Top IT Trends For 2011

By Christian Burger

2011 will prove to be another exciting and eventful year for companies in the construction industry, if not for new work, at least for technology and systems. Many contractors have decided this unprecedented slow-down in the economy was an ideal time to "sharpen the tools". This often involved process change, new systems, or at least implementing systems already purchased but perhaps less well adopted. While there are some new trends to look at this year, many of the trends that began emerging a few years ago are starting to mature and gain traction now. This article provides some insight into the most prevalent trends the market can expect and/or the most interesting, at least to the author.

Alignment

For so long, managers in construction businesses would apply technology or software solutions to the management team or department that asked the loudest or most convincingly, not necessarily as part of a larger overall IT strategy. Now, senior management has gotten a little wiser about the pursuit of technology and how it is deployed and leveraged within the organization. Managers are looking closely at the business plan and strategic direction of the company and asking good questions relative to value and need. They have also realized that acquiring new systems does not, by itself, force change or standardization. In short, companies seem to be acquiring and implementing technology a little more strategically and pragmatically.

Enterprise Content Management ECM

ECM technology has actually been around for over ten years; it just did not have the modern (and comprehensive) label when it first emerged. Many companies got started with ECM five or ten years ago when they started scanning and imaging documents, and storing them on a separate server. Some even got into a basic workflow routine for invoice routing and approval. However, ECM is a much more comprehensive solution for more than just scanned documents.

This technology has been around for a number of years in other industries as a broader records management platform. It is only now moving into Construction as such. When fully deployed, one could easily see e-mail and shared drives greatly reduced or eliminated and the elimination of many banker boxes and cabinets full of paper. This trend is one that is likely to transform most businesses in the industry and is changing the development path of many software developers that serve this space as well.

Building and Equipment Sensors

A recent article in The Economist's Technology Quarterly described the emergence of electronic sensors installed in larger civil structures like bridges and tunnels. These sensors collect and report traffic, movement, and other important wear data to listening posts and then computer systems that monitor the data, the idea being that more real-time data on structural stress and movement could be useful in preventing failures or predicting maintenance requirements. This could be another strategic advantage for the civil contractor if they can integrate the installation and monitoring of the sensors and data.

This technology is very similar to another type of telemetric data that is now being regularly captured on pieces of heavy equipment. Contractors with large fleets of expensive heavy/civil equipment are

installing telemetric sensors with cell connectivity to base systems that monitor pressures, temperatures, operating hours, and the like, comparing the data against normal thresholds and warning shop personnel if a problem exists, usually long before the operator knows there is an issue. This is a much more efficient way of collecting critical data from the field and protecting those very expensive assets.

Business Intelligence

This technology too is one that has evolved and matured from simple report writing and metric monitoring tools to more advanced reporting over the enterprise and dashboard views customizable by user. This only makes sense as companies begin to focus on applications separately from reporting and bring data together from multiple sources for a more tailored management view. Business Objects, Cognos, and Microsoft's SSRS are among the leaders in this arena. As with many things though, some development needs to be done before this is widely accessible by contractors. Many of the application databases in place today do not lend themselves to that sort of access and make development of data cubes or "universes" necessary.

Building Information Modeling (BIM)

An article not mentioning the evolution and movement of BIM within construction would be missing a significant signpost. BIM, as most readers know, is not really a single product or technology but instead is a digital or data representation of a building or facility. This data set, which is rather large, is used by a variety of different products and participants in the design and construction process, from architects to schedulers and designers to fabricators. As this model becomes more mature and accessible, more software products will see the value of accessing parts of that data, importing it into their system, and then sending it back into the model, quite possibly enhanced. Just one small example of that would be the use within the ERP system of building material data to issue RFQs and purchase orders once the project is underway.

IT Staffing

As technology rapidly changes and becomes even more heavily used within the construction office, so too does the IT staffing requirements within those companies. Combine that with greater availability of traditional IT functions (e.g., the popularity of hosted e-mail solutions instead of managing in-house) and changes in the way that technology needs are identified and procured, and it is not surprising that the structure of IT departments is changing. In the past, IT would lead most technology purchases. They identified a problem, found a solution, and deployed it, hoping only at the end that the users would like it. Now IT is more of a support function to the organization, working with IT steering committees and end-user groups to help the end users identify the solution to a need and supporting them through the implementation. Many organizations are deploying Project Management Offices (PMOs) within IT departments to provide better oversight and control on IT initiatives. Common day-to-day tasks such as server patching, network monitoring, etc. can be outsourced, allowing IT staff to focus on more value-add functions such as application integrations, business intelligence solutions, and workflow development among others. Although the total FTE (Full Time Equivalent) count may not change, the skill set of the individuals and the roles within the IT organization are changing, with greater focus on vendor management, project management, business analyst, and development skills rather than server/infrastructure management skills.

Desktop Virtualization, VDI, and Virtualized Apps

Desktop virtualization, the method of deploying an end user's computing environment to them remotely, from anywhere, from any device, is not new but the technology to deploy it, VDI (Virtual Desktop Infrastructure) is a newer term in the industry. Microsoft and Citrix (among others) have

been able to provide this capability for years but are now seeing more competitors in the marketplace. The supporting technology (VDI) has matured significantly, providing greater management tools and more options for deployment. Virtual desktops are now available via a hosted model and according to a recent report by Gartner, there is significant growth in this area.

Application Virtualization is a mechanism for deploying individual applications in a package that can be deployed irrespective of the operating system on which it is being run. This allows companies to deploy applications across multiple operating system platforms without having to deploy a completely virtualized desktop as well.

Collaboration

Collaboration as it was first defined in the .com era in early 2000 had high expectations that were never quite realized. Products like ConstructWare and e-Builder promised to connect all participants on a single project (e.g., subs, architect, owner, GC) on a single web-based platform built to share construction data. This was actually accomplished well but did not have the broad base of acceptance within the industry. It meant everyone used one platform, not necessarily their native platform or tool set. This left integration issues unresolved.

Version 2.0 of this technology will accomplish much the same thing but through e-mail and/or web-services. Each company will use their own platform for project management but will be able to send documents and records to other project participants that are recognized and accepted into their system. Similarly, a response can be sent back out and accepted by the various platforms of the other participants. This is an immature but promising approach both to the real value of collaboration and to where the industry is heading.

SaaS

The software vendor community continues to test the SaaS (software as a service) model as an alternative to providing a full version of software for the customer to host and operate. The SaaS was limited to only a few application types (e.g., CRM) a few years ago but now seems to be catching on in other areas. The advantage of this approach accrues to both contractor and developer but it is not without some risk. In a SaaS model, the contactor can opt into a more expensive solution or a solution that requires more infrastructure support than they otherwise might be able to afford. Typically, monthly charges for SaaS delivered software (the vendors call it a service) are lower than the maintenance cost of the software, particularly when you add in the acquisition cost. In addition, the SaaS model frequently allows for moving up or down in the subscription based on need, whereas a traditional licensing model usually allows for adding more licenses but not returning unneeded ones. This approach also allows the developer to manage and deploy the software in a controlled environment thereby alleviating an entire area of risk associated with contractors operating their own servers or datacenter.

Conclusion

This will be an exciting and potentially watershed year for many companies as they refocus on both technology and their organization. Management is proving to be much more careful in their IT spending and want to ensure that value will be delivered quickly and clearly before commitments are made. Management is also becoming clearer on the need for the organizational commitment necessary for successful deployments. One thing is certain, technology continues apace even in this down economy and contractors will have to bridge the gap sometime.

About the Author
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