project-management platform. A resource monitoring solution should integrate with it. This need for adaptability extends to physical monitoring of resources. Resource monitoring solutions should integrate with planning tools to make a project manager's job, and those of others, easier.



A solution's flexibility and a solution partner's expertise also interconnect. Because construction involves a general construction team, as well as subcontractors and other stakeholders, success is amplified if all groups use the same resource monitoring solution. The best approach is to ensure each group gets something out of it, with value clearly communicated. The solution provider should also ensure every stakeholder is on board and aware of benefits of implementing the technology.



One solution provider that takes this type of inclusive approach is Genda.

"Construction is considered a very unproductive industry, and waste can be found everywhere on-site," said Erez Dror, CEO of Genda. "We first identify these wastes and inefficiencies and quantify them. ... We can then build a plan, with clear visibility on our real operations to eliminate those wastes and improve productivity. We can do it from an informed place, knowing what types of wastes cost us the most."

Genda uses IoT technology for physical monitoring, allowing easy data gathering on resource location and other essential information. The company's cloud-based, back-end software offers computing power sufficient for analysis, and mobile apps ensure the solution is always available.

"Our solution is easy to deploy and maintain, which is important because construction managers are busy enough and do not need to spend extra time getting a technology solution to work," Dror said.

The company also has extensive expertise in and knowledge of construction resource monitoring. Together, Genda's technology and background enable real-time insights and supervision at multiple levels, while providing reports and analytics.

The resulting transparency supports worker safety, ensures supplies are available when required, encourages efficient collaboration and supports decision-making needed to complete quality projects. In sum, careful monitoring of people, materials and equipment on a work site improves margins.



"Our solution is easy to deploy and maintain, which is important because construction managers are busy enough and do not need to spend extra time getting a technology solution to work."

genda



request
a demo