sage

FOUR TECH TRENDS

that are reshaping the construction industry

Getting strategic about information technology.

When considering new ways to generate revenue for your construction business, you might not immediately think to explore information technology (IT). For most executives, IT has long conjured up visions of expense and loosely tracked ROI.

However, technology is evolving. Today's solutions are capable of working side-by-side with traditional software applications to provide a significant competitive edge—with minimal risk and disruption. This includes solutions for the jobsite that provide greater mobility and visibility.

What do we mean when we say information technology?

Information technology is the data and automated solutions you use to help run your construction business and your projects. This includes traditional software, computing services, collaboration platforms, and analytical tools needed to efficiently store, share, and make decisions on data.

Where to begin?

Considering the pace of technological change, it can be difficult to separate hype from real value. And even more difficult to cut through the techno jargon. It's easy to see why many executives and business leaders throw their hands up in the air in exasperation.

There's no need to be an expert on how information technology works. By simply understanding IT's emerging role today, you can drive a competitive advantage for your company.

This interactive guide provides a basic introduction to the most talked about new technologies that are reshaping the construction industry. By understanding why these technologies are becoming mainstream, how to think strategically about them, and where they can be applied to your business, you can help turn your IT efforts from a cost center into a revenue generator.

Cloud

Cloud computing makes software and other technologies available over the Internet as services.

Mobility

The rise in mobile devices is creating a flexible workplace, enabling people to do their jobs anytime, anywhere.

Big Data

Emerging tools empower businesses to capture, store, and analyze massive amounts of data from various sources.

Social

Social tools aren't just for connecting with old high school pals—new social apps and websites can improve workplace collaboration, knowledge, and communication.

What business issues are you looking to solve?

"Replacing our current software would be a massive headache—but we do need some added capabilities."

"For all its faults, email is still our best way to share project details."

"I recognize the need for new technology but don't have time to install a new system."

"I need to easily pinpoint the value of IT instead of just blindly pumping more money into it."

Learn more

"It's difficult to locate the project information in a timely fashion."

"The office and the jobsites aren't always working with the same, most current project information."

"Jobsite leaders are making decisions on gut instinct rather than hard facts."

"I have to rely on others to send me project and business details."

Learn more

"There's too much information and no way to filter and find what matters most."

"I'd like to benchmark our performance against others in our field."

Learn more

"I need a better way to stay on top of current construction best practices, trends and news."

Learn more

The cloud from 40,000 feet.

It's commonly believed the term "cloud computing" originates from technical diagrams, which typically use cloud illustrations to represent networks, particularly the Internet. In the simplest terms, the cloud delivers computer resources to businesses over the web.

The business case for cloud computing:

Faster deployment

Applications can be available to teams much more quickly—in hours versus weeks and months required for traditional software implementations. This is especially useful if you need to quickly set up computer resources for new projects.

Scalability

The cloud enables businesses to have the flexibility to provide more users with access to project information at generally a more affordable per user cost than traditional systems. You may even be able to increase or decrease specific user costs dependent on the project volume you currently carry.

Flexible access

Access to cloud applications and services is typically available anytime, anywhere, on any web-enabled device—improving job site productivity and enabling quicker response to business demands.

Simpler administration

The cloud can effectively outsource your IT to specialists, who handle all the system maintenance and updates.

Cost predictability

With the cloud, you can reduce capital expenditures in hardware, software, and even physical space. Cloud also enables you to pay for technology on a predictable, pay-as-you-go basis.

To determine where to apply cloud IT, first identify low-hanging fruit within your organization:

- Which staff and tasks will be most receptive to a technology shift?

- What changes will cause the least disruption?

- Where will you see the largest benefit in time and money savings?

# Construction work that works in the cloud.

Hypothetically speaking, you could run any type of work process or application in the cloud. Even regulated and sensitive information can live in the cloud. However, despite its momentum, construction executives should avoid thinking of cloud computing as a panacea for every technology woe.

There are certain aspects of a construction business that are likely to be more logical choices to consider moving to the cloud. For many businesses, cloud-based software applications that improve field productivity and collaboration are popular because they deliver the most immediate value, with little impact on IT infrastructure.

Hybrid cloud can be a "best of both worlds" option.

The cloud does not have to be an all-or-nothing proposition. In fact, IT analysts, in general, suggest many cloud implementations will complement, not replace, existing on-premises implementations.

By following this hybrid cloud computing approach, contractors can maintain certain technologies physically "on-premises" (financial solutions, for example) while moving operational and job site processes (project management, for example) to the cloud. This reduces disruption to the business.
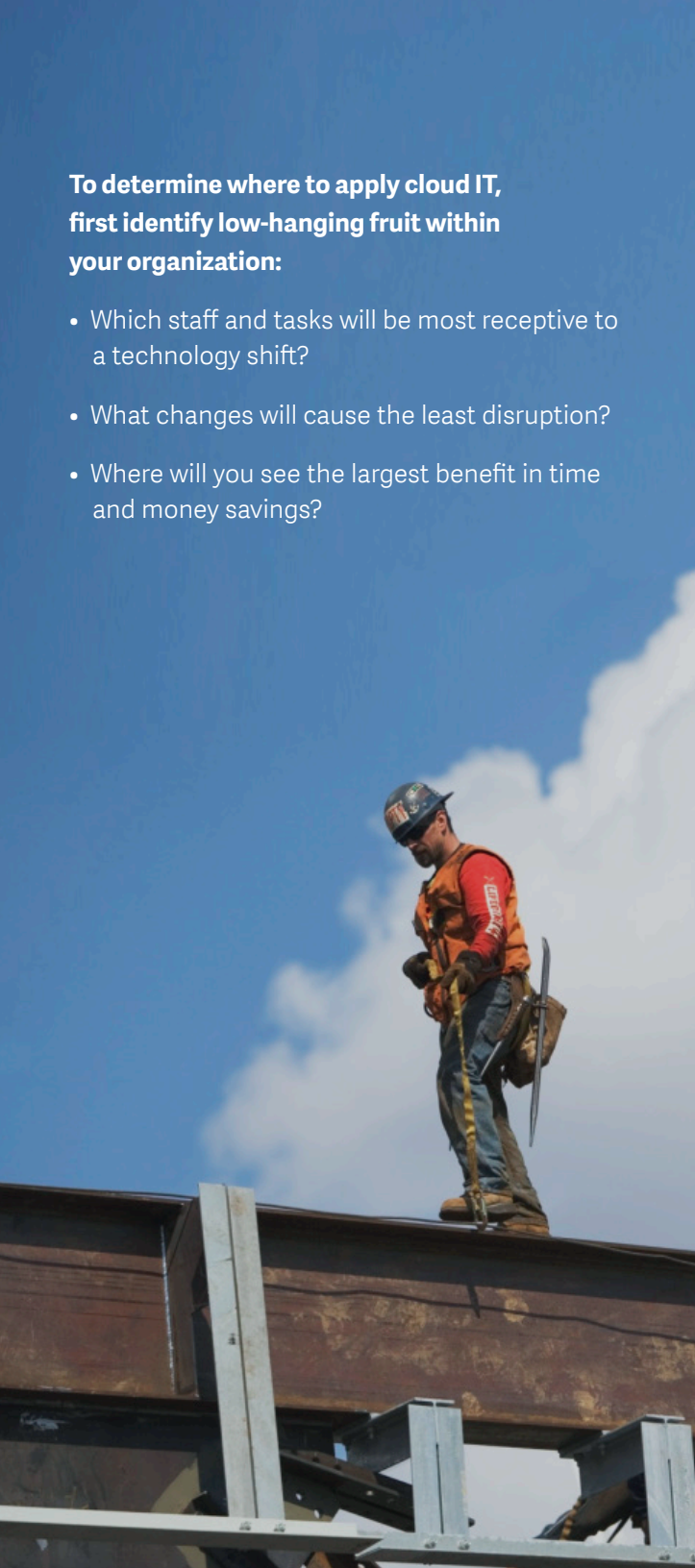
Consider these quick-win candidates for cloud deployment.

One of the most advantageous aspects of cloud computing for construction firms is its ability to foster collaboration and connect the field with the office. It can provide better insight to the jobsite, enable the transfer of more timely and accurate field-to-office information, and empower managers with the information they need to keep projects on track. Some key quick-win candidates for the cloud, include:

Project management and collaboration

A project's profitability hinges on how well it is managed. From submitting change orders remotely to collaborating with other companies on the building team, the cloud can help keep projects moving and costs under control.

Reporting and analytics

Business and project leaders shouldn't have to rely on others to email them reports. Cloud solutions can securely extract the latest data from accounting and project management solutions you have access to the information you need anytime, anywhere.

Service management

Paper processes slow down service technicians in the field. With cloud technology, technicians can use mobile devices to access customer and equipment details and submit work orders electronically while on a service call. The results are faster response and more satisfied customers.

Why mobility matters.

Much of the work and decision making conducted in construction is performed outside of the office—on the job sites, at client offices, at property locations, and in your home. Mobile technologies provide convenience and improve communication for better decision making. It's little wonder why 93% of construction contractors have used some sort of mobile device on their jobsites.*

Cloud and mobility are blood brothers.

Cloud is the method for deploying technology and information on the Internet; mobility is a means to access it. Cloud-based mobile apps enable construction professionals to execute a growing range of tasks anytime, anywhere. These include:

• Accessing job cost and other project reports

• Sharing drawings, photos, and other project documents

• Reporting and approving employee hours worked in the field

• Submitting daily field reports

• Processing service work orders

• Completing punch lists

• Tracking equipment and inventory

• Accepting materials at the job site

• Scheduling

*Engineering News Record, August 2012 construction survey

40%
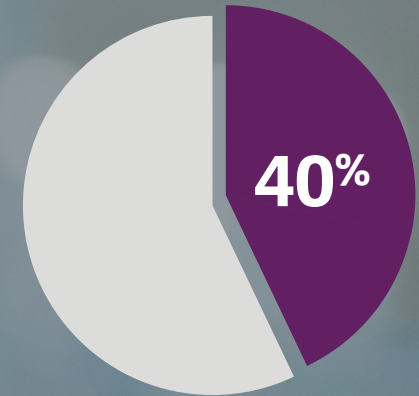
40% of construction companies expect to broaden their geographic region, further increasing the need for mobile solutions.

Security for a mobile workplace.

Smartphones and tablets provide convenience like never before. However, it's essential to understand that mobile devices that end up in the wrong hands could give anytime, anywhere access to mission-critical information and sensitive financial data. If you haven't already done so, now is a good idea to implement a strategy to guard against misuse.

Device ownership is among the first considerations for a mobile security policy. Will your company buy devices for all personnel? Will you enable workers to bring their own devices (BYOD)? Or do a combination thereof? Today 54% of construction firms supply all mobile devices used for work purposes, while 45% allow employees to use their own devices.*

To mitigate risk, especially in a BYOD environment, construction firms should take six steps:

1. **Set some immediate ground rules.** For starters, consider applying existing security policies to mobile devices (such as password length). Share your intention to publish a more formal policy at a later date.

2. **Involve your employees.** People are passionate about their devices. If you don't fully understand how they use their gadgets and implement policies that are too restrictive, they will rebel.

3. **Create a list of approved technologies.** Consider creating a directory or list of acceptable devices and apps. This will ensure employees only use technology and apps from trusted providers.

4. **Develop a security plan.** Take into consideration important practices such as data wiping, password standards, and employee access levels.

5. **Publish a policy.** Establish appropriate security controls, clearly explain the expectations to employees, define company rights, outline expense reimbursement, and communicate what technical support the company will provide.

6. **Enforce security policies.** Like any guidelines, without enforcement, employees will view your mobile security policy as optional (especially in a BYOD environment). Consider mobile device management tools to simplify enforcement (see next page).

How to enforce mobile security.

Mobile device management software (MDM) enables companies to enforce security policies and defend against malicious and inadvertent incidents—whether devices are company-owned or employee-owned. These solutions are especially useful in BYOD environments because they enable you to easily separate and appropriately secure corporate information from employee information.

As with any software, you have some options. You can either purchase an MDM solution as on-premises software or subscribe to a MDM cloud solution. At a minimum, MDM software should help you:

- **Secure corporate information.** This includes enforcing password usage, remotely locking or deleting data when a device is lost or stolen, encrypting data, and preventing proprietary information from being sent in specified ways, such as email.

- **Manage devices.** This includes remotely configuring and updating devices and fixing common user problems.

- **Manage applications.** This includes the ability to accept and reject applications, company-specific app stores, and data wipes by application when an employee changes roles, for example.

The costs of MDM solutions vary widely and can add up if you have a large base of employees. However, to the extent that mobility pays off in increased productivity—mobile device management tools can help avoid security breakdowns and may be worth the investment.

Source:
Information Week, BYOD Requires Mobile Device Management, May 2011
Mobile device management: What you need to know, Business News Daily, August 2014
The best mobile device management solutions, PC Magazine, June 2016

44x

The cumulative data and content stored worldwide will grow 44 times during this decade.

Source:
IMEX Research, 2011 Big Data Industry Report

Big data. Big potential.

You may have heard the term big data tossed around. But what is it?

In a nutshell, it refers to sets of data that are too massive for traditional software solutions to capture and manage in a reasonable amount of time. When describing big data, most sources cite 3 main challenges that must be overcome:

1. **Volume**—Refers to the enormous amount of data generated and collected by organizations.

2. **Variety**—Describes the different types of data that is collected: text, audio, video, web logs, and more.

3. **Velocity**—Illustrates the speed at which the data must be analyzed.

With these challenges in mind, the key to big data is to be able to bring together large amounts of data from multiple sources. Then it's important to extract the relevant information, make correlations between data types, and visualize the data and the resulting information so trends can be spotted and decisions made.

Businesses that are able to do so can gain a significant competitive edge from the resulting analytics.
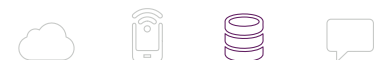
Big data and the construction industry.

For the construction industry, big data is no small potatoes. Companies are capturing data with greater granularity, including vendor transactions, field reports, change orders, and client interactions. Plus the use of Building Information Modeling (BIM) is expected to increase through all phases of the building lifecycle (planning, design, construction, and management), greatly increasing the amount and variety of digital building information available.

Although some forward-thinking construction firms are already using big data to gain a competitive edge, the majority of construction firms continue to lean on historical or trailing indicators.

Dip your toes in the big data pool.

Capitalizing on the benefits of big data doesn't necessarily require investments in new tools. Benchmarking is one simple example of how construction companies can start putting big data's principles to work right away.

By opting into a benchmarking pool, you can determine how your company compares to others in a variety of areas such as backlog, return on equity, and profit margin. There are a variety of construction benchmarking services that you can tap into today, including those offered by the Construction Financial Management Associaltion (CFMA) and Construction Industry Institute (CII).

In the future, opt-in collection and sharing of the data will likely happen in the course of normal business when you and other companies use your business applications. All data will be aggregated to protect company proprietary information.

As big data becomes more mainstream, there's little question that it will provide construction firms with insight for decision support—provided companies are able to ask the right questions, maintain the right data sources, and use the right statistical tools to interpret the answers.

Time-consuming tasks

Time-saving tasks

25%

19%

28%
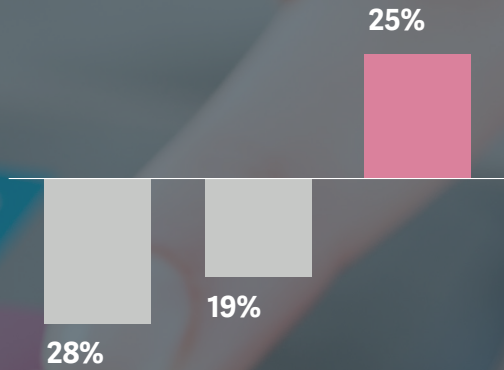
25%
Potential increase in productivity through use of collaborative social tools.

19%
Percent of the work week the average worker spends looking for internal information.

28%
Percent of the work week the average worker spends managing email.

Source:
McKinsey Global Institute

Get social to improve collaboration.

The overriding tendency among construction business leaders is to consider social tools in the context of marketing and customer service. Although it's true that sites like Twitter, Facebook, LinkedIn, and Google+ are useful for encouraging conversation with customers and gathering feedback, the applications for social tools are much broader.

In fact, according to an early study by the McKinsey Global Institute, "twice as much value lies in using social tools to enhance communication, knowledge sharing, and collaboration within and across enterprises." The institute recently reported survey results showing that 80% of companies now use social tools internally for these types of purposes.

Sharing knowledge.

For construction firms, the majority of this value resides in improving knowledge sharing and communication across project teams. A properly implemented social tool that receives full buy-in from the workforce can help teams stay informed. Rather than static emails, full conversations can be stored in the cloud and picked up again at any time.

Staying well-versed.

Reading and participating in construction blogs and social sites will also keep you and your team up-to-date on the latest best practices and help you explore and solve issues—from job site productivity to risk management.

Next steps?

Emerging technologies—including cloud, mobility, big data, and social—have already begun to reshape the construction industry. By taking a low-risk, high-return approach that involves deploying these technologies where they make the biggest immediate impact in your construction organization, you gain a competitive advantage for your company.

Still having trouble wrapping your head around these trends and their various applications to your business?

• Visit the Job Ready site for blog postings and additional resources on these trends.

• Or contact Sage at 800-628-6583 to speak with a business advisor about how cloud-based mobile technology can be applied to your company.

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