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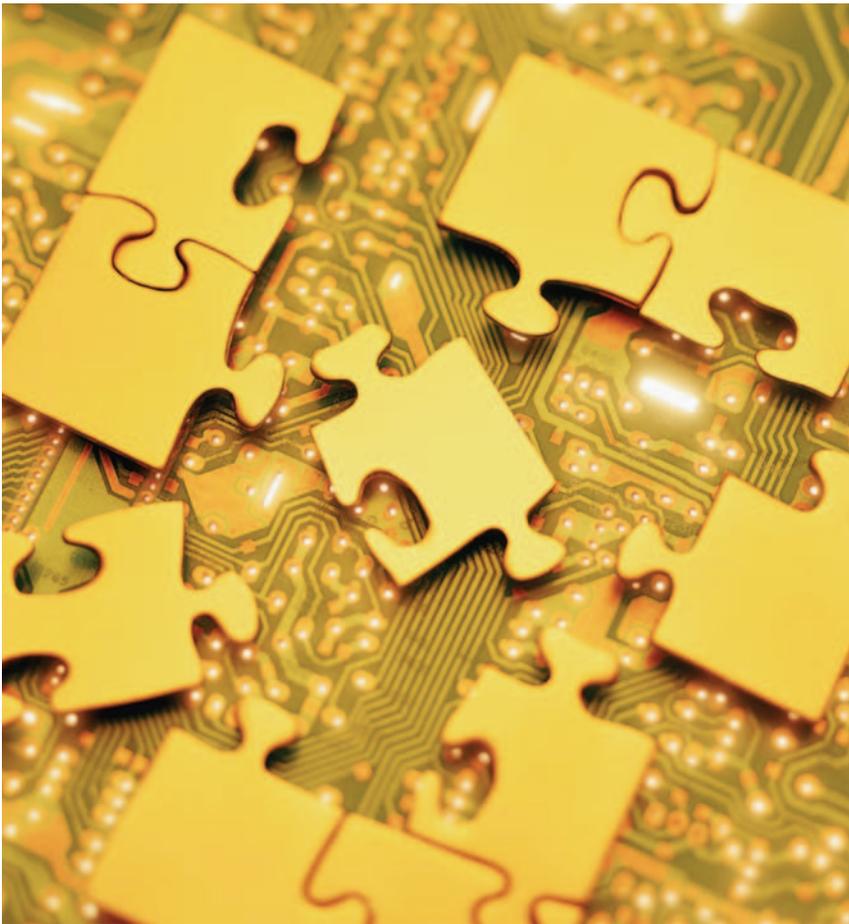
## REPRINT

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### CONSTRUCTION FINANCIAL MANAGEMENT ASSOCIATION

*The Source & Resource for Construction Financial Professionals*

BY CHRISTIAN R. BURGER

# CONSTRUCTION TECHNOLOGY:
## *IT & Strategic Thinking*



The Walsh Group, a 100-year old, third-generation, family owned business, recently built Chicago's first Frank O. Gehry structure. The $475-million Millennium Park features an avant-garde amphitheater, with 4,000 self-rising seats and a 625 x 325-ft. trellis.

Without 3-D modeling, Internet meetings, high-tech surveying, and computer-aided fabrication, the job would have been more costly, time-consuming – and, perhaps, even impossible.

Like most architecturally impressive projects, the amphitheater was extremely difficult to fabricate and build. However, through its technology, Walsh was able to anticipate problems, reduce the number of RFIs, and more effectively communicate with detailers, fabricators, and erectors.

Here's the interesting part about Walsh's admittedly expensive and complex technology. Fifty contractors could have bought it; some would have implemented it; *Walsh used it to prevent and/or solve significant problems.*

Contractors often struggle with the proper role of technology and IT systems in their companies. Some treat IT as little more than a fad or a "cost of doing business." These companies invest as necessary, trying to keep up with the ever-present Jones's as much as possible.

Others take the opposite approach. They treat technology as a panacea that will bring about process and organizational change all on its own. This group frequently hops from one cool, new application to another – and wonders why each application misses expectations and frustrates its employees.

In reality, many factors contribute to a sound IT strategy. This article provides information on systems strategies and proposes several ways to develop one.

## The Vertical Learning Curve

Prior to the time PCs appeared on everyone's desks, most senior managers in the

construction industry had little or no experience managing IT systems.

Said another way, contractors have had little time to appreciate technological advances and to understand how to improve their operations with this very powerful and now pervasive (but also costly and risky) resource. In contrast, heavy equipment has been around for more than 100 years; so, several generations of managers have learned to create business advantages from its use.

The first step to thinking strategically about technology? Understand a few concepts about technology strategy.

## A Broader Context on Strategy

There has been considerable thinking and writing on this topic in the last several years. Many of the positions and insights apply across many businesses, including construction.

For example, Nicholas Carr's article in the May 2003 issue of *Harvard Business Review,* "IT Doesn't Matter," challenged those of us in the field by suggesting that technology was generally available to anyone who wants to purchase and deploy it. Comparing IT to railroads and electric power, he suggested that technology was as ubiquitous as electricity 100 years ago. According to Carr, once a resource becomes commonly available, it ceases to be a source of competitive advantage.

As you might imagine, Carr's article created some controversy and no shortage of rebuttals, including one by this author. In "IT Does Matter" (*FMI Quarterly,* 2004, Issue 3), I argued that anyone can purchase new software or better hardware, but the *effective use of technology* is nowhere near as easy as flipping a switch.

And until it is, contractors still have the opportunity to gain a competitive advantage from deploying and implementing a system or tool exceedingly well. While hardware and software are generally available to everyone, a competitive advantage is still possible because, for most companies, the effective use of technology remains a considerable challenge.

Not far behind *HBR, The McKinsey Quarterly,* an online business journal, published "Getting IT Spending Right This Time." In the article, three distinguished consultants, Diana Farrell, Terra Terwilliger, and Allen P. Webb, suggested that companies should not maintain best-in-class technology throughout their company.

They assert that companies seeking a competitive advantage from technology should identify vital "productivity levers," or critical success factors, and apply the IT investment accordingly.

After 15 years of watching contractors struggle with technology, I agree with the McKinsey approach. For example, if equipment productivity and optimal decision-making are critical to Heavy & Highway contractors, then it might make sense to apply IT resources to equipment maintenance, utilization reporting, fuel tracking, work-order processing, and other functions to maximize uptime and reduce operating costs.

However, the McKinsey authors stated that other competitors will quickly adopt leading edge technology – and, at a lower cost. This suggests that contractors should not rest on their high-tech laurels for too long.

And, once contractors have developed and implemented a system or technology and have achieved ideal performance or a new advantage from it, they should begin to enhance it. This will make it more difficult for competitors to replicate the technology, to look further ahead for the next opportunity, or to exploit an emerging technology.

## Challenges to Thinking Strategically
### Staffing Limitations

A critical factor in the development and execution of an IT strategy is management's relationship with the IT staff. For some companies this "staff" is an overworked network administrator who troubleshoots the computer systems and rarely sees the light of day.

Other companies have the luxury of an IT manager or CIO who manages the "break-fix" people and stays abreast of technology trends by attending industry trade shows, reading relevant periodicals, and maintaining membership in industry peer groups. These higher-level staff members are better positioned to work with the board of directors or management team to develop a realistic IT strategy that aligns with the company's overall goals.

If your company lacks an IT manager or CIO, consider outside advice regarding IT strategies and options. While those responsible for the daily operation of hardware and software may perform well, their very practical nature sometimes prevents them from taking appropriate risks. Or, they might lack the breadth of experience to think "outside the box" and work with managers, on their terms, to develop innovative solutions and strategic direction.

## Corporate Culture

Once you are ready for IT to play a bigger role in your company, ensure that your company is prepared. In construction and other industries, I have watched management become enamored with one software system or another, only to find that the system failed to gain traction in the company.

This often happens when management overestimates their company's ability to adopt, change, or accept a new level of technology. Many of these companies should spend less on tools and systems and invest more on training, management attention, and implementation support.

## Alignment with Business Objectives

As with all strategic development, technology planning should not occur in a vacuum. Good IT strategists consider the company's current state and available resources, in addition to its business direction and objectives.

To begin, carefully review the company's strategic plan. Systems and technology are not business objectives; they are levers to help achieve objectives. For example, to increase a service department's productivity and ultimately grow that division, management may choose to leverage current service dispatch and hand-held wireless technology.

But, there are other means to achieving the goal – technology is not the only lever. Training, leasing newer trucks, and improving marketing are also possible solutions. Management should envision the service department's future requirements and decide on technology's role.

Some companies are too conservative in their expectations of the technology and/or their company. Others are too forward-looking and ambitious. It is important to find the right balance.

## Different IT Strategies

As of today, your company has a certain technology platform, series of tools, and degree of utilization. You know many of your competitors and probably know about their primary systems and computing tools. (How well they use them is another question.)

In general, you see the direction of various technologies. Now comes the hard part: You must choose among them. And remember, your choice obviates other moves, takes time, and

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costs money. Here are a few approaches to IT strategy, ranging from the extremely conservative to the dangerously ambitious.

## Catch-Up

The catch-up strategy is not uncommon. Contractors with this strategy postpone IT investments until a technology is well-established and inexpensive, even if it's out-of-date. This approach is safe and conservative, and not very costly or difficult – unless the company is way behind its competitors.

If the company is way behind, pace is all-important. While it's tempting to catch up too quickly (like going to the gym for a week and lifting weights when you are very out of shape), it can become so painful that your company tires and, ultimately, gives up.

## Chase the Competitor

Sometimes another contractor's technology seems appealing, and it's tempting to follow on its coat tails. This strategy is a double-edged sword. The technology is proven, so many of the risks have been identified, reduced, and possibly eliminated. However, the technology may not fit your company. Further, a competitor's approach may not synch with the overall direction of technology and could unravel at some point.

## Anticipate the Market

Leading edge contractors with a tolerance for risk may try to anticipate the direction of technology and attempt to implement new technologies before the rest of the market. This strategy provides an advantage over competitors – provided the initiative is feasible and appropriate for the industry.

## Outsmart Everyone

Some companies try to outsmart everyone and launch very aggressive initiatives. If the gamble works, the company has a significant advantage. But, what if it fails?

Sometimes a company's management team adopts a vendor's enthusiastic vision without carefully considering the company's overall strategy and the technology's current viability. And, some systems may be too immature when launched to be safely implemented, even for a progressive contractor.

## Miss the Boat

Finally, a management team gets an idea in their collective head

about a certain technology, system, or tool. So the team jumps on board and moves aggressively, only to discover that the market has changed. Unfortunately, they are left with an expensive product to maintain or a costly return to the mainstream.

Unlike its counterparts, missing the boat is a mistake viewed in hindsight more than a pre-planned strategy. To avoid missing the boat and other mistakes, management should stop looking forward long enough to peer internally once the preliminary strategy has been developed.

### "Better Use"

Finally, there is another technology-related strategy that is not related to any specific product or system – one that I call, "Better Use." A moderately well-chosen solution that is optimally deployed and well utilized will return a higher investment than a leading-edge software system or tool that is only partially implemented and inconsistently used.

A number of companies nominated for *Constructech's* Technology Vision award did not implement a specific tool or piece of software. Instead, they made a significant commitment to foster a stronger user community. This involved such obvious tactics as increased training, greater accountability, and improved enforcement of processes and procedures.

In addition, they also worked on developing user-groups within their company to encourage a culture of systems use and adoption. Also, their training efforts went beyond the normal "train-once-and-abandon" approach somewhat common in our industry.

Nominees explained (and lauded) their use of a certain system or technology and showed how it helped their business. While most people believed they were maximizing the value of technology, many were not using leading edge solutions, but were simply using market solutions very well.

### An Important Perspective

Once a preliminary IT strategy has been developed, management needs to assess the people it expects to implement, deploy, and use the planned systems and technology. For example, if a GC has a hard time persuading subs and architects to view information using an online project Web site, a heavy investment in a robust collaborative project application with workflow and full integration of accounting/job cost systems may seem ill conceived – at first glance.

However, if the GC thinks a collaborative platform is the right move and the project owners require it, then the technology strategy must follow. But, the initiative must include more

than licensing a powerful collaborative software application. The GC must: **1)** train its subs and other stakeholders, **2)** provide incentives to use the system, **3)** hold frank discussions with architects, and **4)** be prepared to lose some business relationships.

On occasion, personnel leave midway through an implementation, simply because the pressure on the implementation team or fear of change in general is too great. While disappointing, lost business relationships are not necessarily a bad thing.

Also, some people wilt in the presence of rapid change. If a company slows down too long to wait for all of these individuals, the company might miss opportunities in the marketplace and be perceived as a lagging contractor by employees, prospective employees, and customers.

### Conclusion

In general, the marketplace understands the value of effective technology and is willing to pay for that degree of risk mitigation and cost reduction. However, with so many products, horror stories, and mixed messages appearing in the technology media, it's difficult to develop a clear technology strategy.

That's why it's critical to first step away from the technology marketplace and focus on your business, your customers, and your employees. Look long and hard at business issues as you develop your technology vision.

Then, decide on a direction and pace that is appropriate for the company. And, finally, expend appropriate management resources to ensure the technology direction is carried through in the best way possible. **BP**

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