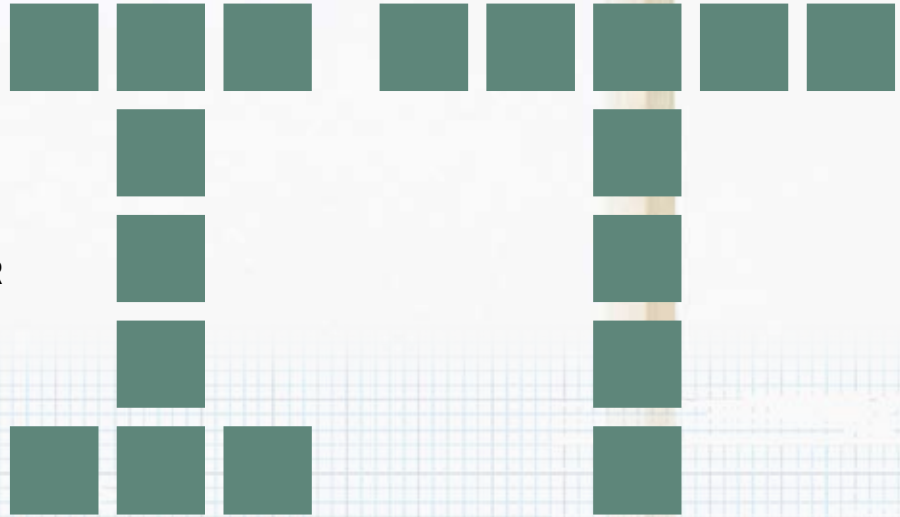


# Top Trends in Construction

BY CHRISTIAN BURGER



ONLINE

**A**s markets crash and the global economy wavers, construction executives have their backlogs at the forefront of their minds. But just before the meltdown, many were considering another strategic matter—their information systems.

Many contractors today operate with aging legacy systems or with poorly implemented software applications. Others may utilize one or more state-of-the-art systems, but their systems as a whole are not integrated, causing considerable duplicate effort within the organization.

While the economy has snagged the spotlight, several IT trends will impact contractor planning in this uncertain time.

## PROJECT MANAGEMENT

The project management software environment has changed recently, with all three major software developers shifting ownership. Most recently, Oracle acquired Primavera, gaining its integrated project



management application. Autodesk's acquisition of ConstructWare seemed logical for its strong drive in building information modeling (BIM), and Trimble's purchase of Meridian continued the company's global focus on the "construction office."

Many general contractors have tackled the integrated project management issue by licensing an integrated accounting/job cost suite that includes a project management application. Others interface their standalone application back to their accounting system using automated bridging software.

However, with integrated project management applications maturing and gaining more functionality, standalone vendors face pressure to develop better interface technology and broader functionality in order to compete.

#### **IMAGING AND WORKFLOW**

During the last several years, imaging and workflow systems have come down in price and improved in functionality. Most have expanded beyond the simple scanning function to include various levels of workflow capability. Many accounting/job cost systems have been developing native imaging systems. At the same time, several third-party application developers are entering the market.

This is beginning to look like yet another competitive situation—the integrated approach versus the best-in-breed offering. It is hard to imagine that integrated vendors will be able to keep up with third-party developers in this area due to the sophisticated nature of these applications.

#### **FIELD DATA COLLECTION**

Field data collection also is catching on for many contractors. Though service contractors, industrial contractors and some civil heavy/highway companies have long embraced this technology, general contractors now are beginning to see the merits of retrieving field data on a timely basis.

Companies are relying more on third-party vendors for the field hardware and software that runs on the device, and leaving the upload function to the developers. Most software developers do not provide this function, which could change as demand increases.

PETE LEONARD/ZEFA/CORBIS

## BUILDING INFORMATION MODELING

Many contractors are getting pressure from owners (particularly on federal work) to have BIM tools available and employees skilled in their use. The demand seems to center around functions like clash detection, modeling and conceptual design.

Without a doubt, specific projects benefit greatly from this technology; in fact, some might not have been practical to build without it. However, because standards are slow to be adopted and design liability raises questions, the industry is not moving as fast as the media may lead people to believe. Contractors must gain more familiarity with BIM tools, particularly if they are involved in large, complex, fast-track projects with progressive owners and architects.

Although many companies utilize Bentley or Autodesk tools as part of their BIM suite, other options may serve general contractors more effectively. Ultimately, a greater convergence of interoperability is likely among the different mainstream design, analysis, estimating and scheduling vendors as the demand for these tools increases.

## NON-INTEGRATED SOLUTIONS

While everyone is extolling the virtues of an integrated approach, some software developers still are entering the market with point solutions—or non-integrated applications that perform a specific function well. Contract payment portals, human resources applications and plan rooms are a few examples.

Contractors should ensure they will actually use the features and functions the point solution offers, and that the vendor takes responsibility for the integration with the appropriate applications that exist in their companies.

## DATA EXTRACTION AND REPORT WRITING

Data extraction and report writing tools have become increasingly sophisticated, with most software products migrating to some form of relational database with normalized data tables. Many have settled on a MS-SQL and Oracle database and opened it up for third-party report writing tools like Cognos, Business Objects, Microsoft's Reporting Services and Crystal Reports.

These tools are far more powerful than the older proprietary report writers that had to be written independently. They

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can distribute reports electronically with drill-down capability and can find and report data from multiple applications and databases, often utilizing web-based dashboards and portals to deliver much of the content.

However, with any new development comes risk. Carefully evaluate the database's security and be aware that training typically is required on both the tool and the data structure.

## VIRTUALIZATION

From an infrastructure standpoint, many IT shops have deployed more robust Internet and network monitoring tools and have started down the path of virtualization. Virtualization allows one physical server to simulate multiple physical servers, resulting in server-specific applications all running on their own virtual hardware while sharing processing power. This allows companies to leverage the full power of their hardware and provides a simpler disaster recovery solution.

IT departments increasingly are implementing a disaster recovery site either on their own or on hosted premises.

## PLAN ROOMS

Also of note is the increased use of plan rooms that include bid-solicitation functions, customer relationship management applications for the business development department, and estimating systems for bidding and budgeting. Though these

applications have been around for a number of years, the implementation rate has increased. Nearly everyone has recognized the risks of spreadsheet estimating and moved to more structured systems.

## STAFFING

To keep up with the increased technology demands, many contractors have changed their approach to staffing IT departments. Managers today understand how much leverage can be gained if the entire organization uses state-of-the-art systems and tools. When the systems are stable, high-performing and secure, the company benefits.

Contractors are increasing IT staffs to meet the demand, as well as outsourcing more specialized functions.

Database administration, network administration and report writing are a few of the functions companies are outsourcing to specialized firms. Contractors also are ensuring someone is responsible for training and developing standards.

A communication gap between IT and management remains in many contracting firms, often leading to a misalignment between a company's overall business direction and its IT tools and systems. Managers now realize they can no longer allow individual departments to select and deploy their own systems and software.

## VISION

The acquisition, implementation and deployment of new systems must be a coordinated effort that considers the company's overall IT vision, which includes platforms, tools and remote access. In addition to software applications, this vision should encompass training budgets, platform standards and infrastructure requirements.

Companies should look ahead three to five years as they develop their IT vision, and the users of the various systems should be heavily involved in its development. The power of technology can either favorably or unfavorably impact a company's performance, and it is only through planning for the future that a company can expect to execute well.

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