



Heading South for the Winter

Map Your Journey to a Successful Paper to Electronic Migration

By Simon Wieczner

Migrating from paper to electronic documents is becoming commonplace for more companies. Yet document migration is a complex journey. It requires careful research and selection of tools to best support your migration and to manage your entire electronic document lifecycle—scanning, storage, viewing, processing, and archiving. The right choices will reduce costly missteps, and ideally allow you to more rapidly achieve gains in your company's productivity and ROI.

Profiled in this article are three best practice examples of organizations that have achieved migration success. You can emulate their processes by initially evaluating your workflow, document accessibility requirements, and creation to archiving compliance needs, while incorporating end-user input at every stage.

Advance Planning You Can Bank On

A carefully orchestrated proof-of-concept (POC) project can provide the advance planning to ensure that all project elements have been thoroughly addressed prior to implementation. A major financial services and mortgage company used this technique to map their migration from a paper-based workflow. Through the POC, they discovered that migrating to electronic documents could spread workflow more efficiently across locations—increasing end-user efficiency and reducing their mortgage document processing time by forty percent.

Insuring Success

How will users access, view, edit, and manipulate archived electronic documents (which may need to remain accessible far into the future), while remaining compliant with pertinent laws and regulations? Understanding document use from an end-user standpoint is a critical but often overlooked component in the planning and early implementation stages—*an oversight that can quickly become a costly, post-migration headache.*

This step was especially important for one of the nation's largest insurance companies, which processes hundreds of thousands of daily transactions and imports millions of documents annually. Working with a document and content management solutions provider, the insurer first undertook a proof-of-concept project based on user needs to establish the parameters and roadmap for their migration, which would ultimately affect the workflow of several thousand users. Their defined goal was to achieve service excellence by:

- Improving document retrieval times through immediate online access across fifteen sites nationwide, without requiring expanded network bandwidth
- Reducing claims processing cycle time
- Maintaining document security/audit trail
- Shortening training time
- Decreasing document processing errors
- Eliminating labor-intensive copying/faxing steps by providing online document access and faxing

- Providing a user interface that facilitated rapid identification/retrieval of documents

The POC project enabled the company to “test drive” a Java-based Web viewing and collaboration application that provides page manipulation, reordering, deletion, insertion, and annotation capabilities to support their needs.

Web Viewing Delivers Efficiency

Many aspects of efficient electronic document management rely on viewing functionality. It is important to determine which features will be critical to your organization over the long term. Annotation, manipulation, searchable indexes, remote document access, demands on network bandwidth, and ease of use are all critical considerations, as a major transportation company discovered.

The company had established a Web portal for customers to monitor their shipment status, which was receiving more than 35,000 visits monthly. The original site required customers to install an application prior to viewing, but that process generated costly technical support calls, so the company adopted a Java-based viewing solution. Now customers view shipment status online without downloading an application and the Web portal has become their primary shipment monitoring method. This simple solution



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eliminated most customer calls related to portal viewing and shipment status, and enabled reallocation of internal resources for greater efficiency.

Mapping Your Document Lifecycle

Reviewing document lifecycles is another important waypoint in your document migration planning stage. Your document lifecycle map should address details of “who, what, when, where, why, and how”—including creation, review, approval, and ultimate erasure. Clearly delineate when—and how—documents cross departments or move outside your company. Include circumstances that may require hard-copy recovery to facilitate best-case retrieval procedures for archived documents.

This collected information should set objectives for managing your electronic documents after migration. It can also identify manual document tasks that can be eliminated or simultaneously completed electronically. For example, the ability to annotate documents electronically can reduce physical distribution time and the number of review cycles—a seemingly simple feature that can provide significant benefits.

A well-developed document lifecycle map will define how your documents are used and help you address the next important consideration of the migration process—selecting a format.

Document Formats

Choosing an electronic format for converting your paper documents is an important decision with long-term ramifications. The right format for your workflow process will avoid costly conversion projects in the future. When evaluating formats consider the benefits and limitations of proprietary and open formats to determine which best suits your long-term needs.

Use caution when considering proprietary formats that are dependent on a single company. Even if tools are available to view documents through other sources, if support for the format wanes, you will have to reevaluate your document strategy and face the difficult and expensive issue of document conversion. IBM’s MO:DCA™ format is a case in point. Although versatile, some of IBM’s systems no longer support this format.

Open specifications are ideal for document migration because they enable documents to remain accessible indefinitely. If certain commercial viewing products are not available in the future, it is very likely that other products will be available to manipulate those open-specification format documents. The primary open specification formats available for documents include:

- **PDF** – Adobe Systems publishes the specification for this widely-accepted, portable, and open format. PDFs can be created from a Web-based application or through a standard desktop application and are universally supported in one way or another. Documents scanned with OCR and saved as PDF will produce files with searchable text, enabling the content to be indexed.
- **TIFF** – Popular open specification solution. Lossless format prevents data degradation during compression and decompression. Clearly renders both black and white and color images. Ideal for archiving with many compression algorithms available. Although TIFF doesn’t natively

support text, data can be indexed and included in header fields. Most ECM systems and many third-party viewers view TIFF files. If your post-migration document workflow processes are viewing intensive, don’t require full-text search, and require high-volume document throughput, TIFF may be your best choice.

- **JPEG** – Useful scanning format produces very small files easily viewed with a standard Web browser. Designed for color images, JPEG compresses them very well. The lossy format can be adjusted for greater or lesser compression by dropping bits of data during the compression process, causing varying degrees of irreversible degradation. Not intended for black and white images, JPEG renders them less clearly than either TIFF or PDF.
- **PNG** – Increasingly common color and document format supported by all standard Web browsers. Serves as a useful format for non-lossy handling of all types of images.

Scanning and Conversion

Scanning also presents unique challenges that can be mitigated by your careful advance preparation. Whether working with individual low-end scanners or high-end departmental scanners, it is important to match the software and hardware that best suits your needs.

Scanner speed may significantly affect throughput time for converting your paper-based archives. Integrate your scanner



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with the right image processing software to clean up and file images automatically. This step is especially important to ensure readability when working with text.

Some key image processing functions that should be considered for the scanning process are:

- **Despeckling** – Removes specks, scratches, or other noise introduced in the scanning process without damaging or distorting the document's content
- **Deskewing** – Improves OCR success and user productivity by correcting image skew that can occur when pages are not exactly aligned prior to scanning
- **Anti-aliasing** – Optimizes scanned text by smoothing the outlines of letters, enabling sharper details, making on-screen documents easier to read
- **Borderremoval**—Automatically detects and removes empty space around document edges (which typically scan as dark, black borders) for improved readability and standardization

Document Viewing and Archiving

Document viewing is a critical—but often overlooked—component of electronic workflow in the migration planning stage.

Scanning formats differ from those used for native creation of documents—especially text documents. Juggling multiple formats presents a major document workflow challenge in maintaining multiple applications across the enterprise, requir-

ing end-users to switch applications based on document type. However, a universal viewing application can eliminate these issues via a single, hopefully easy-to-use application that provides immediate viewing of disparate formats, improving user productivity and reducing document processing time. An ideal universal viewing solution would provide:

- Integration with content repositories and document management systems that eliminates the need to open other applications
- Rapid access to individual pages within large documents through server-side processing and caching, without straining network bandwidth
- Web-based document distribution that enables secure document access and viewing from any location
- Annotation and redaction features such as stamps, comments, and redlining, enabling users to effectively mark up documents throughout the workflow
- Collaboration tools to make users more productive (such as page manipulation, used to copy/move pages between documents and create virtual documents from specific pages of multiple documents)


Your organization's business and end-user needs should define needed document viewer features. Rather than preparing a list of features, review your

document workflow map with your viewing application vendor to communicate your goals, and determine which features will be important and how a viewing and collaboration solution can best be integrated into your repository systems.

Your archive is the final destination for your documents. Your document lifecycle map and the format considerations discussed within this article should guide you in creating an archive that ensures that your documents remain accessible into the future.

The End of the Road – Your Successful Migration

In addition to requirements planning, an imaging software provider can help you navigate the complexity of selecting the correct format, automating document scanning and indexing, and integrating document viewing into your workflow to create a useful solution that truly fits your needs—now and going forward. This step will help reduce IT effort, meet roll-out dates, and avoid project abandonment before completion.

A well-planned and executed migration can uncover useful information about your business processes that can further streamline operations and improve overall efficiency even more. When your document migration is complete you can follow the best practice of all—reaping the rewards of a job well done. 

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