

THE PRINCIPLES OF DOCUMENT MANAGEMENT

Awash in information, most organizations can benefit from a comprehensive document management solution.

Executive Summary

Organizations are struggling with how to cost-effectively handle growing volumes of information, namely records and documents. Much of this information originates in the digital realm, whether in the form of Microsoft Word documents, Adobe Acrobat files or e-mail messages. With so many electronic files piling up, it can be difficult to keep track of them.

Most organizations must also deal with paper: contracts, photographs, written reports, etc. These are often stored in boxes and file cabinets. If someone has to find one of those documents – months or years after it was created – it can take hours, if not days – assuming it can be found at all. Ensuring that the document produced is the most recent version can add even more time and effort to the process.

Document management – also known as electronic document management (EDM) – systems help organizations tame their mountains of information. With a well-conceived document management solution, organizations can streamline (and in some instances automate) the process of capturing, storing, retrieving, tracking and destroying documents. Moreover, EDM can improve worker productivity and help organizations comply with regulatory privacy and disclosure laws.

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The Need for Document Management

Years into the information revolution, too often we still rely on manual workflows that generate paper-based artifacts. Such antiquated methods are inefficient, error-prone and tedious, and lack information governance. This results in higher costs and heightened risk for practically any organization that generates documents, especially those in industries that are heavily regulated.

At the same time, we are experiencing an explosion in digital information. Combined with paper-based documents – all of which must be processed and stored – the annual compound growth rate of information generated can exceed 30 percent. Approximately 40 percent of the volume includes Microsoft Office documents, portable document format (PDF) files and the like, which are ready-made for storing in today's EDM systems.

The information explosion has intensified the challenge that many organizations have been dealing with for years: how to manage documents efficiently and effectively. Over time, that management challenge has been exacerbated by:

- Antiquated equipment and processes
- Resource limitations
- Cost containment efforts
- Information classification, ownership and retention issues
- Information privacy, security and litigation concerns
- Data availability concerns
- A rapidly evolving workforce that includes global and increasingly mobile workers

Today, many organizations don't know how to start managing their documents. Therefore, they put it off. Furthermore, some are extremely cost conscious, and some prefer to allocate their dollars to other projects.

By putting off the transition to an EDM solution, they become further bogged down by their old-school processes. They also make it more difficult for themselves to identify who in the organization owns the disparate information and who is accountable and responsible for its lifecycle.

Without a subject-matter expert on records and document management, there is a tendency to adopt a "keep all" mentality. This may seem prudent (albeit cumbersome). Yet, without the benefit of an EDM system, holding on to every document created can lead to unacceptable lapses in information privacy and security.

Depending on the type of organization and the variety of documents it generates, there can be numerous regulations governing how those documents must be safeguarded. For example, documents that include protected health

information, personally identifiable information (PII) or credit card data must be tracked and managed appropriately.

A document management solution can help control who sees certain documents and what they're allowed to do with them. This is especially important for enterprises that have workers who access and carry documents on mobile devices, or systems that interface with those of customers, suppliers, vendors and others.

Document management is often part of a larger records and information management (RIM) program guided by an information governance framework. The framework represents a common set of principles that describe how documents, records and related information should be maintained.

It might include a document retention schedule, hammered out among the organization, IT and legal consultants, that dictates how long different classes of electronic documents must be stored. Ultimately, a well-integrated EDM solution incorporates and reflects the business processes an organization adopts to govern its record-keeping.

The document management system and related technologies, such as document capture software (for converting paper into electronic files) and e-discovery (for easily finding and sharing electronic documents with third parties), are the IT manifestation of a governance framework. Once an organization has determined that it must get a better handle on its documents, doing so electronically offers tremendous benefits.

Document Management Facts and Statistics

A study by the professional services firm PricewaterhouseCoopers reveals the following:

- 70% of "white-collar" worker time is spent processing paper documents.
- 15% of all paper documents are misfiled or misplaced.
- 30% of documents used daily contain obsolete information.
- 40% of worker's time is spent searching for misfiled, misplaced or lost documents.
- Paper grows at 25% per year in the typical organization, meaning that it will double in just over three year's time.
- Paper-based processes are hard to validate for compliance to governmental regulation.
- Most businesses do not have a backup for their paper-based documents, and would be out of business in the event of a natural or other disaster.

Source: PricewaterhouseCoopers

The Benefits of Document Management

If an organization is committed to cutting costs, automating business processes and digitizing its document workflow, a document management system is a must. EDM can drive down operating costs in a number of ways. The right solution can reduce or eliminate the resources (time, human resources and money) required for:

- Mailroom processing
- Accounts payable processing
- Offsite storage
- Couriers
- Manual records cleaning
- Manual records classification and categorization
- Manual records searching
- Document shredding
- Bulk document capture
- Fireproof cabinets
- Office supplies (paper, ink, folders)
- Training and awareness of antiquated processes

EDM also accounts for a litany of indirect savings, such as:

- Risk mitigation (fewer lost paper records)
- Fewer required compliance, information security, and clerical staff
- Time savings on the discovery process for lawsuits or Freedom of Information Act (FOIA) requests
- Streamlined workflows
- Longer life spans for printers, scanners, copiers, fax machines and shredders
- Enhanced information sharing between IT systems
- Increased productivity (for example, in the search for and retrieval of documents)
- Cost-effective business continuity and disaster recovery planning through centralized access to important documents

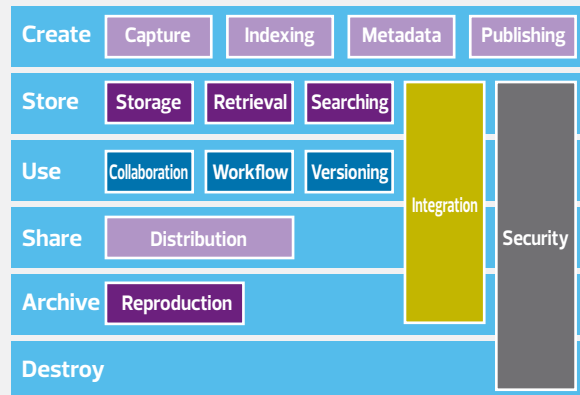
Organizations that properly implement EDM also receive indirect benefits in terms of customer and employee satisfaction, enhanced flexibility and a faster time to market.

The Components of Effective Document Management

All EDM systems share several basic components, such as metadata, integration, capture, indexing, storage, retrieval, distribution, security, workflow, collaboration, versioning, searching, publishing and reproduction. These align with the six phases of an information lifecycle: create, store, use, share, archive and destroy.

For the most part, it's easy to map document management components to an information lifecycle. For example,

Aligning the Information Lifecycle with Document Management System Components



document scanning and capture take place during creation, with an emphasis on converting paper documents into digital form. Digital-native documents also are published, indexed and tagged with metadata at this stage.

Once documents have been created, they're moved to an EDM storage system, which integrates with search and retrieval functionality so that workers can find what they need and move the stored documents into the various use components (whether collaborating on a document, ushering it through a workflow or comparing versions).

An EDM solution's integration and security modules span multiple components. They provide an underlying platform upon which organizations can build secure document workflows.

Digging a little deeper into the components, organizations will find technologies that further enable EDM functionality. For example, the capture module normally supports scanning and imaging, which leverage high-performance scanner technologies. Capture also frequently involves document import and conversion technologies, such as optical character recognition (OCR), for transferring information from one format to another and making it usable throughout the EDM system.

Similarly, the indexing phase (during which documents are made retrievable) and the subsequent retrieval phase can be broken down by underlying functionality, such as full-text indexing, template-field searches, keyword categorization/classification and folder/file structure searches.

Full-text indexing builds on OCR to make an entire document searchable. (However, enterprises may not want this level of functionality in their EDM solution because it utilizes a large amount of storage and processing power.)

Template-field searches confine indexing to specific document fields that users populate themselves. Keyword categorization and classification leverages organization-defined keywords to allow indexing and search capability.

If implemented correctly, through process automation or programmed drop-down fields, template-field indexing and keyword categorization and classification can be very useful. Ultimately, indexing and retrieval can be implemented in various ways.

Template-field, full-text, keyword and folder/file structure solutions all come with their own distinct advantages and challenges. For example:

- Template-field indexing and retrieval adds structure and rigidity. That makes the process less flexible, but it also allows for the addition of an established convention for indexing content.
- A full-text approach is less draconian than others, but it is more resource intensive.
- Keyword-based indexing and retrieval has seen a surge in popularity with that of Google. However, an organization would need to remove any esoteric language used by different business units or associate it with a proper data dictionary.
- A folder/file structure embraces the commonality of a file share, with its flexibility. However, this deployment can be labor intensive for retrieval efforts, especially for large organizations.

Once an indexing and retrieval methodology has been chosen, the next step is to determine the methods through which content will be shared.

Distribution options for an EDM system vary among solutions and solution providers, but some of the most common options include print, fax, e-mail, intranet, extranet, Internet, digital "briefcases" and portable volumes. In EDM, a briefcase is a virtual container that users can drag documents or folders into for transfer to a portable computer or remote workstation. A portable volume is a bigger briefcase, often used to keep shared EDM databases up to date among multiple offices.

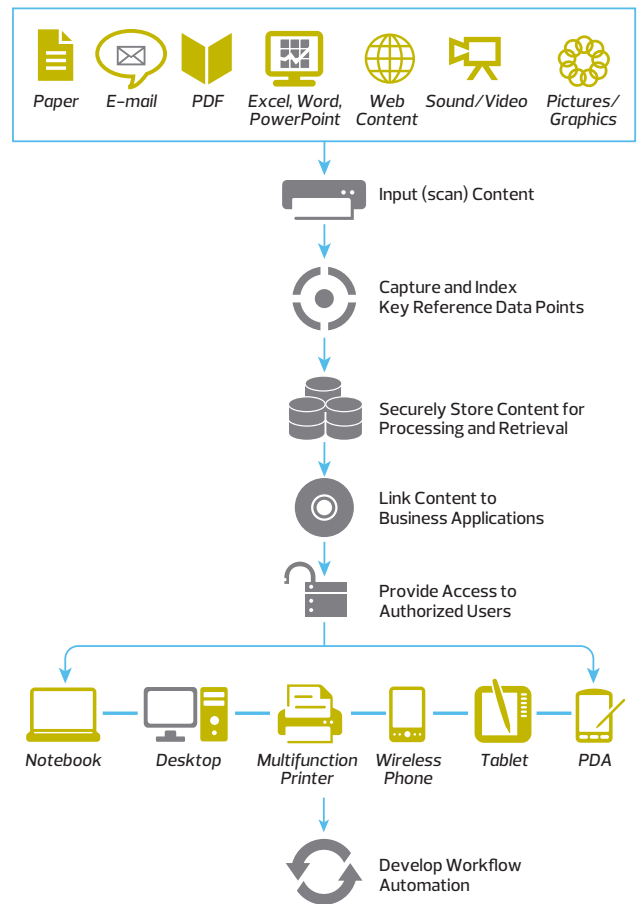
The most prevalent distribution methods – print, fax and e-mail – are tied to most organizations' technology infrastructures and are usually in place before an EDM solution is deployed. In those situations, as well as others in which network-based distribution (intranet, extranet and Internet) is required, the integration component of EDM must be well thought out.

Will the EDM be able to interface with the enterprise e-mail system (especially if it's now cloud-based)? Will it be able to talk to the organization's printers to keep track of who prints what?

Keep in mind, an enterprise does not have to implement or use all components of an EDM solution if it doesn't need them. Most systems are broken down into modules (such as document imaging and workflow) and various other extensions (such as compliance and e-discovery).

Document Management System Workflow

The typical EDM system contains input, processing components and output devices.



Hardware and Software: What's Needed?

Creating a smart document management environment requires engaging in procuring, configuring and administering the following hardware components: networked document scanners, multifunction fax/scanner/copier devices, an IP network and external hard drives for backups to local storage.

Automating the management of paper documents starts with converting them to a digital format. This can be done by running them through an input device such as a document scanner, a digital sender or even a multifunction printer (MFP). When choosing input devices, include the types and quantities of documents being scanned and who needs to access information once it is digitized. This will determine how the image is indexed and stored for retrieval.

For scanning a large number of paper documents, consider a production-level scanner. These scanners have the highest speeds and duty cycles and are designed to handle large

volumes of paper. Network scanners and MFPs are ideal for organizations wanting to automate the handling of paper within one or more departments.

To fully benefit from document management technology, the ideal strategy includes capturing every document at its point of entry. This concept, known as "distributed scanning," is becoming more popular as scanner prices decline. Positioning network and/or desktop scanners at points of entry allows for migration toward a "paperless" environment and realization of a faster return on investment (ROI).

Outages and downtime happen. To deal with that inevitability, organizations should have local external hard drives for their hardware devices. Sending copies to a local hard drive, provides gains in built-in redundancy as well as an audit mechanism for tracking the use of these devices. Hard drives are a great tool; they are cost-effective, easy to configure and provide a way to use devices when network challenges arise.

Maximize ROI by coupling these hardware assets with document management software solutions. An IT team looking to achieve an integrated information architecture throughout the enterprise will need to use electronic content management (ECM), document capture and workflow software. To leverage these solutions, it will have to use the latest technology stack. ECM solutions now integrate the latest operating system, database, workflow and virtualization technologies.

Such integration will allow for optimal processing through load balancing, secure information processing and multithreaded computations, reducing capital expenditures on hardware and storage. Furthermore, by leveraging an integrated technology platform stack, such as Microsoft's server environment, organizations can be assured of scalable compatibility. After deploying the base software environment, an enterprise can load EDM, document capture and workflow software to create a secure end-to-end workflow.

Document Capture Solutions

Implementing a document capture solution is the first step toward deploying a document system. Document capture solutions are designed to automate workflow by eliminating the need to manually scan hard-copy documents into a server. Uses for document capture include digitizing electronic health records (EHRs); as well as insurance claims, financial securities records, and mortgage and commercial loan processing.

In fact, there is no shortage of paper-centric processes that could benefit from automation. That's why an organization like the Association for Information and Image Management has come up with a model process to ensure it's done correctly. AIIM breaks down the centralized document capture process into tasks: sorting; preparing; scanning; image enhancement; extracting and indexing; and storing.

The sorting and preparing tasks include arranging documents into "buckets" predicated on naming conventions and information processing. An insurance company, for example, might sort documents by policy.

The scanning task employs automatic image enhancement technology to ensure a quality product. With organizations generating hard-copy documents that include logos, images, graphics, bar codes, QR codes and other esoteric descriptors, a document capture system should incorporate a range of capabilities. Among them should be support for e-mail, electronic forms, optical character recognition, intelligent character recognition, barcode recognition and optical mark recognition.

The task of extracting and indexing the information found in each document comes next; that includes cataloging the data for future search and retrieval as well as adding metadata. Certain organizations may want a solution with auto-classification and categorization technologies for compliance, retention, security and processing purposes.

Once extraction and indexing are complete, a PDF file is stored on a central server for consumption by the integrated EDM

Microsoft's SharePoint for Document Management

It makes sense to consider ubiquitous SharePoint as a document management solution. The platform is gaining traction as an electronic document management (EDM) system among midsize businesses, based on its look, feel and versatility. Unlike its competitors, SharePoint may be used as an intranet, extranet, EDM, electronic content management (ECM) or workflow solution.

But like other software platforms, SharePoint also has its weaknesses. Although extremely versatile and well-integrated with other Microsoft products (namely Office), its lack of built-in document capture and e-discovery functionality means that organizations must invest in a considerable amount of custom development to make SharePoint into a full-blown EDM solution.

That said, Microsoft has added records management, enhanced security and additional classification and categorization modules to SharePoint over the years. Some observers assume built-in document capture and e-discovery modules will come next.

In the meantime, many organizations leverage SharePoint in tandem with another document management solution, such as EMC's Documentum or the Marex Group's FileBound software. These EDM solutions deliver functionality such as capture, indexing, storage, retrieval, security, workflow, versioning and more, while using SharePoint as an information portal or a front-end interface.

system. Enterprises with multiple geographic locations will have to incorporate a decentralized system architecture that stores data locally until it can be uploaded to the central server. This process, called store-and-forward, can be performed nightly, using batch processing, or on a periodic basis, using database journaling.

Beyond those methods, the prime solution for organizations with numerous far-flung locations is real-time data synchronization. Although possibly not cost-effective, synchronization allows document sharing to be instantaneous, possibly negating the need to incorporate business continuity and disaster recovery solutions into document capture systems.

As organizations seek cost efficiencies, near-time processing and optimized business processes, they would be wise to consider incorporating integrated peripherals into their document capture solutions. The hardware to look at includes multifunction printers, networked scanners and networked fax machines. By leveraging these tools, an enterprise can move closer to a paperless office environment.

Additional Document Management Solutions

Electronic document management systems come in various configurations. Whether an organization is large or small, it will be able to find a solution that fits its needs. Large organizations need comprehensive EDM solutions that integrate with document capture solutions and other systems, including enterprise resource planning (ERP), business intelligence, customer relationship management (CRM), and workflow systems.

The document management solution also may have to work with information portals and electronic commerce systems. Furthermore, contemporary EDM systems need to integrate with the business ecosystem of an organization, tying into its partners, vendors, customers and related regulatory bodies. To accomplish all this, a large organization needs to pick the right solution and implement it correctly.

Not all EDM solutions are built the same, but they all should offer the basic components: metadata, integration, capture, indexing, storage, retrieval, distribution, security, workflow, collaboration, versioning, searching, publishing and reproduction.

An EDM system with these features packaged together will deliver the following benefits:

Business process optimization, including:

- Simplification of capture, scanning and indexing
- Seamless document capture and conversion to structured data
- Intuitive document search, store and retrieval capabilities
- Improved document workflow and retention management

- Customized templates to track and record information
- A centralized workspace for a remote and mobile workforce
- Intuitive, flexible interfaces out of the box
- Integration with legacy software
- Consistent document formats

Enhanced information privacy and security, including:

- Information rights management (IRM) and role-based access controls (RBAC)
- Automated tracking and reporting via logging
- Data loss prevention (DLP) through integrated IRM, RBAC and user tracking

Reduced risk posture, thanks to:

- Packaged e-discovery capabilities
- Categorization and classification support for regulated or sensitive data
- Centralized storage for efficient business continuity and disaster recovery implementation

Improved flexibility, stemming from:

- Seamless integration with virtualized computing environments
- Unlimited user licensing
- Applications that may be deployed onsite, on-demand (software as a service), or as an appliance

The goal of any organization engaged in workflow automation and process improvement is return on investment. It will see a favorable ROI by incorporating EDM and document capture systems effectively.

EDM systems can increase revenues through faster time to market; better responsiveness to customer, partner and market needs; and increased customer and employee satisfaction. These systems also can provide the basis for an end-to-end process that will lower an enterprise's costs, risk posture and rigidity.

When it comes to small organizations exploring EDM, very few have an established record and information management program. That doesn't mean they don't have document management needs. Theirs are simply not on the same scale as those of a large enterprise.

EDM solutions for small- and medium-sized businesses (SMBs) need to ease the paper burden on individual departments in an economical way. Smaller organizations can accomplish this by automating document capture, indexing, routing and retrieval tasks through existing capital investments. An organization can see a solid ROI for its EDM capital outlay by leveraging existing multifunction printers and scanners.

EDM solutions for SMBs will also deliver the following benefits:

Business process optimization, including:

- Intuitive, flexible interfaces out of the box
- Assimilated back-office workflows
- Multitasking capabilities for staff and equipment
- User-friendly tracking and task reminders
- Synthesis with clients, suppliers and partners
- Integration with known software offerings
- Consistent document formats

Enhanced information privacy and security, including:

- User accounts with specific roles and privileges
- Automated tracking and reporting
- Data breach prevention with enhanced digital processing

Reduced risk posture, thanks to:

- Consistent formats and workflow data
- Centralized storage for efficient file retention

Information Governance Frameworks

As organizations look to leverage information management processes and tools, including EDM solutions, information governance frameworks become more important.

Information governance is an enterprisewide framework made up of people and processes and designed for the preservation, availability, security, confidentiality and usability of information – including documents and records.

There are several frameworks currently available to the industry, including ARMA International's Generally Accepted Recordkeeping Principles (GARP), the Electronic Discovery Reference Model (EDRM), the Information Governance Reference Model (IGRM) and the open-source Method for an Integrated Knowledge Environment (MIKE2.0).

MIKE2.0 is unique among these options in that it was created by a group of collaborators via open methodology, while the others were derived from specific groups. But each framework has its pluses and minuses.

The GARP framework includes a maturity model ideal for gauging the growth and maturation of a records and information management program, including processes, procedures and best practices. However, there are challenges to fitting technology solutions such as EDM or e-discovery into the GARP model because it has a strategic focus.

The EDRM model includes IT interests in its overall framework but omits stakeholder buy-in from the program itself. IGRM, which is related to but separate from EDRM, is tactically focused. The MIKE2.0 framework incorporates both business and technology interests, but perhaps due to its open-source nature, the framework lacks direction and consistency.

In the end, the framework that an organization adopts will depend on which best fits its situation. For some enterprises, a hybrid framework may work best.

Improved flexibility, stemming from:

- Seamless integration with computing environments
- Scalable user licensing
- Flexible deployment models, including onsite, on-demand (software as a service) or as an appliance

By using integrated systems, an organization can relieve the causes of document management fatigue, which include human and capital resource limitations; pressure for cost containment; antiquated equipment and processes; data classification, ownership and retention concerns; data privacy and security requirements; data availability needs; and a rapidly evolving, mobile workforce.

Document management fatigue is the result of exponential data growth. The explosion of digital and paper-based information, which must still be processed and stored within an organization, will continue to be a substantial challenge. Therefore, it needs to implement comprehensive solutions such as EDM and document capture systems.

EDM and an E-Discovery Strategy

As EDM solutions are deployed to replace file shares, it is important to assimilate such an environment into an organization's e-discovery strategy in order to reduce risk posture. E-discovery is a process by which certain parties (law firms, regulators and corporations, for example) find and share electronic information in large e-mail or document archives, then export it in a standard format, such as the Electronic Discovery Reference Model (EDRM), for use in other applications.

An organization can have one without the other. However, as EDM platforms embrace a burgeoning amount of content that could be subject to e-discovery requirements, it makes sense to integrate EDM and e-discovery. As such, more EDM vendors are introducing e-discovery modules for their products.

Enterprises should address the topic of e-discovery when they perform their EDM needs analysis. In the analysis, there should be a section on risk that addresses the organization's current posture, its risk tolerance, and any regulatory compliance or litigation protection requirements it must meet.

When incorporating e-discovery into an EDM solution, it is important to plan for growth and process optimization in the event that the organization expands or changes. Organizations should assimilate their EDM content into their e-discovery strategy in an iterative manner by leveraging, for example, concepts of the Scrum Agile Project Manager Methodology.

By incorporating EDM content into an e-discovery strategy, the enterprise's stakeholders will have time to process the changes, while also hedging against the risk of using new tools, technology and processes.

CDW: A Document Management Partner That Gets IT

We have done the research and built a comprehensive lineup of tested, best-of-breed solutions to address unique document management challenges at any price point.

CDW's partners offer cutting-edge software solutions, such as EMC Documentum and ApplicationXtender, the Marex Group's FileBound and Informa Software's ImageQuest for midsize to large organizations. CDW also offers Adobe LifeCycle Enterprise Suite. On the hardware side, CDW has partnered with Buffalo, Canon, Cisco, EMC, Fujitsu, HP, IBM, Iomega, Kodak, Lenovo, Seagate and Xerox to offer printers, scanners, servers and storage solutions suitable for all EDM needs.

A CDW account manager and a team of document management solution architects will help an organization evaluate its current situation, document management objectives and budget. Our document management specialists then perform assessments of the existing workflow in order to

design, price and propose an EDM solution tailored to the way the enterprise operates.

Whether your objective is to eliminate a few filing cabinets in a single department or create sophisticated workflows to electronically route documents throughout the organization, we are here to help. Our comprehensive approach includes:

- An initial "discovery call" to understand your objectives, requirements and budget
- Assessments and workflow analysis engagements
- Solution design
- Vendor evaluation and recommendations
- Product demonstrations
- Detailed price proposals
- Proofs of concept/product evaluations
- Solution implementation, training and ongoing support

To learn more about CDW's document management solutions, contact your CDW account manager, call 800.800.4239 or visit CDW.com/docmanagement.



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