6 STEPS TOWARD DIGITAL TRANSFORMATION IN THE CONSTRUCTION INDUSTRY
From safety standards to power tools, numerous innovations have advanced the construction industry over the years. Yet nothing has had as profound an effect on the industry as information technology.

New technologies such as building information modeling (BIM), radio-frequency identification (RFID), virtual design and construction (VDC) and cloud-based communications are transforming the construction job site. The construction industry overall, however, has been rather slow to adopt new technology. In fact, more than half of construction managers spend only 2 percent or less of their revenue on IT, and only 42 percent of construction managers have a dedicated IT staff. According to the recent RSM digital transformation survey, middle market companies overall spend on average 5.95 percent of revenue on digital transformation efforts—about three times the amount spent by construction companies.

Clearly, technology isn’t slowing down, and the construction job site is going to become increasingly digital whether construction companies are ready for it or not. As competition increases, it will be essential for these companies to provide greater value to their clients by adopting these new technologies. Otherwise, they will find it increasingly difficult to stay viable.

On the following pages, we outline six steps construction managers can take to move their companies toward a digital transformation—and a competitive advantage.
Before any digital transformation takes place, one question must be asked: Does the organization have the right leadership to take on this strategy? Company leadership must be on board to implement—and sustain—digital initiatives within the company, whether it’s on the job site troubleshooting problems or in the office managing training and costs.

A knowledgeable leader must be able to create a culture of creative thinking and be willing to make investments when they are needed. Targeted investments in IT, based on a sound strategic road map, enable the IT function to become more efficient, improve service to the organization, and open the door to future cost reductions and efficiencies in IT and across the business.

Construction companies are using technology to improve collaboration, helping employees, subcontractors and other stakeholders reap the rewards of a more connected and mobile project environment. The efficiencies that technology enable can help sustain a company in good times and, perhaps more importantly, in downturns.

The cyclical nature of the economy suggests that it is only a matter of time before another industry crisis occurs. Contractors should always be prepared for the next economic slowdown. Company leaders, especially those with fewer resources at their disposal, should be looking at how new and emerging technologies can help their companies perform more effectively.

What cannot be overlooked is the importance of management’s buy-in. No plan is going to be successful if management does not lead the charge for change.

The right leadership can support these six characteristics of digital maturity in the construction industry:

**Speed of action**
Nimble, responsive action

**Risk tolerance**
Favoring bold, experimental, fail-fast approaches

**Leadership structure**
Favoring horizontal and distributed structures over top-down models

**Work styles**
Integrated and collaborative engagement across departments and functions

**Quality of life**
Nurturing nontraditional, employee-centric environments that talent is committed to and passionate about

**Data driven decision-making**
Decisions driven by actionable data and customer-centricity over opportunism, intuition or instinctive responses
When it comes to practically anything in business, consistency is important. This is especially true for technology. Having the right technology in place can help a business reach that next plateau of growth, but technology tools must be uniform throughout the organization.

To standardize technology within an organization, leadership must first put a plan in place. Basic governance ensures that everyone within the company is familiar with standard procedures and understands how a function is to be performed. It also means that employees can be held accountable if they do not follow the plan.

With a plan and the right technology determined, employees can then be brought on board. Employees throughout the organization should be trained to use the same technology on a consistent platform that allows for current and anticipated tools, as well as for improved connectivity and access to accurate, real-time information.

Regardless of the type of technology chosen, uniform technology throughout the organization can have a significant impact on profitability. Integrating systems and platforms throughout the company can allow management to accurately forecast profitability and manage job risk.

Key technology trends

Embracing innovation is a key element to developing a competitive advantage and establishing a foundation for long-term success. There are a number of strategies that companies can leverage to enhance operations and ultimately increase profitability.

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Before instituting a new technology strategy, an application road map should be developed that will ensure that the chosen platforms and software will work together. No one program or application can manage an entire business, so management must be sure that all programs and software allow data to flow seamlessly through all systems. In creating that application road map, however, the question then becomes:

**Should a company purchase state-of-the-art software or an integrated system?**

There are benefits and drawbacks to each option—and the answer depends on the circumstances for each company. For example, with state-of-the-art systems, companies can select the products with the features and functions that perform best in their respective niche. Yet while these systems perform specialized functions better than integrated systems, they are by definition limited by their specialties. That means that some software may not be the best choice when it comes to data flow, data integration and standardization. It may also result in duplication of data entry because the multiple systems cannot communicate with each other.

With integrated systems, management can expect better assimilation of data across the entire organization (although some elements of the system may not function as well as others). However, the integrated system might not work well with software purchased through other vendors (or even through the same vendor).

At the end of the day, it comes down to making the best choice for a company’s unique business and budgetary needs, and understanding the compromises that may need to be made.

*Assessment and strategy*

Identify the barriers between your organization and growth. A Rapid Assessment® from RSM can help you to determine if your current application will support your strategic plan.

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Mobile technology has taken the world by storm, and that certainly applies to the construction industry, with four out of five construction managers using mobile devices to manage their projects.2 In a survey of construction contractors by Texas A&M University, 72 percent of contractors polled said they use smartphones on the job, with 50 percent saying they regularly use tablet computers. Full mobile enablement—the ability for workers to seamlessly view all of their systems and have access to their information from any location—is fundamental to creating a fully functional digital job site.

For an industry in which there are always challenges to be managed and profit margins to be maximized, real-time access to project data via mobile devices can mean managers and employees have the information they need to get the job done efficiently. That ease of access to information from any location helps workers minimize errors and maximize productivity, thereby saving money. Historically, paperwork has created significant delays between the project manager on the job site and the back office. With mobile enablement, workflow improves as project managers can use digital signatures to do required tasks like signing off on documents quickly and easily.

Mobile enablement also gives companies the ability to expand their geographic outreach. Gone are the days when a company could only work within a certain locality or region. Mobile technology allows companies to truly expand their geographic reach to any area of the world.

When companies integrate mobile technology, it can be a game changer that helps reduce costs, manage workflow more effectively, save time and, ultimately, make the company much more competitive.

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**Technology tools to boost collaboration**

Construction companies can use technology to improve collaboration, which can help employees, subcontractors and other stakeholders reap the rewards of a more connected and mobile project environment.

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Part of creating a digital job site and adapting to mobile technology is embracing the use of the cloud.

Whether a construction company is working on a project across the state, the country or the globe, using cloud technology is the most efficient way to keep workers and managers on the job site and team members back in the office on the same page. Onsite managers no longer have to drive to the office to pick up files or submit reports; office workers no longer need to meet with a worker in the field. Project management benefits greatly from the immediate access to information the cloud provides. The cloud improves the handling of project documents, whether it’s change orders, time sheets or other reports, thereby saving time and money.

These systems also help companies prepare for disasters. Cloud-based systems mean that information is not tied to a job site—one that could quickly and unexpectedly be destroyed by a natural disaster, fire or other unanticipated event. If a disaster does occur, having critical information accessible through the cloud instead of a filing cabinet in an office means a company experiences minimal downtime and can get back to business faster.

**Common questions asked about the cloud**

The cloud can bring many benefits to a company. Unfortunately, many businesses do not know exactly what the cloud is, what a migration entails and the level of efficiencies that can be realized. Bringing the right provider, security and recovery options, and IT resources together can help make the journey to the cloud smooth, with greater efficiencies and cost savings.
Having the right technology in place and the ability to gather data is important, but it doesn’t mean much if a company cannot take that data and analyze it appropriately. An organization must be able to take raw data and use it to understand where it stands on production, profitability and other performance indicators.

Company leadership must have accurate and timely data at its disposal in order to make business decisions. Once a plan is in place to capture the data, key performance indicators must be measured on an ongoing basis. The entire process—gathering the data, analyzing it and then exporting it into a format that can be reported—should be repeated at a predetermined, routine frequency.

The more available data a company’s leadership has, the more informed and proactive its decisions can be. Capturing historic data can be used to write trend analysis reports, develop business projections and produce more accurate estimates. Historic data can also be an important resource when forecasting what to expect from particular subcontractors regarding their performance or specific value the subcontractor brings to the job.

Data can provide insight regarding a company and ways to propel it forward. When an organization can accurately and honestly interpret data, it can improve all facets of its company and transform the business.

Harnessing technology and data

It’s critical that middle market businesses harness the power of technology and data into an effective strategy, while at the same time accounting for and integrating effective risk management and data security.

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Building information modeling (BIM)

BIM software evolved out of two-dimensional, computer-assisted design products. Many construction professionals quickly latched onto BIM’s 3D design, modeling and data management capabilities as a tremendous resource for virtually planning and building projects. In addition, BIM technology can provide real-time digital information on all project requirements, including specifications, materials, supply logistics and timelines.

Radio-frequency identification (RFID)

RFID can provide more accurate location services and tracking than a manual barcode scan, which allows only for a point-in-time reference regarding when the item was scanned. RFID is often utilized as a constant, real-time location services platform that removes the manual process. RFID tags are attached to assets that emit signals to wireless access points placed throughout a defined area. Coupled with a back-end database to correlate the unique RFID tag, management can easily access asset properties such as make, model, quantity, weight and the like in order to track and locate inventory.

Virtual design and construction (VDC)

VDC is a technology-based solution that integrates multidisciplinary performance models of design-construction throughout the span of the project, including the product (i.e., facilities), work processes and organization of the design, construction and operations teams.

Cloud-based communications

Generally, a platform that bundles a suite of enterprise communication and collaboration products. The cloud replaces some or all of a company’s hardware, facilities and software licensing with an outsourced provider, reducing the company’s burden to house and maintain them on premises. The cloud becomes a utility to the business, and can be scaled for as much or as little as is needed.
ENDNOTES


3. Wikipedia.