

Planning a Document Conversion

**Authored by: Susan Sliger
Project Manager
August 2001**

Overview

There is tremendous value to an organization that migrates to a document management system provided the implementation is carefully planned and executed. The same effort should occur when it comes to any document conversion. Often the technology provider does not address the conversion in a similar manner simply because they do not have the expertise to do so. In fact, the document conversion is typically instrumental in the startup and ongoing success of the technology solution.

This paper is intended to outline all of the steps required to carefully plan and execute any document conversion. Just as the technology provider is expert in their recommendation, application development and implementation of the hardware and software, a dedicated document conversion organization performs this similar process related to conversions. A tremendous amount of planning goes into the conversion process so the client is assured key documents with high image quality being captured into the solution with the least amount of disruption to their daily business process.

It is common to find clients anticipating their own ability to convert existing documents into the new system. They purchase a scanner and assign some personnel to the process of converting existing records. The client is neither prepared with the resources, proper capture software and equipment, nor the expertise to plan and execute the process.

The detail in this document is designed to arm the client with the requirements they should expect when contracting with a professional services firm. By planning the document conversion as carefully as the technology solution, the client is well on their way to a complete document management implementation.

PLANNING A DOCUMENT CONVERSION

Important key actions are essential for a successful conversion of an organization's paper documents into electronic images.

I. Decide where the conversion should take place

Three options are available: outsourcing the project to a document conversion service, using an imaging system onsite, or a combination of the two.

A. Determine requirements of the project/space/equipment/ staff needs

(1) Backfile Conversion

If the project involves converting backfile documents that are rarely accessed or needed by the business, it may be appropriate to send them to a company that specializes in document conversions.

Outsourcing the project will eliminate costs of purchasing equipment, and training or hiring personnel to image documents. A business will also more likely adhere to the conversion budget by setting project deadlines that a service bureau must meet.

If documents are going to be sent offsite for imaging, a thorough investigation of the company's qualifications and experience must be done. Do they have the type of equipment needed to perform the conversion? Is appropriate technical expertise and support provided to operate and maintain the imaging system? What is the project turnaround time? What type of insurance, security procedures, and document control do they provide? These are important questions to ask when choosing a document conversion service. The best company will have all the resources necessary to execute a project properly.

(2) Day Forward Conversion

New, incoming paperwork is typically imaged on a daily basis. Sending these documents offsite for imaging may not be possible if they need to remain available to staff for a certain length of time. If a business decides to invest in an imaging system, a significant amount of research is needed to determine what type of imaging system best suits their needs. This can be an overwhelming task, especially if a business is not familiar with imaging technology. Staffing requirements must also be analyzed. Additional personnel may be needed to operate and maintain the imaging system. It is

also necessary for a business to have plenty of space available for document preparation, scanning equipment and computers.

(3) Backfile and Day Forward Conversions

Decision-making becomes more complex when both types of conversions are necessary. It might be beneficial for a business to utilize the services of a document conversion company to perform a backfile conversion while an imaging system is implemented onsite for day forward production. Cost of equipment, budgets, volume of work, personnel requirements, and project deadlines must be considered when determining a conversion project location.

II. Determine imaging needs through document assessment

A significant amount of time and money will be wasted if a business does not properly examine and identify what documents should not or do not have to be stored as electronic images. Things to look at when examining documents:

A. Retention periods

Retention requirements must be analyzed before the imaging project begins. Otherwise, documents could be destroyed before they should be. Some documents may be ready for destruction and unnecessarily scanned if they are not carefully inspected. Retrieval patterns should also be looked at to see how frequently certain documents are accessed for viewing. Documents may become obsolete and are no longer used in the business.

B. Sensitive/Confidential material

In a paper environment, sensitive material may be sealed, placed in a different place or inaccessible to certain people. When these documents are imaged, security measures must also be taken. It is necessary to examine the contents of all sensitive and confidential documents that will be available through imaging and set procedures to control access to these documents. If security measures and viewing rights are not established, unrestricted access to classified information may occur.

C. Redundant material

Files may contain several copies of the same document or material that may be viewed and printed from other sources. Even if these documents are not destroyed, they can at least be separated from other documents in the file that need to be imaged. Purging files of all unnecessary information not only reduces the paper volume but also the cost of the conversion.

III. Select the type of scanner best suited for the conversion

Document volume, size, type and quality of paper determine type of scanner used to capture the documents.

A. Volume

Scanners are designed to perform specific types of imaging applications. If thousands of pages per day need to be captured, documents are usually imaged on high-speed production scanners. Manual intervention is significantly reduced because an automatic document feeder moves stacks of papers very quickly through the scanner. Depending on scanning requirements, mid or low volume scanners are typically used for day forward production.

B. Size of paper

Some scanners have adjustable input hoppers to accommodate various sizes of paper. Other models may not be able to scan documents beyond normal business size. Flat bed scanners are often used when very small or oversized documents need to be imaged. While ideal for awkward-sized material, imaging on flat bed scanners takes a lot longer than imaging documents on scanners with automatic document feeders because the paper must be manually put in and removed.

C. Weight of paper

Documents vary in weight. Certain types of paper like onion skin, carbon copies, and even heavy paper have a tendency to double feed in a scanner if paper thickness settings are not set properly. Rescanning these documents can significantly affect the speed of the conversion. If various weights of paper need to be imaged, it is important to choose a scanner that has paper thickness settings allowing both extra light and extra heavy documents to be imaged. Scanners may also come equipped with double feed detectors. Before a page is actually scanned, these detectors will alert the scan operator of the double feed.

D. Duplex/Simplex scanning

Duplex scanners will scan both the front and the back side of a piece of paper. If a conversion consists of documents that have information on one side of a page only, a simplex scanner may be used. Most conversions, however, contain both types of documents so it is important to choose a scanner capable of switching between duplex and simplex scanning.

E. Resolution

Documents may be scanned at different resolutions. If documents contain finely detailed information, a high-resolution scanner may be necessary to capture all the detail. Documents that are easy to read or not as detailed may be scanned on low-resolution scanners. A scanner will operate faster if it captures documents at a lower resolution. When documents are scanned at higher resolutions, image quality improves but more time is needed to process the images and more space is needed to store images.

IV. Develop a workflow for processing documents, determine what indexing method to use and select features that will make the imaging process run efficiently

When evaluating workflow and indexing requirements, consideration must be given to the type of conversion being performed.

A. Backfile Conversion

(1) Workflow:

In a typical backfile conversion, thousands of pages per day need to be captured. A short processing workflow is essential and all processes need to work simultaneously. While one image is being indexed, another should be going through image enhancement or being checked in the quality control module.

(2) Indexing:

This is the step where a document is given one or more identifying labels so it can be located and retrieved later. Because such a high volume of paper is imaged daily, indexing procedures should not be complex. Identifying individual pages will be a waste of time, especially if documents are not accessed frequently, as in the case of most backfile documents. Barcode separator sheets can be designed to contain all of the indexing data required to identify an entire file folder or a multipage document.

B. Day forward Conversion

(1) Workflow:

Creating an automated workflow for day forward imaging requires an understanding of how documents are processed now. What happens to a specific document as it is routed through the workplace?

Are there any weaknesses or inefficiencies in the existing workflow? How can workflow be improved? These questions must be answered before workflow designers can determine what type of automated workflow application to use.

(2) Indexing:

Identifying day forward documents is typically a more complex process than that of a backfile conversion. As a result, more time is needed to process images.

A variety of recognition tools may be used to identify documents. One method often used for indexing documents is OCR (optical character recognition). This process actually reads a scanned page or a portion of a page and converts it into readable text. OCR requires a lot more manual intervention, however. An index operator must check the accuracy of the index data and either validate or correct it. With OCR, certain characters may produce a valid response but are in fact erroneous. Constant monitoring is necessary to ensure that all the imaged documents are identified correctly.

C. Features that reduce manual intervention and save time should be included in any imaging system

(1) Image enhancement

An image enhancement application will automatically detect document edges, adjust inferior images and improve the quality of data as it is processed. If a scanner's brightness or contrast control settings do not produce an acceptable image, the enhancement feature will provide a recommended solution for correcting the image or allow the user to adjust the controls. Corrections such as straightening skewed documents and removing lines and speckles also improve form recognition accuracy for indexing purposes. These corrections can be made without having to rescan a document.

(2) Built-in quality control

A quality control module is designed to detect any errors that may occur during the imaging process. Batches of documents will be automatically sent to this module if any material is unable to be processed. Errors may be corrected immediately and documents are able to proceed through the workflow without having to go through the entire imaging process again.

(3) Monitoring system

A monitoring system or batch manager will check the status and control the flow of documents as they are processed in the system. Some systems allow batches of documents to be suspended, deleted or rerouted to other queues in the workflow. If any processing errors occur, this module provides detail as to what part of the workflow is affected.

V. Provide proper training on document preparation

The way documents are prepared for the scanner affects the efficiency of the scanning process. Procedures should be set up regarding:

A. Order of documents to be scanned

This requires an examination of how documents are assembled in the file folders. Are documents well organized and easy to retrieve? Are particular documents grouped together? An imaging system provides a way to index and sort imaged documents for future use. In order for this process to work, the documents need to be organized into pre-defined document type groups or batches. Procedures for sorting documents into specific batches must be implemented for proper indexing to occur.

B. How to treat different types/sizes/conditions of documents

These factors affect the speed of the conversion. Removing staples, paperclips, and unbinding material from fasteners may take up the majority of document prep time. It is important that it be done correctly. A major cause of double feeds occurs when pages that were once stapled together remain attached to each other and are fed together into the scanner. Adhesive material may also cause double feeds. These documents may have to be scanned upside down or in another direction and then rotated after they are imaged.

Small documents may not feed into the scanner properly. They may have to be photocopied or mounted on larger paper. Folded, torn or brittle documents may need to be smoothed out, repaired, or photocopied before they can be scanned. It is important to test a wide variety of documents in the scanner to determine its capabilities. The conversion process may slow down considerably if proper procedures are not followed.

VI. A tracking system for the files needs to be created

Documents must be readily available to an organization if they need to be accessed during the imaging process.

A. A barcode scanning system will monitor files as they are routed through the conversion process

This type of tracking method involves placing barcodes on documents or creating barcode separator sheets for each document or file folder. If barcodes are going to be used to identify documents during the imaging process, these same barcodes can be used to update their location status. Portable barcode scanners may be used to track the movement of files.

Although it is an efficient way to track documents and separate them during the imaging process, a barcode scanning system requires careful monitoring. If a particular document file is scanned incorrectly or not scanned at all, then the time it takes to locate requested documents is significantly delayed.

B. Document requests procedures should be created after business needs are evaluated.

(1) Set time limits as to when files should be available for delivery

This may vary depending on the type of documents that are being imaged. In the case of a backfile conversion, documents may not need to be retrieved and delivered as quickly as documents imaged in day forward production. The location of the conversion may also determine time limits. A service bureau performing the conversion offsite may require more time to deliver files than a conversion taking place on the premises.

(2) Determine how files will be requested and delivery methods

A request and delivery system will also depend on the location of the conversion. Fax, phone, or e-mail requests may be used if documents are offsite. Depending on the time limits that are set, overnight shipping or the use of a courier service may be needed to deliver files on time.

(3) Appoint a single point of contact from the business and the imaging team for requests and delivery of files

To avoid confusion, multiple requests for the same file, and delays in document delivery it is important to select one person to handle file requests for business personnel. Likewise, if only one person receives the requests, locates the files and arranges for their delivery, the conversion will go much more smoothly.

VII. Determine the best storage options of files/documents after the scanning process is complete

Factors to consider when creating post-scan procedures:

A. The availability of an electronic document retrieval system

Will users be able to view and print imaged documents immediately? Will they be properly trained to use the program? Viewing images on a computer will be an enormous change to some who are used to opening a file cabinet to retrieve documents. Problems may surface if documents are placed in storage or shipped offsite, before users have access to and are familiar with the electronic retrieval system.

B. Files that will be placed back on the shelves or in cabinets

If imaged documents need to remain on the premises for a certain length of time, it may be necessary to collate the documents back into pre-scan condition. Papers may need to be re-stapled, manuals may need re-binding, and material may need to be placed back into envelopes.

C. Files that will be stored in a records facility

If documents are placed in storage after they have been imaged, then it may be unnecessary to reassemble document files. Post-scan procedures are still required, however, even if loose documents are stored in boxes. The records facility must know how to properly handle and assemble documents back into their file folders when they are requested by the business.

VIII. The conversion team must take an active part in assisting personnel help deal with the new technology

The transition from a paper based information system to one that is automated should be as smooth as possible for an organization. If proper training and support is given during this transition period, staff will accept the change much more readily. This can be achieved by the following:

A. Demonstrating the advantages of using the imaging system to locate, view and retrieve documents

Ongoing demonstrations and training of the imaging system should be provided. If workers are constantly exposed to the conversion process and shown how to utilize the system, they will be more willing to abandon old business procedures.

B. Making sure all requests for files/documents are fulfilled on a timely basis

It is imperative that guidelines for document requests are adhered to. Business needs do not stop because of a conversion project. Attitudes may shift everyday depending on how current work processes are affected. If document requests are handled on a timely basis, morale should remain positive.

C. Providing timely progress reports of the conversion process

Throughout the duration of the project, it is important to keep the staff well informed of any problems or issues that may surface. Questions and concerns will come up frequently. The imaging team should anticipate these concerns and provide information as soon as possible. Communication between business personnel and those responsible for the project is key in determining how successful a document conversion will be.