



Mobile content management in the enterprise: getting content-driven work done on the go

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mobile



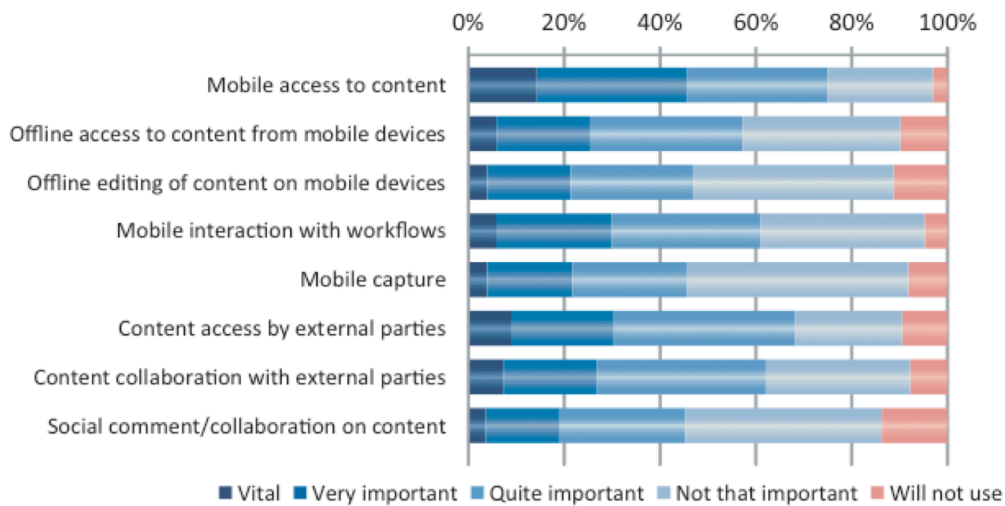
TABLE OF CONTENTS

Executive summary.....	2
What is Mobile Content Management? (and what it is not)	2
Use cases: examples of MCM in action.....	2
City of Denver Mobile 311 Application	2
Mobile invoice approval at Estrella Galicia.....	2
MCM's potential benefits	2
MCM's potential challenges.....	2
Good MCM Practices.....	2
Technology.....	2
Business	2
The future of MCM	2
About Larry Hawes	2
About GigaOM Pro.....	2

Executive summary

Ready or not, your organization’s employees want to access, view, edit, and share enterprise content while they’re on the go. They’re probably already doing business on mobile computing devices like tablets and smartphones. A recent survey by AIIM shows that the expectations for mobile content access are on the rise, with 45 percent of the 463 respondents saying that access was “vital” or “very important.”¹

Figure 1. Importance of mobile-content access and collaboration



Source: AIIM

How does an enterprise manage content when it goes mobile? This GigaOM Research report examines that question, first by defining mobile content management (MCM) and then comparing it to other technologies that enable lesser levels of content use on mobile computing devices. We’ll also look at MCM’s potential benefits and challenges, the value MCM adds to activities that directly support operational process execution, and the future of MCM.

¹ *ECM at the Crossroads: Key Strategy Choices for Universal Content Management*. AIIM, May 20, 2013. <http://www.aiim.org/Research-and-Publications/Research/Industry-Watch/ECM-2013>.

What is mobile content management (and what it is not)?

Mobile content management (MCM) is a discipline consisting of strategies, policies, and enabling technologies that control how unstructured documents and files are accessed, used, and distributed from tablet computers and smartphones in the context of business processes.

The concept of MCM is generally misunderstood. Some confuse it with mobile device management (MDM), which is really about provisioning services to, monitoring, and decommissioning smartphones and tablets used to conduct business. The confusion is understandable. Some MDM applications allow administrators to remove corporate files from a mobile device if an employee loses it, but those applications do not prescribe or enforce access rights to files unless they are stored in the MCM vendor's proprietary content repository. Generally MDM solutions cannot be integrated with other existing enterprise content repositories.

Many people equate MCM with file sharing and synchronization solutions that make enterprise content accessible for viewing and sharing on tablets and smartphones (in addition to desktop and laptop computers). Accessing and sharing files on a mobile computing device is an important part of MCM, but it's not the whole story. MCM goes beyond the capabilities that file sharing and synchronization solutions offer; it includes features that enable control of corporate content. Traditional desktop enterprise content management (ECM) functionality that controls the storing, accessing, versioning, indexing, discovering, and publishing of content is as important to MCM as the content-viewing and sharing features that people using mobile devices expect.

A key difference between MCM and simple file sharing and synchronization solutions is that the latter do not attempt to address how content is used in a business context. File sharing and synchronization merely govern the access and sharing of files. Unlike the more comprehensive MCM, they make no attempt to link content to specific business processes contextually. Most file sharing and synchronization offerings do not even support approval processes related to newly authored content, much less the execution of an organization's content-centric operating processes. However, 60 percent of organizations surveyed (see Figure 1) feel that mobile access to workflows ranges upward from "quite important" to "vital."

Use cases: examples of MCM in action

The best way to explain MCM is by example. The following use cases illustrate how the content that drives specific operating processes can be created, accessed, used, and distributed on mobile devices.

City of Denver mobile 311 application

Most municipalities field complaints from citizens through inbound voice communications that are handled directly by departmental staff. In larger cities, citizens dial 311 to report dangerous potholes, inoperable street and traffic lights, barking dogs, and other non-emergency issues. An operator in a centralized call center answers and records those calls, but someone must manually input the issues into paper-based logs or an electronic database, where the complaint and its resolution are tracked. The manual effort required for logging and tracking issues typically results in high costs for operating these call centers. Additionally, the issue investigation process is usually not automated, and the actual progress toward resolution is not available. This lack of automated process orchestration and transparency adds to costs and upsets citizens.

To resolve these problems, the City of Denver commissioned a 311 application that allows citizens and visitors to report issues with infrastructure and living conditions without placing a phone call. The application, which is available on Apple mobile devices running the iOS operating system, lets people report non-emergency issues in a way that increases process automation and transparency.

Anyone wanting to report an issue can simply fill out an electronic form in the 311 application. The form captures important information such as contact information for the reporter (who may also choose to remain anonymous), date and time of the report, issue type, and location. The 311 application makes use of some of the native capabilities of the iOS mobile devices. For example, location data can be automatically captured using the onboard GPS, and reporters can attach a photo or video from the device's camera directly to the form.

Figure 2. The City of Denver's 311 application



Source: City of Denver

Once the form has been submitted, the information is stored in a content management system that has been integrated with Denver's customer relationship management (CRM) system. The CRM system creates an issue ticket and routes it through a predefined workflow, which processes the issue to the city's call center, contract management, and records management systems. City employees can track the issue throughout the investigation and resolution process, and the person who originally reported the issue is notified via mobile device when the problem has been resolved.

The City of Denver's mobile 311 application has produced several benefits. The automation of content distribution to other enterprise systems and to employees using mobile devices has reduced communication and data input errors as well as process breakdowns. It has also accelerated time-to-problem resolution. As a result, Denver has seen a significant reduction in the costs associated with fielding, investigating, and resolving non-emergency issues reported by citizens and visitors. Furthermore, the reduced time to resolution and the automated communication of the solution back to the individual who reported the issue have led to increased satisfaction among Denver's constituents and guests.

Mobile invoice approval at Estrella Galicia

Nearly every business must process vendor invoices through some type of accounts payable (A/P) system. Often managers and executives outside A/P first must verify and approve invoices before A/P will pay them. With busy schedules, frequent travel, and a full slate of daily tasks, these employees can be a significant bottleneck in the vendor invoice payment process.

The proprietary system that Spanish food manufacturer Estrella Galicia used to manage vendor invoices did not have a central document repository. Instead, invoices were stored on network drives, individual hard drives, and in other enterprise systems. The company's A/P department processed around 4,000 new invoices each month. Department heads and directors were required to approve invoices prior to payment, with each individual reviewing and signing off on 30 to 40 invoices every day. With Estrella Galicia's business growing quickly, this vendor invoice management solution was no longer scalable.

Estrella Galicia decided to deploy a central repository for many of its corporate documents, including vendor invoices. In addition to storing the invoices, the document-management system provided two key enabling capabilities: workflow tools that automated the routing of invoices for approval and the ability to access, review, and approve (or disapprove) invoices on iOS-based mobile devices.

Department heads and directors are no longer a bottleneck for A/P. They can use their tablets or smartphones to review and approve several invoices every time they have a few minutes available in their schedule, no matter where they are located (Figure 3). Estrella Galicia's MCM system has enabled the company to conduct its current level of business faster and laid the foundation for future growth.

Figure 3. Mobile view of a vendor invoice pending approval or rejection



Source: Estrella Galicia

MCM's potential benefits

MCM offers potential benefits to the organization as well as to its individual employees. The company can realize reduced costs and faster time to revenue, employees are more engaged and productive, and customers are more satisfied and profitable.

Potential MCM benefits include:

- **Anytime, anywhere access to corporate content.** Eighty percent of organizations recently surveyed indicated that they offer some form of remote work option to their employees.² Those organizations must make the data, information, and knowledge needed to execute business strategy, tactics, and processes readily available to their off-site employees. Absent that, business activities such as product development, marketing, sales, and customer service are subject to expensive delays that create additional costs and postpone revenue recognition.
- **Improved content security.** With clearly communicated MCM policies and well-designed supporting technologies in place, content may be securely delivered to and from mobile devices as well as stored on them. MCM solutions use strong encryption to protect content during transmission and while it is on the device. Access rights applied to individual documents and files may be enforced, and the use of passwords may be required.
- **Confidence of working with the most current version of content.** In many MCM use cases, having the latest version of corporate content is critical. Salespeople must have the latest product or service information and pricing to present to potential customers. Construction workers and field service staff must have up-to-date safety information to prevent work-related accidents. The ability of MCM solutions to push content to mobile devices and keep it in sync with the latest version in an enterprise content repository minimizes mistakes in the field and increases overall accuracy.
- **Better case management.** MCM systems can improve the ability of an organization's employees to track, advance, and resolve work related to incidents, inquiries, or any other type of case or claim while they are out of the office. This improved case-management capability also

² In March 2013 Challenger, Gray & Christmas reported the results of its survey of 120 human resources executives in this press release: <http://www.challengergray.com/press/PressRelease.aspx?PressUid=261>.

leads to higher levels of accuracy in work completed as well as the ability to document adherence to any regulatory compliance requirements that may exist.

- **Ability to create and publish new content.** MCM systems also enable automation of the processes for content creation, review, editing, approval, and publication. Content in various stages of readiness can flow seamlessly among individuals working on desktop or laptop computers and mobile devices, following a predefined process.
- **Faster content distribution through process automation.** Employees frequently need data, information, or knowledge to complete an assigned task or make a decision,³ and they spend a significant amount of time finding it. MCM solutions can automatically push the right content to an individual when it is needed, which can significantly shorten the time needed to complete a business process, compared to when a mobile employee must wait until she returns to the office to act.
- **Less time spent searching for content.** The average knowledge worker spends nearly 20 percent of the workweek looking for information within an organization’s systems.⁴ By establishing a common, virtual content repository across integrated enterprise systems, organizations can mask the complexity of, and reduce time spent on, storing and finding files in multiple locations.
- **Improved employee productivity.** The ability that MCM systems provide to create, share, view, and act on content while on the go increases the productivity of every mobile worker. Business-process cycle time and cost reductions are the tangible outcomes of this improved productivity.
- **Improved employee engagement.** Making content available on employees’ mobile devices keeps them engaged with business processes and colleagues when out of the office. A recent study has shown that highly engaged employees are 21 percent more productive than their less-engaged peers.⁵

³ As shown in Figure 1 above, 30 percent of organizations consider the capability for mobile interaction with workflows as either “vital” or “very important” to the success of their businesses.

⁴ Michael Chui, et al. “The social economy: Unlocking value and productivity through social technologies.” McKinsey Global Institute, July 2012. http://www.mckinsey.com/insights/high_tech_telecoms_internet/the_social_economy.

⁵ “Engagement at Work: Its Effect on Performance Continues in Tough Economic Times.” Gallup, 2013. <http://www.gallup.com/strategicconsulting/161459/engagement-work-effect-performance-continues-tough-economic-times.aspx>.

- **Faster response time.** Reductions in the time needed to create, distribute, and search for content on mobile devices help organizations respond more quickly to their customers. These time reductions combined with the improved employee productivity that can be gained with the use of a MCM system ultimately increase levels of customer satisfaction.
- **Improved customer experience.** The improved communication, work-status transparency, and response time that MCM systems enable afford mobile customers a greatly improved experience in dealing with an organization. As such, MCM systems can help create more-satisfied customers who also generate more revenue and profit for the company.

MCM's potential challenges

As with any technology-supported business initiative, implementing MCM presents some potential challenges. Any one of these issues could hamper the success of an MCM initiative. If multiple issues arise, the initiative is likely to fail outright.

Commonly observed issues that may complicate or derail MCM initiatives include:

- **Persistence of files being stored outside of the MCM system's reach.** Content intended for consumption on mobile devices cannot be controlled when it is stored on individual computing devices, on private servers, or in unauthorized cloud-based file storage services. The continued existence of these unsanctioned content repositories raises grave security risks, especially when mobile devices are used to interact with the files stored there. They also may lead to content not being available at all to mobile device users and within corporate protocol.
- **Lack of identified use case.** Too often, organizations deploy new technology without knowing or communicating a specific purpose for doing so. MCM should not be a field of dreams, built with the expectation that employees will use it without being told how or why. It should be targeted to specific business processes that will benefit from having relevant content readily available to mobile employees.
- **Absence of executive sponsorship.** As with any technology-supported change initiative, the introduction of MCM into an organization requires genuine, visible support from a senior-level executive. Unless an influential executive provides adequate budgetary resources, communicates MCM policy and benefits to individuals and the company, and leads by the example of being an early adopter of the MCM system, the initiative will founder and employees will find other ways of working with content while on the go.
- **Poorly defined or undocumented business processes.** The process-automation benefits of MCM cannot be realized if an organization's operating processes are not well-understood and documented. The intended deployment of an MCM system affords a great opportunity to review and perhaps change existing business processes so content can flow more rapidly and accurately through them to mobile devices.
- **Lack of integration among the MCM system and other enterprise applications.** Even if the organization's operating processes are understood and documented, content cannot flow

through them if the various enterprise applications that employees use are not integrated with the MCM system. Launching a stand-alone MCM system will produce some benefits, but they will be limited in comparison with those from a system that serves as the integrated content source for other enterprise applications. Perhaps the largest missed benefit is the elimination of information silos that impede business-process execution.

Good MCM practices

Any organization embarking on an MCM initiative should be aware of what has worked well for others. The following technology and business considerations have been observed in the MCM experiences of early-adopter organizations.

Technology

- Examine and leverage existing infrastructure and IT staff skills. Integrate enterprise applications, including the content-management system, at the infrastructure and business-process levels, then present those integrated capabilities on mobile devices.
- Content-storage location should be driven by the organization's business needs, not the limitations of a content-management provider's solution. Most organizations now have content stored both on-premises and in the cloud. Execution of a business process may require access by a person or application to content stored in either one or both of those locations. Be sure that your MCM provider can accommodate multiple content storage and access scenarios, including hybrid cases.
- Whenever possible, leave content where it is and create a virtual repository instead of migrating it to a single physical repository. Content migration is a costly process. Good MCM systems will help you avoid those costs by acting as a master repository for your other enterprise-content stores.
- If your organization has a bring-your-own-device (BYOD) program, be aware of which devices employees are actually using. Don't default to the lowest common application design denominator (HTML5) to support any and all mobile devices. If the majority of employees use iOS devices, build applications for that platform to leverage its native capabilities and improve the overall user experience.

Business

- Study and learn from publicly available case studies, especially those involving other organizations in your industry. This knowledge will help you identify appropriate MCM use cases for your company as well as avoid the mistakes previously made by others.

- Understand what the killer applications and sources of return on investment (ROI) are for mobile employees (e.g., off-site access to latest marketing collateral and sales information, better post-sales customer service, and content review and approval processes).
- Apply MCM in support of those specific operational processes rather than as a horizontally applicable computing capability. Identify and prioritize potential use cases based on their criticality and potential economic impact to the business.
- Early in the consideration of MCM, examine your organization's existing processes for content creation and publishing as well as operating processes for which specific content is needed at critical junctures. There may be an opportunity for process redesign and improvement.
- Know your organization's culture, specifically its willingness and ability to change the way information is controlled and flows in the company. The design of workflows in your MCM system must correspond with existing norms if your organization is change-adverse; otherwise the MCM initiative is likely to fail from lack of use. For example, if a manager insists on approving content created by direct reports, include that approval process when configuring your MCM system.
- Include record-management policies and tactics in MCM strategy. If a specific piece of content created, modified, and published with a desktop computer would be treated as a corporate record, then the same will hold true if mobile devices are used instead.
- Expect additional costs in learning to deploy and manage mobile applications as part of their total cost of ownership (TCO). Organizations that have little or no MCM experience will require training for their IT staffs so that they may learn the new skill sets necessary to support an MCM initiative.
- Provide information in context to help overcome the inherent search and browsing limitations of mobile devices, as well as the time limitations of the employees using them. Process automation can be helpful in delivering the right content at the right time to mobile employees.

The future of MCM

MCM is a relatively new and rapidly evolving discipline. Early-adopter organizations have been creating strategies, defining policies, and deploying technology infrastructure that will enable their MCM initiatives. With those pieces in place, these companies have built multiple targeted applications that enable their employees to work with content on their mobile devices — often in the context of a specific business process.

In the near future, expect to see MCM accommodate a broader range of mobile computing device operating systems. Many mobile content applications currently run on Apple's iOS only, but MCM vendors and deploying organizations are actively developing for Android and Windows 8 devices as well, with releases for Android right around the corner.

The integration of MCM with MDM solutions is also likely to occur in the short term. While some overlap exists between current capabilities, the unique features of each solution become stronger when the two are combined. Many corporate buyers will prefer to work with MCM and MDM vendors that have strong partnerships or with a single vendor that can provide both capabilities.

Most organizations that have adopted MCM have chosen between on-premises and cloud-based application run environments and content-storage options. Large organizations are likely to follow a hybrid MCM strategy in the future, in which they run applications in the cloud but store content on-premises. No matter which model your organization uses to begin its MCM efforts, you should select a vendor that offers flexible solutions that can accommodate your changing business requirements in the future.

An exciting nascent wave of MCM development is letting system administrators configure the user experience of, as well the content served to, mobile devices based on an individual's business role and predefined business rules. A universal content workspace on a mobile device, controlled by the MCM system, enables employees to work with content in a highly specific context, allowing them to interact with the right content at the right time. For example, if a manager wants to review and approve vendor invoices for his department, he sees only those documents in his mobile workspace, without searching for them. Alternatively, if he is reviewing potential candidates for a job opening in his department, he sees only relevant resumes that have been fielded and pushed to him by an HR employee or process. We have seen early examples of this type of contextual MCM and expect to witness more proof points in the near future.

All of these contextual interactions with content on mobile devices will be heavily driven by metadata associated with the content itself. However, unlike documents designed for use on a desktop computer, much of the content presented in this mobile workspace will also gather the individual's work context from the myriad of sensors that are built into her mobile device. For example, content may or may not be presented to an individual based on whether her mobile device is actively connected to a Wi-Fi, LTE, or 3G network. Her mobile device's location, indicated by its onboard GPS sensor, will also be used by the MCM system to determine which content is highly relevant to her.

We are just beginning to understand and design for the possibilities for context-specific content presentation that device sensors and mobile applications can enable. MCM support for wearable computing objects such as Google Glass, smart watches, and clothing is on the horizon. Each new mobile device will present opportunities for innovative MCM capabilities as well as business-process redesign. Those changes will lead to further increases in employee productivity, reduced costs, and faster revenue recognition.

Key takeaways

- Mobile content management (MCM) is a discipline consisting of strategies, policies, and enabling technologies that control how unstructured documents and files are accessed, used, and distributed from tablet computers and smartphones, in the context of business processes.
- Accessing and sharing files on a mobile computing device is an important part of MCM but not the whole story. Unlike stand-alone file-sharing and synchronization solutions, MCM addresses how content is shared and used in a business context, often a specific business process.
- Providing information in context helps to overcome the inherent search and browsing limitations of mobile devices as well as the time limitations of the employees using them. The process automation provided by an MCM solution can ensure the delivery of the right content at the right time to mobile employees.
- MCM offers potential benefits to an organization's operating results, as well as to the engagement and productivity of its individual employees. Companies can cut operating costs, speed revenue recognition, and improve customer satisfaction by deploying an MCM system. MCM can also lay the foundation for the growth of a business' scale and reach.
- MCM initiatives that lack executive sponsorship, an identified use case, or well-defined business processes are likely to have limited success or to fail outright, as are those when files are persistently stored outside the MCM system's reach or are poorly integrated.
- Any organization embarking on an MCM initiative should be aware of what has worked well for others. MCM early-adopter organizations have demonstrated the importance of understanding existing content infrastructure and related business requirements. They have also investigated their current content and mobile device usage patterns — as well as their business processes, policies, and culture — and built their MCM systems accordingly.
- The wave of MCM development that is just getting started will let system administrators configure the user experience of, as well the content served to, mobile devices based on an individual's business role and predefined business rules.

About Larry Hawes

Larry Hawes is the principal and founder of Dow Brook Advisory Services, where he advises enterprise software vendors on product road map, positioning and messaging, go-to-market, and merger and acquisition strategies. Hawes is also an internationally recognized expert on the application of information-management technologies to drive high-value business transformation. His research and consulting work is focused on collaboration and knowledge-management practices in the technology domains of enterprise social software, unified communication and collaboration, enterprise portals, document and content management, and business process management. He has been published in the *Wall Street Journal*, the *Financial Times*, *Wired*, *InformationWeek*, *ZDNet*, *CNET*, *eWeek*, *Upside*, *CFO*, and many other publications. He blogs at Meanders: The Dow Brook Blog and on his personal blog, Together, We Can. Hawes has previously worked as an analyst and consultant at Delphi Group and as a consultant and program manager at IBM. Most recently he was the lead analyst of collaboration and enterprise social software at the Gilbane Group. Clients that have benefited from his experience and insight include Accenture (Anderson Consulting), Acquia, American Express Travel, Box.net, Bristol-Myers Squibb, Broward County public schools, Citrix Systems, Defense Logistics Agency, Microsoft, NASA, NewsGator, and the United States Joint Forces Command.

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