ECM: Electronic Content Management
Strategic Alternatives for the Construction Industry

By Christian Burger and Steven J. Mulka

Introduction

What is ECM? Electronic Content Management is a rebranding and extending of a technology that has been around for close to 15 years now, perhaps even longer in other industries. Many years ago contractors were happy to have the ability to scan and route invoices for approval and then store the digital images with indexes that allowed for searching on documents and classification. Capability soon extended to allow attachment of other documents within the ERP or accounting system. But the function was limited to only scanned documents, a few record types, and a fairly small number of indexes. Further, the workflow capability was fairly basic.

Today, ECM technology can encompass ALL records, including scanned documents, drawings, e-mail, voicemail, and video, and even replace storing files (content) on a file server. This is a tall order, no doubt, but commercial-strength ECM solutions are up to the task. Imagine having all of your "content" organized and stored by software with rules on what content to keep and for how long, allowing you search capability on indexes or even within documents. Not only that, there are workflow tools that can allow users, or at least IT, to create routing, approval, and storage rules for different record types. There are other tools, too, which allow for OCR (Optical Character Recognition), electronic forms, and version control over documents.

At first glance, this is more than most companies want to think about. It is nothing short of organizing ALL of your data and having an associated business process via workflow rather than manually. But most companies don't tackle it quite that way. Historically they start small, with invoice routing and approval, maybe timesheets, and work their way up to HR and equipment records. They also handle the integration with the ERP system fairly early on, too, as that step is critical for efficiency – otherwise, you have to enter index values on each record.

From there, companies move to implement electronic forms, add retention rules, and start to do e-mail archiving. Or they don't. Sadly, some companies stop with invoice routing and approval and think they are done. Little do they know that that is just the tip of the iceberg when it comes to the value of ECM.

This is ultimately technology that will be long lasting and can potentially have a significant impact on the organization. For that reason, companies should be integrating an ECM technology as part of their overall IT plan. Companies should plan on investment and time commitment over the next three to five years to deploy this technology well and at a rate consistent with the needs and abilities of the organization. Overbuying would be nearly as problematic as under-buying. The stage should be set at the appropriate level and then worked on consistently over time.

At present, there appears to be four broad approaches to ECM technology within construction: 1) an integrated approach within the ERP or other application; 2) a stand-alone approach with an ECM product developed for the industry or a more generic one; 3) developing a level of ECM within SharePoint; and finally, 4) none (hoping perhaps it is a trend and will subside).

We will not spend much time on option 4, assuming that if you are reading this you have already implemented 1, 2, or 3 or are contemplating doing so. There are benefits and drawbacks to each approach, and this article will go on to provide some detail around each. The article concludes with a few points on implementation of this technology.

Strategy	Benefit	Drawback
Third-party ECM application	- Enterprise-wide capability - Support for greater number of document types - Support for version control - Technology designed for efficient storage and better search - Better workflow engine - Integration tools are generally available - Advanced capture capability	- More costly - Time to implement - Each integration has to be developed - Additional admin and security
Integrated ECM within ERP	- Less expensive - Easier to implement - Already integrated	- Limitations in functionality and technology - Less flexibility
Development using SharePoint	- Native integration with Microsoft Office and other Microsoft technologies - Flexibility in configuration - Broad functionality	- Limited workflows or business process management (BPM) out of the box - Requires planning and configuration
Manual document and records management	- No change required - No capital requirements	- Storage - Labor intensive - VERY risky for claims and legal reasons

SharePoint

Microsoft SharePoint Technology has proliferated in the construction market. Many contractors are evaluating or have a SharePoint initiative underway as part of their overall IT strategy. The latest Gartner analysis of market leaders as illustrated by the 2010 Magic Quadrant for Horizontal Portals ranks Microsoft number one on both the ability to execute and completeness of vision.
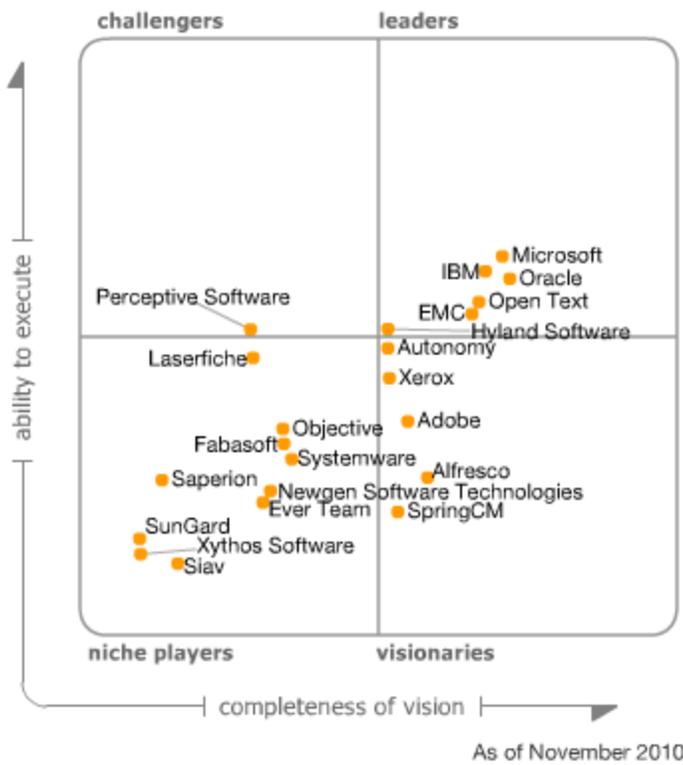
Contractors who are evaluating or implementing SharePoint solutions within the organization would benefit from taking a step back and looking at ECM as a whole. Considering SharePoint from this perspective may help solidify the organization's goals and objectives and determine where SharePoint may fit into the overall IT strategy of the company.

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While SharePoint contains elements that can either enhance or replace some of the more basic ECM functions, it is more difficult or nearly impossible for SharePoint to be a true ECM replacement. Some argue it is another general purpose application, admittedly powerful, that can clean up and organize many a cluttered shared drive. However, once a company starts to build on the features and functions needed, they start realizing how time consuming that can be and begin to wonder if a prepackaged application doesn't already exist.

Structure/Discipline

ECM technology will prove to be the mortar that maintains all of your system records beyond their immediately useful life in the system in which they may originate and may, in fact, help move data from one system to another. But this technology makes certain assumptions and has certain expectations of the organization. And that can be the uncomfortable part of the whole experience. While ECM technology does promise to store and provide access to your records, it does demand structure and adoption of business processes. If your organization struggles with standardization, adoption, and compliance to process, ECM will still have value, but it will be limited. There is probably no single answer for all organizations, but a higher degree of structure does leverage the technology (and the technology enables implementation of better process).

Most companies will benefit from the assignment of someone to the task of ECM champion or records manager. These titles may sound like hold-over positions from the robust market we enjoyed a few years ago, but don't leap to that conclusion. An ECM champion, someone with business experience, records knowledge, and who is slightly technical, could go a very long way to leveraging the value of your company's investment in an ECM system. Without that person on board, many in the organization will develop departmental solutions that could work for their needs, but probably go no further. They also may not have a larger concern for the policies and procedures that are so critical to effective deployment of the technology (e.g., records retention rules, security).

Exhibit 1 is an example of a catalogue of fields possibly required for each record type in an ECM system. So for a time card, say, or an invoice or HR application, someone needs to define what happens to the document and when, where it is stored and indexed, how long it is kept, and who needs to see it. This information would then be captured and/or used by the system when treating each individual record. As you can see, there is a lot of information required and it is all important to an ECM system. For these reasons, the records manager is likely to be more effective at deploying this technology, though they do not do it by themselves. The person in this position, or the ECM champion, would work closely with the "custodian" of a given record type, for example the HR manager for all HR-related documents and records.

Field	Definition	Value
Flow Chart Ref.	Reference number on flow charts	#
Software Application	Software application in which record originates or is connected	
Document Type	Name of document type	
Responsible	Position responsible for decision making on this record	
Team Leader	Team Leaders for application in which record is produced or stored	
File Type	Type of file, typically determined by extension	
Index(es)	First index on which record will index	
Index(es)	Second index on which record will index	
Index(es)	Third index on which record will index	
Document Number	Number given to the document from the system or provided	
Document Date	Date stamped or stated on the document	
Routing	Will the record be "moved" for approval or review before being "stored" (States for vendor system)?	
Approval	Will the record be approved before another action taken?	
Priority	Relative value of the record to the organization	
Freq./Volume	Relative volume of this record in the organization (1=low, 5=very high)	
Security	How secure does this record need to be?	
Retention	What determines the retention of this document, duration?	
Version - Multiple	Will there be multiple versions of the record?	
Versions - Saved	If there are multiple versions, will they all be saved?	
Origination	From where does the record originate?	
Integration to	To which application or program should this record be available?	
Integration from	From which application or program will this	

	file or record be made available?	
Disposition of Original	What should happen with the original document, file, or record?	
Sample	Does an example exist for reference?	
Searchable	Should the content within the document be searchable?	

ECM technology is one of the more profound technologies emerging in construction. It may not have the "sizzle" of BIM or Cloud Computing, but it is also one of the technologies to provide a quicker ROI, something to consider when evaluating IT investments. Plan accordingly with a three- to five-year window. Don't underestimate the needs of the organization. And finally, implement well with appropriate commitment and staffing.

About the authors
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