Transitioning **Vision** to **Digital** Reality

Process Improvement Based Technologies

Performance Improvement

PROCESS OPTIMIZATION EXPERTS
Providing BPM & ECM CONSULTING SERVICES
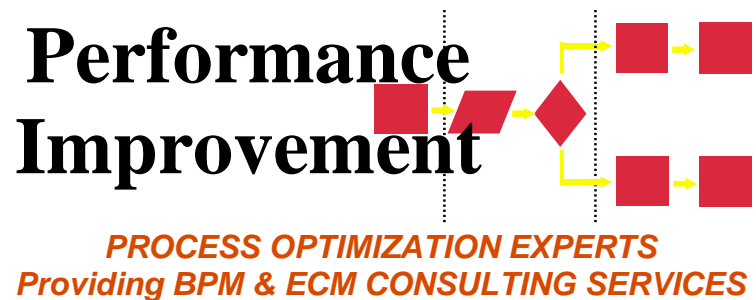
Abstract
This white paper describes how Business Process Automation relies on two technology groups to automate the processes, **Enterprise Content Management** and **Business Process Management.**

Process Improvement Based Technologies

Business Process Automation relies on two technology groups to automate the processes, **Enterprise Content Management** and **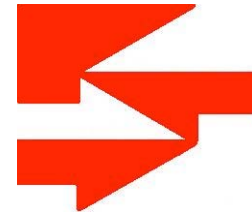Business Process Management.** *Performance Improvement has a through understanding of both of these technology groups.* We help businesses and government in identifying the most appropriate group needed to automate process-centric change based on process improvement initiative. The following defines each of these technology groups for better understanding of their evolution and core functionality:

1. Enterprise Content Management (ECM)
2. Business Process Management (BPM)

Enterprise Content Management (ECM)

AIIM defines Enterprise Content Management (ECM) as the technologies used to capture, manage, store, preserve, and deliver content and documents related to organizational processes. ECM tools and strategies allow the management of an organization's unstructured information, wherever that information exists. Source: AIIM

The ECM market is an evolution of Document Imaging. Document Imaging began as a technology that could digitize paper documents, index them, store them on optical disk, where they could be queried by an end-user and viewed on a computer monitor. The next phase in this market was the creation of Computer Output to Laser Disk/Electronic Reports Management (COLD/ERM). Computer reports were already in digital format therefore these reports could be automatically captured, indexed and written to optical disk. This same scenario fit the documents that were created by office automation software, e.g., word processing, spreadsheets, etc. These documents are digital, as well, allowing them to be captured as electronic documents and archived to a document imaging system, eliminating the need to scan them. However, automatically indexing these documents, beyond the standard metadata that is captured when they are created or updated, is not as automated as indexing a computer report. Managing the documents created by office automation software is often called Electronic Document Management (EDM) one of the key features of EDM is the library functionality that is associated with these documents.
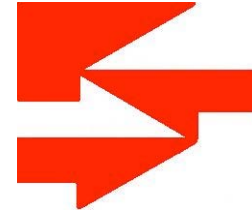
As COLD/ERM and EDM were evolving Document Imaging was being broken into components that could be integrated to optimize the usage of a Document Imaging System. The components of the DI system were Capture, the digitization and indexing of the documents, Viewing, the ability to view multiple document types and annotate them, and Archive, and the capability to store images to different media to optimize retrieval.

The Document Capture module became one of the most innovative, today's ECM products have the capability to automatically index documents by extracting data from the document using ground-breaking technology.

Initially, these systems were storage and retrieval system. But the majority of these documents are part of a Business Process. End-users were questioning why they were manually routing these documents through a business process and capturing them electronically at the end of the process for storage and retrieval purposes. This launched the Workflow industry - the ability to route these documents electronically through a business process.

With the proliferation of **E-mail** came the ability of our customers and partners to send us documents electronically. E-mail became the defacto way to distribute documents. Many of these e-mails contain documents that are critical to the operation of your business thus E-mail Archive for timely retrieval is strategically important to organizations. Due to recent legal and regulatory rulings they must be managed as every other legal document. Fortunately, they are in a digital format and can be captured and indexed in the same manner as the office automation documents. Let's not forget the documents that are being generated on the Internet, i.e., Web Content. These documents fall under the Electronic Document Management umbrella.

This evolution provided companies with the ability to capture documents in an electronic format that is best suited for their long term use. These initial systems were information silos that had to be searched individually because the documents were all stored in different formats, e.g., TIFF, JPEG, ASCII, PDF, EBSIC, Metacode, AFP, etc., which required proprietary storage and image viewers.

Although, these documents are in an electronic format rather than paper many of them represent legal records and therefore a Records Management program is required for their retention and destruction.
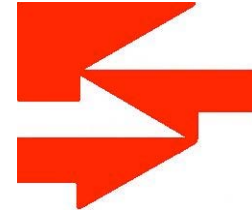
In summary, ECM is the integration of these technologies into an ECM Suite that provides the ability to capture, manage, store, preserve and deliver the information contained in these documents.

Buyer Beware: The marketing departments of ECM vendors not only create the latest "buzz words" to differentiate themselves in the market, they also try to position their product as being the latest and greatest technology.   Many vendors lack some of the basic functionality that is required to implement an ECM solution, e.g., a common viewer that not only views all document formats but also provides common functionality and usage, standard library functionality, the ability to capture graphical computer output, etc. A through analysis of your business requirements is vital to determine your needs and the long term success of an ECM system.

Business Process Management (BPM)

Business Process Management (BPM) is the ability to have end-to-end visibility and control over all parts of a long-lived, multi-step information request or transaction that spans multiple applications and people in one or more companies. Business process management means harnessing and enhancing the value of business processes however large or small, wherever they reside within the extended enterprise, and whomever they involve. Source: BitMap

The BPM market is a result of the evolution of both the Enterprise Application Integration (including XML) and Workflow technology markets.

Enterprise Application Integration

Application integration (sometimes called enterprise application integration or EAI) is the process of bringing data or a function from one application program together with that of another application program. Where these programs already exist, the process is sometimes realized by using middleware, either packaged by a vendor or written on a custom basis. An common challenge for an enterprise is to integrate an existing (or legacy) program with a new program or with a Web service program of another company.

In general, for new applications, the use of object-oriented programming and actual or de facto standard development tools and interfaces (such as Java or .NET) will help ensure that new application programs can be easily integrated
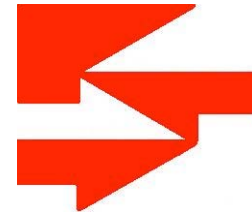
with those that may be needed in the future. The Extensible Markup Language (XML) promises to serve as a tool for exchanging data among disparate programs in a standard way.

XML

XML (Extensible Markup Language) is a flexible way to create common information formats and share both the format and the data on the World Wide Web, intranets, and elsewhere. For example, computer makers might agree on a standard or common way to describe the information about a computer product (processor speed, memory size, and so forth) and then describe the product information format with XML. Such a standard way of describing data would enable a user to send an intelligent agent (a program) to each computer maker's Web site, gather data, and then make a valid comparison. XML can be used by any individual or group of individuals or companies that wants to share information in a consistent way.

Workflow

Workflow, the predecessor of BPM, was initially designed to automatically route documents to individuals through a predefined process. The initial workflow products were designed for human intervention to allow individuals to work with digital documents. These systems were developed by the large imaging vendors as an extension of their high-end document imaging products. These workflow products had software that allowed the process to be defined through scripts and required complex integration efforts to allow these workers to work with information from multiple systems. Although these systems were designed to process documents, to their credit, most were process centric and were built on the principle that to change the way work flows through an organization should not require programming or technical expertise. They also had audit trails that allowed reporting on history of the document flow and specific metrics.

As Workflow systems evolved scripting gave way to proprietary graphical flow charts, rules engines, and and **Enterprise Application Integration (EIA)** adapters to integrate with popular ERP and CRM systems. Thick clients were replaced with multi-tier architecture based on CORBA or .NET.   A couple products even added simulation in order to test the defined flow for bottlenecks and cost details. This is the foundation of today's BPM products that gave birth to the concept of Straight Through Processing (STP). STP is the ability to complete a process with no human intervention.
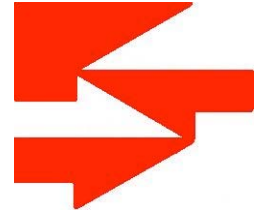
Today's BPM Suites combine modeling, simulation, bidirectional exchange of performance information, EAI adapters, intelligent forms, and complex rules engines.

Buyer Beware*:* There is tremendous confusion in the Business Process Management market.   Vendors with collaborate tools and document centric routing products are touting themselves as having process management software.   All Business Process Management Suites contain workflow and collaboration capabilities. Not all workflow and collaboration products have BPM capabilities. A through analysis of your business requirements is vital to the selection of the correct BPM systems and its long term success.

Document Imaging

Document Imaging is the scanning, indexing and archiving of paper documents to storage media where it can be accessed by an authorized user. Initially, images were stored on Optical Disk as magnetic disk storage costs have reduced in cost it has replaced optical as the preferred archive media for application that do not require the documents to be stored on a media that cannot be altered.

Document images system provides multiple benefits: reduce lost and missing documents, reduce floor space, provide access to workers without leaving their workstation, multiple people can view the same document simultaneously, etc.

Document imaging is the father of ECM and has generated multiple technologies that now comprise the document imaging, e.g., document capture/forms processing, document viewers, document archive, etc.

The core document imaging system provides the ability to index documents, albeit, there are multiple approaches to address this, e.g., folder, document, or page centric as well as using full text search. Security and ease of use are also part of the core document imaging system.

Careful analyses of your requirements are essential to selecting the proper system and avoiding a costly replacement in the future.
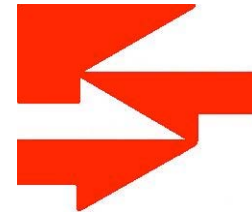
## Computer Output to Laser Disk/Electronic Reports Management

Computer Reports are documents that are generated by application data, they provide information that is intended for human interaction. These computer reports can be generated by a variety of business applications, e.g., general ledger, billing, statements, invoices, inventory, etc., and can be intended for both internal and external use. These reports can either be line items or page oriented. Line item reports, i.e., green-bar paper, are generally intended for internal use. Conversely page oriented reports are normally documents that are distributed to customers or business partners, i.e., invoices, statements, etc. Since page oriented reports are intended for external use they often contain graphics to enhance their appearance. This could be a simple as changing font sizes, colors or styles from line to line, to as complicated as containing multi-color graphics. Graphical reports require a printer that can print the graphics that are imbedded in the reports.

COLD/ERM products capture this computer generated data and archive it to a storage media where it can be accessed by authorized users. When this data is retrieved to their computer monitor by the authorized user it appears exactly as if were a printed document, although some products provide the ability to repurpose this information so it can be viewed differently, used to create alternative reports or used for data mining.

Hundreds of thousand of COLD/ERM systems have been installed to reduce the cost to distribute and access the information that is contained in them. Today COLD/ERM is generally considered a commodity, however, careful analysis of the uses of this information is required to optimize its value and avoid a unwanted conversion to another system in the future.

Electronic Document Management

Commonly know as Document Management its terminology has become synonymous with Document Imaging. Document Management, however, began as its own industry to manage the millions of documents that were being generated by office automation application, e.g., Microsoft Office, WordPerfect Office, etc. Document Management applications provide version control, check-in/check-out and other library functionality to manage these electronic documents.
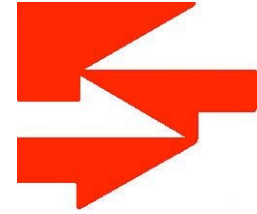
These library functions have become a commodity and are built into the office automation suites. However, these documents often become part of the document archive and must be integrated with other "fixed content" documents, images and COLD/ERM in order to be retrieved from a common electronic file folder and manipulated in a standard viewer with other documents. This functionality is not supported by the office automation software that is currently available.   Content management vendors provide various ways to archive and manage these documents.   Some vendors archive them as "fixed content" and treat them the same as other fixed content documents. Other vendors provide a link to the office automation application that authored the document and launch the office automation software to view the document. Careful analysis of how your organization uses its documents is critical in order to decide the best way for you to archive these documents.

The proliferation of E-mail and the Electronic Documents they contain has added a new dimension that requires careful attention must be paid to the archive, retrieval and retention of Electronic Documents. Recent decisions by courts and regulatory agencies have document the fact that you not only have to retain these documents but you must be able to produce them or you may be fined or imprisoned.

There are three main alternatives available, use your e-mail system as a document archive, archive all of the e-mail or selectively archive critical e-mails. A careful analysis of your e-mail documents usage is imperative to make an informative decision on which method is best suited for your organization.

Document Capture

Document capture, which was originally bundled as part of document imaging product, has become its own technology. Document capture was originally separated from the core document imaging product to improve performance. Now the core functionality of the document capture product has become its ability to quickly index documents. Document indexing is clearly the most labor intensive task involved in committing document images or electronic documents to a document imaging system. Since most of the indexing information is on the source document itself or in another application within the same company, document capture software integrates multiple technologies to automate this process.
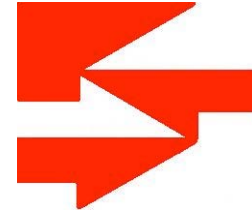
Documents can be classified into three categories, unstructured, semi-structured forms and structured forms.   If a document capture system can identify a form a specific area(s) on that form can be targeted to look for indexing criteria and use software to capture this information directly from the document itself. This technology is either a barcode, machine typed characters that can be read using Optical Character Recognition (OCR) software or handwritten information that can be captured using Intelligent Character Recognition (ICR) software.   If we only have one form to index it is relatively easy to identify the area(s) on the document to capture the index information. However, in application like Mortgage Loans or Accounts Payable these forms change frequently.   These applications require Forms Recognition software to identify the forms so the indexing coordinates can be identified.

Regardless, if you have structured forms, semi-structured forms or unstructured documents, a through analysis of your documents by a professional that understands this technology is imperative in order to make an informed decision on your capture requirements.

E-mail Archive

The number of e-mails a company receives each day is growing at an unprecedented rate. Many of these e-mails contain documents that are critical to the operation of your business. These documents must be processed the same as other documents that enter through your mailroom. They are also legal documents that must be retained the same as any legal document. Since they are legal documents they must also be able to be accessed in a timely manner. This new way of document delivery has created a document management dilemma.

Corporations have several options on how to retain and access these documents, e.g., they can print them and file them in a folder, they can archive them to an ECM product – which creates options as to whether to archive all documents or just selected documents, they can use their e-mail product as the archive, etc., etc. The options seem to be endless, but the fact an organized system must be implemented has already been decided by the courts and regulatory bodies.

Implementing an E-mail archive system can be complicated due to the varying options that are available. It is imperative to have a through analysis performed
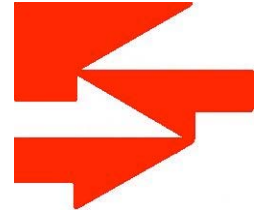
by a professional that not only comprehends the multiple E-mail archive methods available but also analyzing the business processes that will be utilizing these documents. Failure to do so can result in implementing a partial solution that will have to be replaced.

Records Management

Records are the foundation of virtually every transaction. Records are distinguished from documents by their legal value. All Records are documents but not all documents are records. Records Management software manages the lifecycle of these documents which entails cataloging their retention requirements, assuring their accessed in a timely manner and destroying them at the end of their lifecycle.

Records management was taken for granted until the recent actions taken by regulatory agencies and our judicial system. Today, just retaining legal documents is not enough, you must be able to produce them in a timely manner.

Workflow

Workflow is a term used to describe the tasks, procedural steps, organizations or people involved, required input and output information, and tools needed for each step in a business process. Source: SearchCIO

Unfortunately this definition is not shared by everyone, In fact, ask any number of people what their definition of workflow is and you will get an equal amount of definitions. These definitions may vary from e-mailing a document to a process participant, to having information move through an entire process without any human intervention. Document capture software vendors tout their ability to scan and index documents and then update the document imaging product and possibly a line-of-business as workflow. Routing documents from tasks to task is sometimes called ad-hoc workflow.

Performance Improvement believes a Workflow product should be rules based not document centric. The entire process should be defined and any timelines or deadlines identified. There must be procedures in place to guaranty a work item completes the processes regardless if it takes minutes or months to complete the process. Security must be established so only authorized users can access the
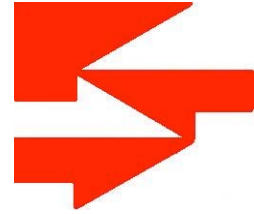
information they require and an audit trail should document who accessed or modified the work item through the entire process.

Implementing a workflow system can be complicated. Since workflow products often automate processes that involve disparate systems and disconnected documents. It is imperative to have professional that not only competent in business processes analysis but all of the technologies that are associated with improving them, e.g., ECM, EIA and Workflow/BPM. Failure to do so can result in implanting a partial solution that will often be replaced.