



LETTER FROM CHRISTIAN BURGER

It has been a while since our last newsletter, I know.

Many of you have

asked and let it be known that you appreciate the independent and experienced voice and view of the technology scene in construction. While we have all been busy trying to survive the last two years, much has been going on to change the IT landscape for contractors. And at the same time, there have been some great developments for BCG. To name a few:

- Moved the office to Chicago.
- Brought on a new consultant, who has great systems experience in construction.
- Have been engaged by some terrific companies to do important work.

And there's the revitalization of this newsletter, through which we strive to keep everyone current on important developments in our marketplace and with technology. This issue is the beginning of what we hope to be a much more regular publication. We are pleased to have retained Maura York here in Chicago, who is now working with us as editor and publisher for all external content. This includes newsletters, articles, and website content. Her prior experience as an editor for a local newspaper in Louisiana is helpful, as is her ability to get quality content from busy writers, including yours truly.

I was recently at CFMA's Annual Conference and saw some of you there. We are also attending and facilitating portions of AGC's IT Forum Conference here in Chicago again. This year's event is covering mobile technology, *SharePoint* and *ECM*, and how to budget and do more with fewer IT dollars. Last year's conference was low-key in terms of marketing, but one of the most informative I have attended.

But enough about us. The last two years, we have seen the following significant trends:

- Contractors taking advantage of the slower time to "sharpen the tools" by upgrading their ERP solutions
- Many companies moving to integrated project management applications (within ERP)
- Companies struggling to select and effectively deploy ECM technology for document management and records retention either in an integrated environment or by purchasing a stand-alone application
- Construction companies adopting BIM technology in a variety of manners, some substantially, but all realizing the future trend
- General contractors reaping the benefits of a number of new preconstruction technologies for bid solicitation, conceptual estimating, design, and subcontractor prequalification
- CRM finally catching on to the point where more contractors are using a CRM solution than not, though not all equally well
- Organizations finally starting to consider hosting options and cloud computing rather than adding still more infrastructure to an overcrowded and understaffed in-house data center

At Burger Consulting, many things have changed, not just our address, but some things have not. Our mission remains to provide sound objective advice on technology to our clients in the construction industry.

BURGER CONSULTING HAS A NEW ADDRESS, PHONE NUMBER

Burger Consulting has moved its office to the "Windy City" after years in some of Chicago's loveliest suburbs. Our new address is 688 North Milwaukee Avenue, Suite 203 Chicago, IL 60642. We're just west of the Loop, but definitely within view of the skyline. Our phone number has changed, too; it is now (312) 651-4150. We still have roughly the same amount of space, and the vibe of the city energizes the office every morning.

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LEGEND

Bold - Software Vendor Name

Italic - Software/Product Name

Underline - See Glossary on back page for definition.

BURGER CONSULTING ADDS ANOTHER PROFESSIONAL TO THE TEAM

Besides a new office, BCG is pleased to announce the addition of a new senior consultant to the firm. Well, he is not really new to consulting or construction, but he is new to us.

Jim Herkert joined BCG in 2010 as a senior consultant specializing in [ECM](#) (document management) and project management (PM) applications. Some of you may remember Jim from his days as the sales manager for **Penta Technologies** in Milwaukee several years ago. He took a brief detour from systems to construction, working for a couple of years as a contractor in Madison, WI. When the residential marketplace became more difficult, Jim reached out to us to see if we would like to leverage his considerable knowledge of systems and construction technology. We eagerly took him up on his availability and interest in consulting. Jim has already been actively engaged in a number of important projects, including a review of stand-alone [ECM](#) and PM solutions for a large civil contractor in the Midwest that did not wish to change its [ERP](#) solution, but did want to provide better tools to operations and get a handle on all documents, records, and files in a single system. Jim earned his Bachelor of Construction Administration with an emphasis on Information Technology from the University of Wisconsin.

FROM THE ECONOMIST: “WHITE-SPACE” WILL BE WIDER, FASTER THAN WI-FI

Americans soon may be entering a faster-moving, farther-reaching era of the Wireless Age, according to *The Economist*. A recent article in its “Technology Quarterly” reported that powerful frequencies left open by television broadcasting’s 2009 conversion from analog to digital are being made available for unlicensed use by the public. To illustrate just how revolutionary these “white spaces” and their increased data capacity may be, the article’s author suggests current Wi-Fi rates of 160 to 300 megabits per second could more than double (400 to 800 mbps) and signal range could expand exponentially from meters to kilometers.

While new technology brings with it new challenges – it remains to be proven that vast amounts of information can be transmitted cost-efficiently via white-space technology without interfering with airwaves for TV and wireless mics – it also creates myriad opportunities. It’s already been proposed that services tapping into these previously unavailable bands might provide additional access to the Internet and redefine the mobile-phone industry. Possible implications for construction are significant although, as always with providing Internet access, it is not the speed but the latency and consistency of the connection that has the most impact. However, assuming that these are not limiting factors, white-space technology seems to hold enormous potential for bringing Internet

access to remote job sites where traditional means such as cable, DSL, or similar are not available. Finally construction companies could have a better solution than satellite for truly remote areas. And at the potential speeds being discussed, there should be more than enough bandwidth for even the most advanced needs. Perhaps a project manager’s dream of a real-time video from a superintendent in the field can finally be realized!

And that realization may not be very far into the future. “TQ” forecasts that chips for mainstream gadgets will be developed over the next year, so white-space-enabled devices may debut as early as 2012.

LEARN THE LATEST ON THE INITIATIVE TO STANDARDIZE CONSTRUCTION DATA SCHEMAS

BCG has been involved in an important industry initiative with AGC of America over the last 10 months. For those who are not familiar with a data technology called “.xml,” Wikipedia has a better (and somewhat mind numbing) technical definition. However, for the layperson, it is a technology of tagging or labeling the fields in a given record type such that the records and fields can be recognized by many systems. This technology is critical to more efficient integrations between systems within the same company or even different companies (e.g., subcontractors, general contractors, and the owner or architect).

There are many [XML](#) initiatives going on around the world, nearly all based on establishing standards for the [XML](#) schema or tags. These usually center around an industry, a suite of products, or a given process. AGC began a similar initiative some years ago to standardize the schemas for some of the most common transactions and related records in construction. Requests for information (RFIs) were among the first tackled. Now that some of the schemas are available, the software development community will need to adopt the schemas and an [XML](#)-enabled design within their software. See a complete list of the AGC schemas on Wikipedia by searching “agcXML.”

For contractors, this development will ultimately provide a much easier and readily available integration approach, both for products that need to exchange data within a company as well as with products that others use. One of the more common deployments could be between a project management application that a general contractor is using and the PM application that an owner is insisting be used on the project. This would eliminate double entry and improve accuracy and timeliness.

BCG’s proposed role to the AGC of America is to help promote and coordinate the adoption of agcXML standards within our industry. Given our awareness of the business processes in

construction, knowledge of the vendor community, and work with technology, we're happy to be among those involved with AGC in exploratory work defining the path forward.

Simply building the standards, though, is not enough. What AGC and others have discovered is that it is not sufficient simply to have the schemas available. The software vendors involved in these business processes have to develop a mechanism (e.g., application programming interfaces [APIs]) to receive these coded transaction files, interpret them, validate them, and then import them into their own systems. Not only that, the vendors have to agree on a transport mechanism, a means of getting these transactions from one system to another (e.g., Web services). This is more than many had counted on.

BCG is fortunate to have found a development partner in Dave Moravec, a principal with Integrity Schools, to work with us on this important initiative. Dave has actually developed all of this for another industry (public school districts) and recently presented his case study to a panel of 14 software vendors BCG assembled to discuss the future of agcXML in construction.

Everyone on the panel agreed that the industry needed the standards and that there were many trends pointing to the increased need for interoperability. It was here that the vendors' concern over data transportation, development efforts, and on-going maintenance were more fully expressed. BCG is pursuing a number of initiatives on AGC's behalf to develop greater awareness and commitment to the standards and to get the overall project moving into its next phase. We will provide more details as this situation unfolds.

BCG PRESENTED ON CHANGE MANAGEMENT AT CFMA ANNUAL CONFERENCE

BCG presented on the subject of change management at the 2011 CFMA Annual Conference May 15 in Dallas. After years of watching contractors struggle through system implementations, heavily dependent on adopting change, BCG decided to develop and present a "lessons learned" session based upon that experience. It was a practical talk peppered with some of the latest change management techniques and a small dose of theory from other industries. Formally, the presentation was called "Change Management: How to Initiate, Foster, and Manage Positive Change in Your Organization."

This edition of the newsletter was in production during the event. We will provide a fuller report on the 2011 CFMA Annual Conference in our next issue.

AGC'S TIMELY IT FORUM CONFERENCE WILL BE IN CHICAGO AGAIN

AGC's new but exceedingly popular IT Forum Conference is in Chicago again this year, scheduled for Aug. 11 and 12 at the Swissotel. This day-and-a-half event brings together leading IT managers from within the construction industry for a series of roundtable discussions and symposiums on timely and relevant issues. This year's topics include *SharePoint 2010*, *ECM* systems, tablet computing, and cost-saving strategies in IT; registration is \$249.

Two things make this conference unique: one is a dedicated focus on technology, and the other is format. Unlike some programs that shy away from getting technical, this program makes IT managers and CIOs feel right at home discussing infrastructure, cloud computing, managing IT staff, and other similar subjects. Also, the program is set up with three primary sessions, each started in a general presentation manner, introducing the topic. From there, everyone breaks out to one of three separate groups that go into greater detail at three different levels, from more basic to advanced. But it is not only the formal sessions that provide so much insight. Many people, at least at last year's event, felt that they learned as much from the impromptu conversations in the hall with their peers, just comparing notes and discussing situations and trends. For more information, go to AGC's IT Forum website, <http://constructionforums.org/itforum>. BCG is attending, of course, and Christian and Angus also have roles in getting two sessions kicked off.

Also of significance, BCG is developing and distributing an IT Metrics survey to members of the IT Forum Committee within AGC and our client base. We are seeking data on IT performance metrics in which most IT managers, CIOs, and CFOs are keenly interested. BCG will tabulate the results of this survey and present them at the conclusion of the IT Forum Conference. Everyone is always looking for the numbers or measures that matter in IT. BCG is pleased to be developing and providing those metrics for the AGC. The survey is scheduled to be launched the week of June 6. Please visit our website, <http://www.burgerconsulting.com>, to access more information and a link to the survey.

PROJECT MANAGEMENT SYSTEMS: THE NEW BREED

By Jim Herkert

Growing up in construction, I have always been driven to find ways to use technology to solve the problems of the industry. I was first exposed to *Expedition* before it was ever on a database and still used DOS-based screens. I was thrilled at the prospects of the improved efficiencies offered by all the early entrants into the project management market. While today the lion's share of the market is still served by those same products (though with different names now), among their evolved forms is a new generation of project management systems worth paying attention to.

At the height of the dot-com bubble, everyone was talking about being “web-based” and now, 10 years later, the hype has turned into reality. Today's technology is clearly marked by rich-content websites on which the most casual user can easily apply for a mortgage or buy a new car. The interesting thing is that you probably know someone who, a few years ago, would not think of online banking for themselves. But because of how easy and accessible today's technology has become, they have become online customers. Now construction professionals have the opportunity to conduct their business in the same manner.

In the past several months, I have seen three innovative and leading-edge products that fall into the “New Breed” category: *PMWeb*, *4Projects*, and *IPM Project Management*. *PMWeb* and *4Projects* are browser-based, and *IPM Project Management* is written with the **Microsoft** customer relationship management (**CRM**) platform. Not surprisingly, this New Breed of project management systems has raised the bar on the ease-of-use scale by adopting the familiar *Outlook* user interface paradigm. (It should also be noted that **Meridian** is not taking this situation lightly. As it continues to enhance and evolve its *Prolog Converge* product, it is maintaining an important tool in its competitive arsenal.)

More good news: the New Breed has also upped the flexibility factor. Perhaps you need to track details related to your concrete pours that go beyond anything included in your traditional project management system. What most of us would do is open an *Excel* spreadsheet, begin defining columns, and start entering data. In at least one of these New Breed products, *PMWeb*, the average user can define a new form to track all the critical information and make it available to the entire team.

So if you're looking for higher user-adoption rates or a product that offers more tools to respond to the needs of your demanding customers perhaps one of these New Breed project management systems is for you.

FROM THE ECONOMIST: SENSORS SMARTEN UP STRUCTURES

Technological advances like those that have made people into walking phone booths and cars their own mechanics have begun to transform buildings, bridges, and tunnels into structures smart enough to monitor and send alerts about themselves, *The Economist* recently reported. The secret to their super power is the use of wireless sensors to collect and transmit data on physical conditions such as temperature, humidity, wind, vibration, strain, and movement. Sensor technology has been around for more than a decade, but, according to the article, hasn't been used widely because the devices required wiring to carry information and to power operation – potential cost- and time-killers, especially when retrofitting existing structures. But a combination of technologies (wireless for communications, green power management for devices, and alternative power sources, like wind and sun) has helped minimize the equipment and, consequently, the financial and physical burdens related to working with it.

This is especially good news in regards to older structures, the story points out, because many are now bearing increased and unplanned loads. And traditional inspections of aging bridges, buildings, and tunnels may not provide the same kind, depth, or frequency of data that a sensor network may be capable of generating. An example cited by the writer is a case in which engineers used sensor measurements among their investigative tools to monitor tunnel safety in London's Underground rail system, and the consideration to replace the tunnel lining resulted.

Sensor technology for structures goes beyond the ability to just provide reports on how they are operating (in a passive mode), to becoming more active. Sensors are already automatically adjusting shock absorbers and dampers in buildings to counteract weather and ground conditions and operating power and environmental elements in buildings based on the movement of people. The article also referenced a recently built bridge in Minnesota with temperature sensors that can activate an antifreeze-spray system to keep ice from forming on the road.

There are numerous opportunities in the construction industry for sensor technology. Understanding its impact on building/structure lifecycle management may allow contractors to provide yet another value-added service to owner clients. As sensors become more common, structural design and construction will change. Those with an understanding of the implications will have a competitive advantage over their peers.

EVENT EXPLORES BIM TECHNOLOGY IN BUILDING LIFECYCLE

Northwestern University's Master of Project Management program has organized The Symposium on Technology for Design and Construction, scheduled for Aug. 18 and 19 on the school's Evanston campus, just outside of Chicago. The event will gather professionals from architecture, engineering, construction, and facilities management to examine the field as it is currently and to look ahead to possible future developments. Sessions will begin on the afternoon of the first day with discussions related to building information modeling (BIM), and the topic will turn to technology management the next morning. Attendees will network with and hear from representatives of a wide range of construction-industry companies, including Limbach, Pepper Construction, Bovis Lend Lease, and DPR Construction, as well as non-industry businesses like Crate & Barrel. BCG also has been asked to present at The Symposium. We expect to focus our talk on the integration of various software tools with the BIM data model and BIM tools and processes within contracting organizations. Keynote Speaker Paul M. Teicholz, research professor emeritus in civil and environmental engineering and award-winner for innovative use of technology in construction, will close out the program via video conference from Stanford University.

NEW APPLICATION USES TAKEOFF AND DRAWING DATA

On Center Software, a Texas-based software developer that many of you know for its *On-Screen Takeoff* application, has developed and released a production capture and reporting application for use in the field. It's an interesting application of the same base data, that is to say a combined digital version of the estimates and drawings that *Quick Bid* and *On-Screen Takeoff* utilize. The new application, *Digital Production Control*, integrates the estimated labor production data from *Quick Bid* with the graphical takeoff data of *On-Screen Takeoff* and displays the precise labor production required for the work at hand. When the plan is displayed on a tablet screen, a superintendent can walk the site and tap or outline the completed units or sections of the drawing. *Digital Production Control* contains the budgeted man hours for the labor tasks, so is able to compare actual production to estimated production and provide a real-time gauge of productivity for the foreman. This data could then easily be exported for use in the job cost application within the ERP system. For more information on *Digital Production Control*, go to www.oncenter.com or call **On Center Software** at (281) 297-9000.

CURRENT CLIENTS AND PROJECTS

Burger Consulting has recently assisted the following companies with important engagements, including strategic IT plans and assessments, software selections, and implementations. We also have placed CIOs and IT managers and helped assess a company's overall computing infrastructure and data center.

AIRCO Mechanical, Inc.	Force Construction	Mascaro
Boh Bros.	Fusco Corporation	MasTec, Inc.
CCC Group	Intren	MCC Catamount
City of Holly Springs	Keller	The Moran Group
Dewberry, Inc.	LVI Services	Traylor Bros.

BCG thanks those who have furnished us references. We genuinely appreciate your confidence in our services.

BURGER CONSULTING GETS THE WORD OUT

Burger Consulting Group has written or been quoted recently in the following:

- *ENR*, "Enterprise Resource Planning Systems Break Down Data Silos" by Tom Sawyer
- *CFMA Building Profits*, "How to Manage IT Directors in 2010 and Beyond" by Christian Burger
- *Construction Executive*, "The Changing Nature of Construction ERP Solutions" by Christian Burger
- *AGC of America Tech Brief*, "Top IT Trends for 2011" by Christian Burger
- *CFMA IT Survey*, Foreword by Christian Burger
- *AGC of America Tech Brief*, "ECM: Strategic Alternatives for the Construction Industry" by Christian Burger and Steven Mulka

BCG professionals also were invited to present, moderate, or serve as panelists at the following events over the last year:

- ENR Webinar
- **Meridian Systems** 2010 User Conference in Washington, D.C.
- CFMA 2010 Annual Conference in Kona, HI
- **Viewpoint Construction Software** 2010 User Conference in Portland, OR
- **Construction Imaging** INTEGRATE 2010 User Conference in Rocky Mount, NC
- CFMA 2011 Annual Conference in Dallas, TX

IMAGING AND WORKFLOW FINDS FROM CFMA “PAPERLESS” PRESENTATION

By Angus Frost

BCG attended and found noteworthy the reaction to the seminar “How to Save Money in IT Using Paperless Processes” given by the local Chicago chapter of CFMA several months ago. About 50 people attended from a variety of companies, including vendors. The presenters were representatives from three different companies and their individual software providers, and the format was an interactive panel discussion. The companies presenting included a plumbing contractor, a mechanical contractor, and a large general contractor. The mechanical contractor was using **Viewpoint** as its ERP platform and **Viewpoint’s** integrated document imaging and workflow solution. The plumbing contractor was using *MasterBuilder* as its ERP and **Paperless Environments** as its integrated third-party imaging and workflow provider. Lastly, the general contractor was using **Computer Guidance Corporation (CGC)** as its ERP and **Construction Imaging** as the document imaging and workflow solution. All in all, three very different approaches to imaging and workflow: one fully integrated ERP solution, one integrated third party solution, and one non-integrated third party solution (it should be noted that **Construction Imaging** can be integrated with **CGC**, but was not in this particular instance).

The mechanical and general contractors began reducing paper in the invoice-processing stage. They were looking for ways to minimize lost invoices and get better payment terms from their suppliers. The plumbing contractor wanted to more efficiently

manage its project documents, but ultimately also started off using imaging and workflow for its invoicing process. The plumbing contractor shreds all paperwork after a year; the mechanical contractor keeps it longer, the length of time dependent on the document type. Of the three companies, the plumbing contractor showed the most advanced usage, including imaging of training documents, close out documents, contracts, credit applications, HR documents, bond license audits, and project documentation. While the other companies were not quite as advanced, they had certainly moved beyond just imaging of invoices. All three were able to achieve rapid ROI and continue to see cost savings through a combination of labor/staff reductions and time savings in retrieval of critical documents and reduced storage costs.

Judging from the questions asked by those attending, there was clearly a high level of interest in the topic and particularly in the areas outside of invoice processing in which the imaging tools had been used. We see this level of interest every single day with our clients, and imaging and workflow – or Electronic Content Management (ECM), as it is more commonly known in the industry – has been one of the more significant trends to develop in the past couple of years. Construction is several years behind other industries in terms of using ECM solutions. Vendors catering to those other industries are starting to recognize this and to see the construction industry as a new marketplace. In addition to planning seminars ourselves on this topic, we have seen several ECM vendors, including **Paperless Environments** and *OnBase*, putting on webinars and seminars in response to this growing level of interest.

GLOSSARY

Term	Stands for	Meaning
<u>API</u>	Application Programming Interface	API are small applications used by IT to manage data export and import into a system in a controlled manner (i.e., with data validation rules). Typically API are designed to support specific areas of an application (e.g., timesheet data into payroll).
<u>BIM</u>	Building Information Modeling	Technology that is used to track data that pertains to a building as well as the tools that use that data.
<u>CRM</u>	Customer Relationship Management	A family of software applications focused on the business development and sales function.
<u>ECM</u>	Electronic Content Management	A set of technologies used to capture, store, preserve, and deliver content and documents related to organizational process.
<u>ERP</u>	Enterprise Resource Planning	A suite of software applications that generally handles all of the accounting and business functions, often fully integrated.
<u>XML</u>	Extensible Markup Language	A set of rules for defining and transmitting data. XML schemas can define the data elements as well as the data they contain.