

# Technology

by Christian Burger



In today's economic climate, contractors seem to be of two minds relative to their systems and technology. One camp is holding tight, taking a more conservative position in light of markets, margins and staff reductions. The other is adopting a more aggressive position by taking the opportunity that a lighter backlog provides to "sharpen the tools." It is investing in software, hardware and training to bring its lagging systems up to speed. Though neither position is inherently correct, it is probably worth being intentional about one or the other.

Another difference in a contractor's approach to technology is scope or dimension. While some contractors are taking on fully integrated systems at an enterprise level, others are spending more time and effort on trying to successfully implement a single technology or solution (i.e., more ambitious on process and compliance than scope). Much of this decision is determined by the condition of the existing ERP (enterprise resource planning) or accounting system. If it is stable or better, but not ideal, it is possible to implement point-solutions like a field data collection system without necessarily replacing the ERP solution. However, if there are too many issues centering on the accounting and job-cost software solution, it can sometimes be difficult to make real progress until that system is replaced. In either case, what contractors seem to have figured out is the notion that too large an ambition can lead to mediocre or failed results.

Also significantly influencing contractors and their IT strategy is the activity (or non-activity) from within the vendor community. Between acquisitions, platform changes, new entrants and ever-changing offerings from existing vendors, the landscape has changed considerably, further complicating IT strategic planning efforts.

## ECM

ECM (Electronic Content Management) is perhaps one of the more significant and broad-reaching technologies having impact on contractors and their systems today. Several years ago, ECM was limited to scanning, storing and retrieving invoices and other documents on a rather isolated basis, with few stand-alone solutions available. Today, ECM is broadening to encompass more than just invoices and time cards, including more robust workflow capabilities and integrations to other primary systems that depend on the workflow and files.

While some software products are developing their own ECM capability within the application, the real enterprise-level solutions are offered by third-party companies whose only focus is ECM development. Over time, we believe these solutions will prevail and the internally developed applications will be provided to the smaller end (less demanding, less sophisticated) of the marketplace.

## BIM

Contractors are embracing BIM (Building Information Modeling) at an ambitious rate, some because owners are requiring it and others because of the demands of an overly complex project. Whether for site planning, clash detection, 4-D drawings or conceptual design and budgeting, general contractors are deploying a BIM methodology and procuring tools like Revit, D-Profiler, NavisWorks, Tekla and Vico at a rapid rate. Many smaller and mid-sized contractors that need the technology but cannot afford all of the initial investment are taking advantage of the outsourcing companies who provide BIM tools as a service.

It is important to recognize that BIM is in fact a methodology rather than a specific tool or suite of tools. As such, any investment in BIM should be at the strategic level revolving around processes that may be supported by specific applications but not driven by them.

## Field Data Capture

Many specialty and some civil contractors have started to deploy field data collections systems with greater intent than in the past. Prices have come down for the devices themselves as well as for the monthly service plans. Many superintendents already carry a laptop, and today's applications for data collection are more flexible.

Contractors are taking one of two approaches with field data capture. One is to minimize the scope of data capture to time cards, equipment hours and units of production, thereby keeping the application simple and the device smaller. The other approach is to increase the scope, adding daily reports, punch lists, RFIs, inspection reports, meeting minutes and other field tasks. This is done more readily with a laptop or tablet PC, ruggedized most likely. Applications exist in the market for either approach. There is of course the age-old resistance from the field to contend with, that superintendents want to avoid being tied to data entry.

As for deployment, managers are becoming more pragmatic, realizing that 100 new devices for 100 superintendents or foremen may carry too much risk (i.e., lack of adoption). Instead, they are providing 10 devices, with training, to the intrepid few, and once word gets out, more people begin requesting the devices. This provides more of a demand/pull result than a supply/push result. It also allows the IT department to better support the deployment through a staggered implementation and adoption schedule.

## Vendor Community

The changes in the vendor community, both incumbent and new, are significant. Between acquisitions (i.e., Primavera, Shaker, ConstructWare, NavisWorks and Cheetah), platform changes (i.e., Viewpoint, Penta, CMiC) and new entrants (i.e., Microsoft, SAP, Highland), the landscape shift has made planning and decision making more complex. A separate article on these changes is warranted, but for the time being, it is worth noting that the buyer should be vigilant as ever. AutoDesk's recent announcement to suspend support for the ConstructWare product, two years after the acquisition, is but one example of the hazards of the Application Service Provider (ASP) approach and acquisitions by larger companies.

Equally important is the underlying platform. Most of the software vendors have migrated to a base platform such as Microsoft SQL or Oracle. Understanding the underlying platform and technology of the products you choose is important and needs to be considered during selection.

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## Focus on Process

One of the situations that the economy has uncovered for many contractors is the importance of a focus on process rather than just on technology. Throughout the early and middle 2000s, most contractors concentrated more on software and less on implementation and process standardization. This led to partially or poorly implemented solutions and nonstandard business practices.

Now with IT spending being tightened, more companies are realizing that they may already have the solutions they need in-house and simply need to start implementing those solutions, or implementing them better. Putting small teams together to focus on improving a single process throughout the organization begins to seem like a viable option. This costs much less and can have a significant impact upon deployment. For example, a team could easily tackle the procurement or change order management process over the course of a couple of months and may allow for leveraging existing software.

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## Implementation

Implementations have been a challenge since the creation of the first line of written code. Organizations are rarely prepared for the work involved, and the vendor companies are frequently unable to provide sufficient staff and process expertise to help the customer complete the job. The good news is that contractors have now had experience over the last 10 to 20 years with implementing multiple systems within their organization (i.e., ERP, estimating and project management). If they have learned at all from their mistakes, they are beginning to staff better, commit more time, not repeat the sins of the past by implementing the *old way* in new software, and budget sufficiently for training.

The marketplace was changing before the collapse. The economic climate has amplified some of the effects on the vendor and contractor community, forcing some vendors to retrench and sending many contractors into the market prematurely or quicker than they were ready for. The economic climate has also had the effect of shifting the focus of organizations from selecting and implementing new systems to an “all-hands-on-deck” mentality around securing new work.

While it is important to consider all of these changes and events, none of us can truly foresee the future. Therefore, prudence dictates that a very effective deployment and implementation of a solution will add more value to the contractor’s bottom line than the pursuit and acquisition of the latest solutions. ■

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