

Why Enterprises Must Come to Grips with the Storage and Management of the Information Tsunami and How They Can Do It without Straining the Budget

The Background

In physics, there is no action without a reaction. In business, the technologies that make business progressively more able and effective correspondingly have created a counter-situation that relatively few have yet been able to deal with successfully: the ever-increasing volume of structured and unstructured information that is developed daily within their own organizations and which arrives or is available via email and fax, the Internet, and various other external sources. The variety, amount and formatting of this information is even more diverse – documents, images, graphics, web pages – virtually anything that can be recorded in any way on any media is now available for capture, storage and use.

When business records were simply a matter of paper document storage in file cabinets, information management was clumsy but straightforward. With the plethora of information – call it *content* – now available, the process in most cases is still clumsy but hardly straightforward. Content exists on various media and is developed through a variety of internal and external sources, many of them totally isolated and thus useless in the overall corporate mission.

This information management challenge has resulted in a new sector of the technology industry: Enterprise Content Management, or ECM. Most of the technology companies that sell solutions for resolving this issue have addressed the requirements of large and complex corporate entities with equally complex solutions that are heavy on the features and require serious capital outlay, both for the initial purchase and for the subsequent implementation. Think hundreds of thousands – even millions of dollars.

Reassessment

More recently, user experience and affordability issues have triggered a reassessment and stimulated new questions. It has been shown that often, the very complexity of the solutions can be a deterrent to their use in the routine conduct of business. So is all of this functionality really necessary? Can it be scaled to meet the needs of more agile, mid-size organizations and individual corporate departments? And can ECM solutions be made affordable enough, user-friendly enough and flexible enough that companies and corporate units with limited technology skills and content management requirements can justify them and make them broadly operational?

Experience has shown that the must-have activities of ECM fall into relatively straightforward categories and that these activities can function effectively in the Internet environment,

which, besides ECM software, need only a database to catalogue content (meaning the metadata), a referenceable share to store the digital content, and finally a browser to access the content repository. Such a fundamental solution, says Gartner Group, can satisfy the requirements of up to 95 percent of all enterprises.

Internet/web technology provides the opportunity for simpler, easier operations and far lower costs of acquisition and implementation – *as much as 90 percent lower*. (According to Gartner Group, many 100-seat conventional solutions still cost at least \$500,000.)

Content

The document is the single most important vehicle for the transmission of information between people, begins a paper by Xerox, The Document Company. Information carried within documents can be presented in different forms, most of which can be transposed between various media.

Text, graphics, video, audio. All can be transmitted, presented, shared and worked on as digital document files. [This web page] is a document in digital format. If you download it to a floppy it becomes a document on disc. If you print it out it becomes a hard copy document. If you scan it back into your system using OCR software, it returns to being an editable document file.

What the paper refers to is what we are now calling “content,” for purposes of management, because except for the technical and format distinctions in dealing with the individual items, it is essentially all the same. The primary forms of content that enterprises deal with today are documents produced by their own applications, either on enterprise systems or on PCs and workstations situated on the various corporate networks; documents from external sources that are input via scanner; email and fax messages; graphics, photographs and audio and video clips.

Another Xerox study underscores the importance of documents within the organization. Among the findings:

- 82 percent of respondents consider documents critical to organizational success
- 45 percent of executive's time is spent with documents
- 70 percent feel that poor process management can impact operational agility
- 97 percent do not now how much of their revenue is spent on documents
- 97 percent believe that electronic records are of key value in litigation

And a Cohasset Associates study for AIIM/ARMA revealed that:

- 15-30 percent of employees' time is spent searching for information.

...All of which lends credence to the observation of an anonymous sage that "50 percent of knowledge" is knowing where to find it!

The State of Affairs

In any midsize or large company, thousands of workers produce documents every day using the Microsoft Office suite as well as other productivity and user authoring tools, and these documents typically reside on individuals' desktops or in file servers, notes a Gartner Group analytical document:

(The documents) aren't organized and other people can't use or search them. If two or more people have access to the same document, they often inadvertently create two different versions. This content chaos has become a serious business risk. New laws and regulations require companies to deliver documents and accurate information within a short period of time. With intensifying competition, more companies also recognize that they can't afford to leave all of the value and knowledge that their workers create locked up in isolated documents scattered on desktops and servers.

These are major issues and they suggest that the need to catalog corporate content – the aggregate of its information resources – is greater than ever. Enterprise content must be available to the people who can benefit from its use, so it should reside securely in a centralized location as an aggregate of the organization's total intellectual resources.

Thus, content must be stored in a consistent manner; made accessible for viewing, distribution and modification according to precise business rules, authorizations or regulatory standards; re-stored/indexed with modifications noted so that the integrity of original versions is maintained through successive versions; and it must be managed according to a set of rules for retention and destruction. In order to achieve these objectives, organizational content must be given structure (that is, inventoried logically) and stored in the content repository, from which it can be repurposed using whatever application is appropriate.

One estimate holds that unstructured content is increasing from 65 percent to as much as 200 percent per year, depending on industry sector, and that employees currently spend up to 40 percent of their time looking for and dealing with this tsunami of information.

This situation directly impacts the consistently increasing trend/requirement within enterprises for collaboration on projects requiring documentation and a mechanism for avoiding confusion among originals and subsequent renditions.

A further, highly critical concern is the legal mandate for well-organized current and archived information by such measures as the Health Insurance Portability and Accountability Act (HIPAA), the Sarbanes-Oxley corporate accountability bill, and the 2004 European Union MiFID Directive, which aims towards common rules and definitions that prevent countries from putting in place expensive artificial barriers to easy cross-board trading – relevant virtually as much in the US as in the EU.

These measures and others confer an absolute need for information that is clear, comprehensive, authenticated and easily available, and there are consequences if such material is not maintained.

According to a recent Association for Image and Information Management (AIIM) report, a conceptual "sea of change" is required throughout business thinking, from the media-centric records/document management approach to practices that are "content" focused. According to the survey on which the report is based, nearly one third of the respondents evaluated their efforts as marginal or fair within a five-point scale, with more than two-third indicating difficulty in accessing records within the enterprise.

Content-centric records management is a revolution in more than just a conceptual context, it is revolutionary in every aspect of how records are managed: from identifying and understanding new types of records...to where records are located and how they are accessed...to dependence on technology...to higher performance standards...to new skill sets required for records and IS/IT managers...to the need for a cross functional management team...and more. (AIIM Cohasset Study)

Enterprise Content Management

ECM solutions are not and probably cannot be strictly defined, but essentially, they refer to a computerized environment that permits the creation, capture, organization, storage, retrieval, manipulation and controlled circulation of documents (content) in an electronic format. Users are enabled to create and manage content that can be searched and printed...while retaining the original look and feel, complete with text, graphics photos and color. (Arthur Gingrande, AIIM-eDoc Magazine, March-April, 2003).

Gingrande further defines several basic functions: a storage repository; a means for placing content in the repository; a means to locate and identify stored documents; and a means to retrieve and work with content that resides in the central repository.

In her book, *Managing Enterprise Content, A Unified Content Strategy* (New Riders, Berkeley, 2003), Consultant/Professor Ann Rockley describes the basic functionality as follows: *A content management system (CMS) must save content so that it can be reused. There are two parts to saving content. First the content itself is divided into elements of the appropriate size for intended reuse. Second metadata is added to the elements to define these elements for effective reuse, retrieval and tracking. However, a content management system does more than save content. The content needs to be accessible for various projects or people; archives need to be built to allow access to previous versions and to track changes over time; security is required to control access to various authors and content users. Management functionalities include access control, version control updates, archives and translations.*

The first forays into enterprise content management were designed to address the needs of large, complex organizations. Experience has shown that often, the complexity of these solutions has resulted in only limited use. Current efforts seek to advance the idea of scalable solutions that focus on the basic needs for creating, capturing, storing, retrieving, managing and distributing internal and external documents and images. Moreover, by focusing on these fundamentals, it has become possible for midsize companies as well as large enterprises to roll-out company-wide ECM solutions that encourage consistent use at affordable costs-per-seat and with relatively modest implementation costs.

The following section will review such a solution, EZContentManager, from ACOM Solutions, Inc.

EZContentManager Platform and Options

ACOM's EZContentManager (EZCM) focuses strategically on the necessary feature set required to achieve effective content management in most enterprises, whatever their size, instead of diluting core features in lieu of the pursuit of buzzword compliance that lends complexity to many high-end enterprise solutions. It was developed from the ground up around web-technology, so it does not suffer under the architecture, implementation and cost restraints associated with the traditional solutions. It employs a standards-compliant SQL database server as its central metadata repository. SQL database componentry allows the system to

leverage existing infrastructure and minimize the burden on IT infrastructure resources.

EZContentManager is comprised of the capture workstation, which enables it to receive and store content from any source in a dedicated SQL Server database; the user interface, a Java-based browser environment that is intuitive to use and which operates through on-screen menus and wizards; and the Delegated Administration Module, which allows the administrator to set up users and assign space according to their job functions.

One optional module, the permission-based workflow engine, enables users to create, modify, validate, and publish content directly from the web browser. It supports document submission, review, approval, routing and task notification, and allows visual presentation of processes and tasks.

Once files become a part of the repository, they can participate in workflows designed to manage the flow of information within your organization. EZContentManager's Workflow component provides business users with an intuitive environment for defining business and organizational processes. Coordinating processes through EZContentManager's workflow component provides reporting capabilities that allow managers to evaluate process effectiveness.

EZContentManager Functionality

Intuitive interface: One of the chief obstacles to ready acceptance of traditional content management solutions has been their complexity. EZContentManager addresses this problem with an intuitive, Java-based user interface that essentially guides/coaches the user in how to get the needed information as well as how to work with it.

Document creation: Drag-and-drop document template design software enables easy creation of business document templates that merge with financial/ERP data to create finished documents that can be viewed, printed, archived or distributed electronically.

Document capture: Digital content can be captured as it is produced by subject matter experts using traditional authoring tools like Microsoft Office. Alternatively paper documents can be scanned into the system, with image file support for OCR, ICR and forms processing.

Distribution: Files managed by EZContentManager can easily be distributed directly from the EZContentManager interface as a printed copy or through integrated eMail and

eFax systems to users both internal and external to your enterprise network.

Storage and Indexing: The integrity of managed files is of paramount concern within the EZContentManager environment. Thus, electronic files are stored in their native format within a common file system, eliminating redundancy. Managed files are accessible to users through EZContentManager and can be checked-out and versioned while retaining the benefit of being indexed and managed throughout the file's lifecycle. Storing files in a common repository ensures a timely transfer of information for informed decision making.

Search and Retrieve: Documents can be accessed and retrieved directly on your desktop for viewing, modification, or distribution as necessary throughout the file's lifecycle. EZContentManager provides search tools to access files. Files flagged for a full-text indexing can be retrieved by searching the content of the files through an intuitive full-text search interface. Alternatively, files may be accessed by searching the metadata fields or "indices" in a traditional query by example search metaphor. Users performing frequent, repetitive searches will configure filters that will "filter out" files that do not meet specific, saved search criteria.

Retention: Achieving regulatory compliance relies on having an effective retention schedule for organizational files in addition to an effective and flexible security paradigm. EZContentManager allows you to customize archive and retention schedules for selected files and folders facilitating compliance with your industry specific and other governmental regulations like Sarbanes-Oxley and HIPPA.

Security

Assets managed within the EZContentManager environment are secured using a comprehensive approach to standards-based security.

Authentication: Users are authenticated with encrypted passwords to gain access to the system.

SSL Encryption: SSL Encryption can be achieved using your organizations Website Certificate. This level of security ensures secure delivery of necessary communication between EZContentManager components and the user's browser.

Non-Repudiation: EZContentManager may be further configured to support individually assigned certificates; enabling users to digitally sign documents as part of a

defined workflow process providing non-repudiation of origin. Audit logs record every interaction with managed files and can further provide non-repudiation of receipt proactively addressing growing compliance and regulatory.

Authorization: An inherited rights security scheme may be employed by administrators to control various levels of access to files and folders. Security controls may be assigned per user or to a group of users.

Audit Tracking: Audit logs are employed to track the evolution of documents as well as ensure the integrity of the content managed within the EZContentManager environment. These audit logs are vital when demonstrating regulatory compliance or participating in some types of litigation.

Delegated Management Roles: Day to day repository administration can be delegated to users that are tasked with the routine growth and use of the information within the system while other more advanced management functions can be retained by technical staff.

Benefits at a Glance

- Document sharing and versioning; captures isolated employee content; enables organic knowledge accumulation; enhances collaboration.
- Easy-to use; requires little or no training
- Full-text search capability; search by Metadata or indices
- Universal document availability; access/security options
- Document storage in *native* format
- Professional services for streamlining business processes
- Low cost
- Concurrent user licensing
- Rapid ROI

Typical Applications

It is difficult to identify any business activity that does not benefit from the aggressive capture of internal information and other content that arrives from outside sources. Here are just a few, all characterized by their paper-intensive nature:

Invoices to Receivables: Invoices generated by the accounting system are easy to track, retrieve and to resend, if necessary. Establishing an invoice life cycle brings a new level of organization to accounts receivable, reducing days sales outstanding (DSO) and accelerating cash flow.

Customer service: When customers call in, they hate to be put on hold. Enterprise content management solutions make

it easy for customer response personnel to deal with billing problems and other questions in real time, with real, up-to-date information, that can be distributed instantaneously via email or fax. Fast, responsive customer service is essential to remaining competitive in today's business environment.

Centralized archiving: Using an enterprise content management solution, virtually any document prepared at any location within the enterprise can be captured, stored and referenced easily by any authorized individual. Currently, much of this information continues to reside unknown to other employees, often on remote servers that are situated in other departments and locations.

Purchasing to Payables: Whether copies of requisitions, invoices, approval copies, purchase orders, shipping/receiving notices or any other document related to procurement, enterprise content management solutions keep them together, indexed for easy access, and instantly available for update or problem resolutions. Purchasing naturally feeds into accounts payable, facilitating the flow of invoices, helping to systematize the payment process and simplifying responses to vendor inquiries.

Supply chain: Like purchasing, supply chain processes involve a stream of documentation concerning shipments, carriers, warehousing, inventory levels and delivery. Enterprise content management keeps them organized so that information is available instantly, preventing problems or solving them quickly if anything goes wrong.

Collaboration: Business documents such as engineering drawings, proposals, reports, legal papers, prospectuses (and many more) usually rely on the input of multiple individuals. Features such as automated version control help maintain order and continuity as versions evolve.

Compliance: The requirements of regulatory oversight agencies are increasingly complex and detailed, often calling for the production of various types of documentation on short notice. Enterprise content management solutions enable business to catalog their fiscal and other compliance information so that it can be produced quickly and to build in security and audit information that satisfied strict standards of proof.

Sales: Whether simple sales orders or more complex activities like contract development, review and award, the ability to archive all relevant material centrally, and do access it for analysis, modification and confirmation can provide a new level of order into what is often a hectic, pressure-driven process.

Implementing EZContentManager

Affordability and access are paramount considerations in the EZContentManager design scheme. On the hardware side, these factors are represented in the selection of the relatively ubiquitous, broadly compatible, server class Pentium platform, 3.0 GHz or better, in either single or double processor configuration. It requires one- to two gigabytes of random access memory and a minimum hard disk availability of 100 gigabytes.

Software requirements include Windows 2000 SP4 Server or 2003 Server SP1, either Standard or Enterprise Edition; Microsoft SQL Server 2000 SP3A; and optionally, an SSL Certificate for secure access.

Setting up the system is relatively easy and within the expertise range of many mid-size companies and virtually all large enterprises. Nevertheless, professional services support is readily available. In many if not most cases new ground is being broken, with in-place methods often in need of modification and new methods sometimes needed to replace them. Content management specialists can identify required changes quickly, based on a wealth of experience in dealing with back office processes. With their help, your content management solution will be implemented, *accepted* by users (critical! critical!), and in production on schedule.

Enterprises content management solutions can be implemented as narrowly or as broadly as you wish. For example, one firm might wish to capture everything. Another might want to implement the system for the express completion a single activity, such as sales. Yet another might wish to apply a solution to individual projects to track status from beginning to end and to have authenticated information on every activity performed in the process.

Typically, companies describe their implementation strategies in six stages:

- 1) Analysis/Problem Definition
- 2) Design (solution selection, new processes development, metadata definition, workflow)
- 3) Build/Implement/Install (bring up the software, set-up the network, write code)
- 4) Rollout
- 5) Training
- 6) Launch

You can be quite general or very specific with respect to the information you wish to capture, hold, access, review and modify. The following are a few of the considerations that

are common to most enterprise content implementations:

- Types of documents to capture
- Metadata for each document type
- Sources of the documents
- Quantity of documents produced and/or scanned
- Frequency of capture for each document
- Longevity requirements for each document (records management)
- Workflow requirements for each document
- Visibility restrictions for each document
 - Group/departmental division
 - Number and types of users

EZContentManager ROI

Calculating return on investment is always elusive because it often fails to take in the many obscure contributors to cost and thus, the projected savings and/or operational improvements that serve as the rationale for investing in new solutions.

Average cost per employee = \$0.90-\$1.90/minute
Time spent searching for information = 15-30%, or one hour per 8-hr workday
400 employees @ \$0.90/min x 60/min = \$21,600/day lost in searching
240 working day/year = \$5,184,000 lost annually
Save 15 minutes/day/user (25%) \$1,296,000 recovered

Nevertheless, there are certain obvious contributors and by identifying these it is relatively easy to determine that as always, an investment in technology solutions pays dividends that far exceed its cost. As might be deduced easily from the Xerox study cited above, the primary cost factor is personnel time. This relates time devoted to such activities as writing/editing publications, searching for content (written/graphics), proofing and quality assurance, version/history tracking, redlining, monitoring workflow, converting data for publishing in/on various media, client and technician support, organization content for foreign language localization and more.

Along with personnel savings there are the other cost culprits that offer persuasive rationales for the implementation of any back office software: paper costs, including copying, printing, and waste; reduced postal and courier expense; inventory space and management. Invoices can be turned around faster,

reducing late payment charges; outbound invoices can be controlled better, reducing days sales outstanding and improving cash flow; and overall, improved efficiency means employees are more productive – often, with less effort.

Case in Point

In her book, *Managing Enterprise Content...*, Professor Rockley advocates establishing clear-cut goals, and pursuing an ECM project according to if and how it meets corporate goals.

For illustration purposes, she establishes goals for a hypothetical new medical product introduction to include:

- Shorter time-to-market
- Reduced cost for product content development
- Improved accuracy and quality of content
- Reduced manufacturing/production defects

She qualifies these goals in the following manner:

- Reducing time to complete a submission by two months
- Being able to assemble all appropriate marketing, labeling and support information within one week after approval
- Reducing cost of product content development by at least 25 percent
- Integration of content development, maintenance and delivery processes associated with marketing, patient and physician support information and labeling
- Ensuring that content is consistent and accurate everywhere it appears
- Reducing defects to less than .01 percent
- Reducing the time to complete a submission by two months

The example assumes that the medical products company loses \$250,000 per day for every day that their new product is delayed in getting to market, and that a submission takes three content creators seven years to create. Content creation is 20 percent of the project and 25 percent of it is reusable – five percent of the total project cost, with salaries calculated at \$75,000 per year.

In the calculation, reusing 25 percent of the total content yields a saving of 4.2 months (75,000/12 x 4.2 x 3), for *hard savings* of \$78,750.00. Calculating the *lost opportunity cost* (4.3 weeks/month x 5 = 21.5 weeks or 90.3 days x \$250,000/day = \$22,575,000) illustrates emphatically how proper storage and management of content can impact revenues and profits even on a project-by-project basis.

Obviously, ROI will vary according to the mission of the ECM system, but these two examples illustrate the potential in a dramatic fashion.

Risk avoidance and mitigation

To this point, in this paper, we have dealt only with Return on Investment, as do most such documents. There is another ROI that is roiling psyches in corporate America which also provides a compelling argument for more effective content storage, management and access: the *Risk of Incarceration*. Executives at every level of business are now on-notice under statutory and regulatory measures (e.g., HIPAA, SOX, MiFID) that they will be held accountable for improper business practices and if suspect, they will be required to disprove culpability.

In the event of lawsuits, the ready availability of clear, verifiable records streamlines defense efforts. In the event of a disaster, organized electronic records facilitate the restoration of critical corporate information and rapid return to business. EZContentManager has provisions for automatic authentication as well as non-deniability.

Conclusion

The profusion of information that organizations now must deal with is immense and still growing, bringing with it the absolute requirement for a new approach to acquiring, storing, repurposing, and distributing information; in short, converting information to organizational knowledge. Traditional methods based around a paper economy are no longer adequate, and large scale efforts for dealing with content acquisition, workflow and distribution are expensive, complex and often user-hostile.

ACOM's innovative, web-based enterprise content management solution represents a new generation of content management software that works for firms of virtually any size. It is entirely Internet-based and scalable so that companies can implement badly needed enterprise content management initiatives quickly and for as little as 10 percent of the cost of predecessor solutions. Once implemented, it has the capacity to grow with their increasing requirements.

EZContentManager's intuitive interface makes accessing, using and distributing digital information easy, encouraging its ready acceptance throughout the enterprise and leading to greater employee productivity, more efficient work flow and more effective utilization of all of the information resources available within and outside the enterprise.

EZContentManager answers the obvious corporate need for an affordable, easy-to-implement, Enterprise Content Management solution.

Find out how ACOM's EZContentManager solution can help your organization cut costs, automate your processes, and improve your efficiency:

- Request free info packet: <http://www.acom.com/ezcmfowp>
- Watch a self-guided online product demonstration: <http://www.acom.com/ezcmdemowp>
- Read more about EZContentManager online: <http://www.acom.com/ezcmwp>