

Imaging Benefits

Benefit 1:

Imaging reduces business-operating costs

Your organization's operating costs determine how competitive and, ultimately, how successful your organization will become. Every manager looks for ways to trim expenses. Imaging is a tool that will reduce your organization's operating costs. Here are some examples:

- Imaging eliminates the high costs of creating, maintaining and accessing data stored on microfilm and aperture cards.
- Imaging reduces costs associated with hard copy storage, distribution and on-demand printing. Most studies indicate that the majority of paper copies are unnecessary.
- Imaging reduces the cost of document changes by streamlining the change process. Document changes and updates are costly using a paper-based system. In a study of European manufacturers, imaging reduced the cost of engineering changes from an average of \$4,200 to \$1,500 per change—a 64 percent reduction in costs.

These are only a few of the many ways that imaging reduces operating costs. Others include reduced "rework" expenses and reduced pricing due to accurate parts ordering.

One of the best measures of how imaging reduces operating costs is reflected in its return-on-investment (ROI). A major Midwestern manufacturer and multi-site a customer justified the implementation of imaging to eliminate aperture cards based on an ROI at each site from 18 percent to 20 percent. Once on-line, the actual overall system ROI proved to be 33 percent, based on only equipment and staff savings.

Benefit 2:

Imaging fortifies organization-wide decision-making

Information is power—the power to produce quality products, the power to increase market share, the power to maintain profitability. Information is data that can be gained from words or from various graphic forms. Businesses need to manage both sources of data to succeed. Yet as an information-based society, we have more information than we can handle.

Customer records, financial reports, production statistics, product configuration documentation and market data all have an influence on how your organization manages its information. This information drives your organization's ability to make sound decisions.

Document management systems enhance your organization's flow of information. With data stored electronically, you no longer need to measure document retrieval in hours or days. Everyone across your enterprise can have access to information, from numerous sources, in under a minute. Imaging enables fast and accurate access to data previously only available on paper, empowering your organization to formulate strategies and tactics based on solid, timely information.

Benefit 3:

Imaging supports regulatory compliance

Many organizations, such as oil refineries, chemical plants and manufacturing operations, are subject to regulatory standards for maintaining the latest revisions of engineering documents. "Up-to-date documentation" and "available at all times" are among the requirements that govern these highly regulated entities.

Often the sheer volume of paper that flows in and out of a regulatory records department can quickly result in a bottleneck. Missing or misfiled documents bring the manual system to a halt and can be the source of steep regulatory fines.

Material Safety Data Sheet (MSDS) automation is a good example of how imaging can support a organization's regulatory requirements. A organization that works with regulated chemicals must ensure that their MSDS files are current and quickly accessible in an emergency. Imaging is the solution.

Documents are scanned, indexed and stored. When needed, any number of employees—in plant or at other locations—can gain access to the documents. Through ad hoc or full text search, employees can easily review, red-line, output and distribute documents. Documentation becomes an integrated, efficient part of the regulatory environment.

Benefit 4:

Imaging enhances customer service

Your customers receive the best service when you can quickly access complete and accurate records of their account or case (in the Legal Environment). Unfortunately, maintaining accuracy is difficult and time-consuming in a paper-based system.

Using imaging, customer service representatives can have a comprehensive, electronic library of documents, including as-built, as-installed and as-maintained documentation. The document management system manages all data, drawings and documents, making this information available as it is needed for customer service.

With imaging, an accounts payable department, for example, can reduce response turnaround times; when a vendor calls with a question about an outstanding matter, information is readily available.

Repair services and product upgrades are also enhanced through imaging. An Eastern manufacturer was losing maintenance business. Each customer installation was unique, supported with unique configuration and maintenance documentation. In the time it took the manufacturer to locate product maintenance records, the competition had already determined the problem and won the job. With imaging, technicians can easily access electronic product documentation that describes repair procedures or upgrades from one version to another.

Benefit 5:

Imaging enhances your application software

Any large organization has a multitude of database applications that reference documents. Some examples are purchasing, accounts payable, Manufacturing Resource Planning, Product Data Management and human resources. Direct access to documents through these applications not only improves turnaround time, quality, and productivity, but it also makes existing applications more valuable to many more people.

Imaging, integrated with your software applications, provides access to a broad spectrum of documents and drawings. Document-enabling extends the benefits of imaging and document management to your database application such as legacy, internally-developed or third party provided, regardless of the type of data it contains—financial, industrial, technical or regulatory. When your application software is document-enabled, cross-application functionality allows you to work with a mix of business and technical documents in an environment that is open to expansion, network distribution and screen tailoring. By focusing on the link between the database applications and the document management system, integration can be achieved seamlessly and without unnecessary modifications. Users continue to work in a familiar environment, but with added easy, electronic access to documents.

Benefit 6:

Imaging improves employee productivity

According to studies conducted by industry trend watchers, office workers spend up to 60 percent of their time preparing, handling, filing, copying and faxing documents. This means that only two days of each week are spent on productive, decision-making time.

Document management systems increase office productivity by providing your work force with the tools that ensure information is readily available—in the form it is needed, when it is needed and in the correct version. Imaging tools put previously hardcopy documents in a centralized, controlled electronic environment providing employee access to current information. Employees can then review, route, print and fax all documents on-line.

By working in unison with your organization's existing software applications, imaging makes information available on an even greater scale. This gives employees access to broader information directly from a specific familiar application.

These imaging tools are also available to employees outside the traditional office environment. Maintenance activities are enhanced with immediate access to correct parts documentation and production is improved through faster transmission of change notices.

Benefit 7:

Imaging leverages your investment in computer hardware

Across an enterprise, companies have a wide variety of computers in use. Even networks can vary from site to site. This diversity drives the requirement for enterprise systems to be cross-platform and cross-network compatible. Enterprise document management and imaging lets you link your existing hardware tools without requiring you to change those tools.

Whether your organization uses a mainframe or client/server for enterprise-wide or departmental computing, the addition of document management is a cost-effective way to extend the life and utility of your hardware. Imaging can leverage your organization's existing investment in computer hardware by:

- Linking existing servers
- Distributing previously hardcopy data to users via an existing network infrastructure
- Performing on existing client desktops
- Utilizing existing network printers

New technology doesn't mean new equipment. Imaging must fit within the existing computing environment, networking infrastructure and peripherals. With the right system, you can add imaging to your environment regardless of the server and regardless of the client platform

What is imaging?

Electronic imaging utilizes technology that allows the capture, indexing, storage and retrieval of real documents with speed and accuracy. While it is similar in concept to micrographic technologies or intricate paper based filing systems, imaging offers capabilities that far surpass these traditional techniques (see table for comparisons).

There are many components of an electronic imaging system with the following being the most critical:

Scanning. In the scanning function or data capture, technology similar to a fax machine is used to digitize paper based information. Midrange scanners that accommodate scanning speeds of 20 to 40 pages per minute are most suitable for use in a typical food broker firm.

Indexing. All documents scanned into an imaging system will require some form of indexing to facilitate rapid document retrieval. A critical component of the imaging system therefore, is the database that is selected to "manage" the indexing function.

Storage. Once digitized and indexed, the image file must be stored for future retrieval. Magnetic, Compact and Optical disks, as well as magnetic tapes are all viable storage mediums for the typical imaging system. In most cases, a combination of two of the four is used to provide the most cost-effective storage solution while delivering the fastest data retrieval rates.

Computing Infrastructure. An electronic imaging system can be as simple as an electronic "filing cabinet" where all input, storage and retrieval are performed at one standalone workstation. It can also be a departmental system that encompasses only one area of your firm (that is, legal). Or, it can be an enterprise-wide document manager with multiple department access and many separate applications. Depending upon which of these options best fit your needs, the proper computing infrastructure will be critical to your system's effectiveness.

Imaging Benefits

Many firms that are considering a migration to the imaging technology have recognized that there are many tangible benefits associated with document imaging.

Enhanced customer service. Recent industry surveys reveal that some firm administrators regularly "call back" principals and customers following routine inquiries regarding deductions, contracts or invoices. In most cases, this is hours or even days after the initial call and *always* at the broker's expense. With document and correspondence at their fingertips, personnel are able to immediately respond to those questions, thereby improving customer service and holding down costs.

Productivity improvements. Immediate access to documents will eliminate countless hours now spent in the file retrieval process. Your employees will be able to process more work in less time.

Labor reduction. An average firm expends over 20 percent of its administrative labor in some form of file maintenance. Fewer employees therefore will be able to perform more tasks, more effectively.

File integrity. The American Records Managers Association reports that on average over six percent of documents in a paper-based filing system will be lost or misfiled and that each misfiling will cost the organization an average of \$200 to either find or recreate the document.

This has substantial cost ramifications and possible legal implications. Document imaging will greatly reduce misfiles and virtually eliminate lost files.

Network-wide access. Simultaneous access to the same document or file by different departments will enhance the workflow process. In addition, forget about the typical "CC" with its inefficient photocopying and subsequent distribution. Imaging will enable the routing of either internally or externally generated documents with the click of a mouse.

Space reduction. Every firm, regardless of size, can eliminate the valuable office space now devoted to desk files, central file cabinet areas and archived storage.

These by no means represent all the benefits of document imaging technology. Your firm may have unique criteria that will provide additional hard dollar savings that would further enhance a cost justification for an imaging system.

Document imaging is becoming a mainstream technology in today's fast-paced business environment. Still, many components require considerable experience and knowledge to ensure peak performing, cost-effective operations.

The firms that implement the imaging technology as part of a strategic business decision can expect improvements in customer service, increased productivity and reduced operating costs. Considering what most firms have already invested in networks, hardware and employee training, document imaging is an excellent vehicle to maximize existing data processing assets.

Paper, Micrographics, or Document Imaging?

Activity	Paper-Based	Micrographics	Document Imaging
Document Capture	Documents placed in folders	Photographic images made on film using a camera	Electronic image made using a scanner
Cross Filing Ability	Physical copies made and filed in multiple folders	Paper or computer based index made containing "map" of keys to images	Computer-based index made containing "map" of keys to images
Retrieval of Images	Go to file room, find folder, remove (put out-of-file card in file); either make copy and replace folder, or use folder then replace	Search index to ascertain correct roll or fiche; go to film storage area; extract film and place in viewer; advance to frame and view; make print if desired; replace film in film storage area	Enter search key into software; view image on screen; make print if desired. Supports simultaneous access by multiple users
Time Required to Retrieve	Hours to days to weeks	Minutes to hours to days	Seconds
Send Image to Another User	Make copy and send via inter-office mail or hand-carry	Make paper copy and send via inter-office mail or hand-carry	Enter user name from menu; system sends electronically
Time Required to Send Messages	Hours to days	Minutes to hours	Seconds
Storage Density (documents per cubic foot or meter)	Low (hundreds)	Medium (thousands)	High (tends of thousands to millions)

**Potential for
Misfiling or Losing
Documents**

High

Lower

Lowest

What are the benefits of imaging?

Immediate benefits:

- Document retrieval time reduction in the 30-90% range.
- Transaction volume increases per employee in the 25-50% range.
- Image access through a custom database.
- Instantaneous cross-reference to, and 'screen-'view" display of, Depositions, Database, Trial or Motion Exhibits or records concurrently with review of the text of such documents and records (e.g., use with Summation Blaze™ to search transcripts from multiple depositions for specific deposition testimony with relevant exhibits, then instantaneously view the exhibits).
- Image access through DOS or Windows.
- Storage and net floor-space reductions in the 50-80% range.
- Imaging coupled with PC fax cards or PC network that reduces mailing and copying costs 50-90%.
- No lost and misfiled documents. Multiple persons can access and view the same document at the same time if you're networked.
- Documents produced in volume.
- Coding of documents for search and retrieval preparation for interviews, depositions, arbitration, etc.

Intermediate benefits:

- Each CD-ROM holds the equivalent of 5-10 boxes of documents (depending on scanning resolution, records, pleadings and discovery).
- Cost reduction for archival storage.
- Cost reduction for internal mail, courier, etc ,
- Improved physical security. (Write-only optical media is rated at 30+ years, read-write media at 10+ years, but for most intents, the media is virtually indestructible. It's even immune to low-level radiation fields.)
- Cost reduction by shipping documents on CD.

Potential strategic benefits:

- Improved consumer service.

- Projection of a high-tech/high-touch image to consumers.
- Improved information flow.
- Significantly improved response time for data analysis.
- New potential sources for data analysis (i.e. software).
- Reduced administrative workload.

Why Document Imaging:

Despite computers and the productivity increases they offer most professional offices (law offices included) are still surrounded by paper. Some have opined that word processing, spreadsheets, photocopiers and faxes have only increased the amount of paper in today office. In Law firms particularly, staff members spend countless hours searching for paper documents, organizing, reviewing, copying, annotating and sending them. Firms spend substantial sums storing them on or off-site.

Document imaging enables more efficient management of the information currently on paper and reduces the amount of paper records. Document imaging increases productivity and in many instances reduces costs.

What is Document Imaging:

With imaging systems, the contents of paper documents are captured via scanners, which look and operate much like photocopiers. The images are exact electronic copies of the paper document. While they can be viewed on the computer screen, they cannot be edited or altered. As such they conform to the Best Evidence Rule in the same manner as do photocopies. Once scanned into the computer system, the document images can be "read" and converted by Optical Character Recognition (OCR) software to computer searchable and editable "text" files that can be placed into a word processing document, a "database" or a text retrieval tool. This would enable searching for information contained in the body of the documents in the same manner one searches on-line systems (such as Lexis or Westlaw The database can be augmented with additional fielded information such as document date or client and matter information for more sophisticated searching and sorting. The images, related text and additional data information can be stored on magnetic hard drives, optical disks or CDs.

After the information has been captured and stored on the computer system, it can be integrated into a computer network and accessed by multiple users at the same time. By using CD-ROM (read only) or WORM (write once read many) optical disks, the documents can be on an archival medium, like microfilm, to assure that they cannot be altered in any way. However, unlike microfilm, optical media keeps the document images immediately accessible as part of the firm's on-line computer information system.

The process for creating such a system is straightforward. The images are placed into the system using a sophisticated document scanner with associated software and hardware to both capture and compress the image. Data entry is required to create a fielded database file linked to the image. If the user desires to search the full text of the document as well as the fielded information, the image would need to be converted into a computer-readable format. This requires additional computer processing to convert the image file through optical character

recognition (OCR) into a computer searchable text (ASCII) file. This file would then be combined with the database containing the fielded information about that document. Because of the technological limits of the OCR conversion software, the text file usually requires manual cleanup if it is to "mirror" the visual form and content of the image. The amount of "cleanup" required depends on the potential use of the text and the overall accuracy desired. Many technology experts believe that uncorrected text may be sufficient for most retrieval. Their reasoning is based on the fact that one often desires to find a single reference in a document and that the actual words may repeat several times in the document. As a result, only one occurrence would need to convert in order to retrieve the actual record.

Once the desired information about a document has been entered into the system and its image captured, a user can search the database, display the database results and/or the corresponding document images. The user can print either the data or the image or take advantage of Windows' functionality to send other staff members documents (images) by electronic mail or by fax from their desks. Some more sophisticated tools allow the users to select specific items to place in "electronic folders" in a manner similar to the present file pocket or trial note book, thereby replacing paper-based documents entirely.

Document Imaging Software Systems:

The software components needed to implement an imaging system should consist of industry standard software products. The ideal system must be technically robust and its elements should be selected specifically for needs of the practice of law. The system should include:

- High Speed Image Capture
- OCR Conversion Software
- Multiple Levels of Security
- Complex Document Support
- Image Annotation
- Customization for Specific Needs
- Strong Workflow Component (ability to route documents or information to individuals or groups in an ad hoc or pre-designed process).
- Intuitive User Interface

Today's technology requires that such a system run under Microsoft Windows on standard PC's and PC networks (LANs). As a result, the imaging application can be added to existing PC networks, and once installed for a specific use, it easily can be expanded for additional applications.

Benefits of Imaging:

As you can now see, image-enabled information management systems provide the law firm with a variety of benefits in the areas of performance and productivity. Most industry observers believe that imaging systems should be part of any organization's computer plan for the 1990s. These experts feel that imaging systems pay for themselves by reducing the costs associated with paper handling and storage without regard to the additional returns due to increases in staff productivity. Some of the major benefits of using imaging systems are set out below.

- Increases Productivity
- Improves client service and provides a competitive advantage
- Integrates with existing computer systems
- Reduces staff costs
- Systems can expand easily to meet increased needs
- Easy to implement and use
- Save on off-site and on-site document storage costs
- Save photocopying costs

The Time for Imaging Is Now:

In a very short time, document imaging will be as indispensable to the effective office management as word processing is today. It is time to incorporate document imaging into your firm. To get started, a firm with sufficient in-house support could determine its own requirements and acquire the necessary system components. Many would find this a daunting process. For those firm's that are interested but need some help, consultants are available to assist firms in providing more information on how to get started. In choosing a consultant, it is important to make certain that the person you select is not only well grounded in technology but, more importantly, that this person understands the requirements of the practice of law and how technology can be harnessed to support them. The consultant can work with the firm in the planning and consultation phases to assist in determining what areas of practice could benefit most from the application of imaging systems and determining an implementation strategy. The consultant also can assist the firm in selecting the appropriate system and finding the right vendor to implement it. Good systems are not enough. It is important to analyze the firm's needs and to plan the transition from present methods to the new system carefully. Proper training and sufficient ongoing support for users are among the most critical elements in assuring a successful implementation. The firm can create a plan to do all of the required image processing itself and other tasks to create its new system. Alternatively, outside vendors also can provide all services to capture the information needed to create a complete turn key system. Whatever path your firm takes, it is important to recognize that optical imaging is an important early stop on your travels along the information super highway.

Image Processing Glossary of Terms and Definitions:

Archival. A copy of document images on storage media, such as optical disks, typically preserved in its original state for a long period of time. An example would be the management of vital records, such as births and deaths.

Compact Disk-Read Only Memory (CD-ROM). A version of the Compact Disc for the storage of mastered digital data.

Compression. The process of reducing the number of bytes required for digitized image storage and transmission by "removing" unused white space from an image such as common business documents, printed pages and engineering drawings.

Conversion. The process of preparing, capturing, and indexing current files, usually on paper documents or microfilm, for use on an imaging system.

Imaging. The process of capturing, storing, and retrieving information, regardless of its original format, using micrographics and/or optical disk technologies.

Index. Information that enables a user (and/or a retrieval device) to search for and retrieve desired images; also includes physical location information (i.e., which file on which disk) and document identification information (e.g., date, creator, contents).

Jukebox. An automated storage device for housing multiple optical disks and one or more read/write drives.

Laser. A device emitting a highly coherent beam of light for burning information onto optical disks. Using less power, a laser can "read" information from an optical disk.

Optical Character Recognition (OCR). The technique by which a document can be converted to ASCII or similar format, using pattern matching.

Optical Disk. A 5 1/2-inch or 12-inch disk coated with a recording alloy on which binary information is burned using a laser.

Scanner. A device that uses a narrow beam of light to resolve a document into a stream of bits.

WORM (Write-Once-Read-Many). A characteristic of any digital storage medium on which information can be recorded once and read many times thereafter. A WORM disk cannot be erased.

Despite computers and the productivity increases they offer, lawyers and their staff are still surrounded by paper. Some have opined that word processing, spreadsheets, photocopiers and faxes have only increased the amount of paper in today's law office. Law firm staff members spend countless hours searching for paper documents, organizing, reviewing, copying, annotating and sending them. Firms spend substantial sums storing them on or off-site.

Document imaging enables more efficient management of the information currently on paper and reduces the amount of paper records. Document imaging increases productivity and in many instances reduces costs.

The practice of law and document imaging are ideally suited for each other. With document imaging, the firm can increase productivity, improve client service and, in many cases, reduce costs. The following are the key application areas for early implementation of document imaging. The list is not exhaustive but illustrates some of the more important work areas.

Litigation Support:

Litigation support was one of the first practice areas to be the focus of computerization. Document imaging systems for litigation matters are often the firm's first imaging project because of the need to provide more effective tools to the litigator and the client's concerns about cost control. Automated litigation support systems should provide fast, precise access to information. With document Imaging, the attorney can put virtually all information related to the case on line, including electronic copies of all documents, such as:

- photographs
- canceled checks
- maps
- drawings
- invoices
- articles and printed matter
- medical reports
- letters or memoranda
- depositions and other transcripts
- any other hard copy or electronic materials

The user can search for information in the document text or on specific additional information that has been added to the image-linked database. When the user finds the relevant document, and wants to see the actual document to confirm signature, date, marginalia, or other information, just a click on the document ICON using a mouse and the imaging system will display the image of the actual document pages. Another "click" enables the user to print an exact copy of the document image should you need to revert to hard copy paper records.

The firm no longer needs to spend valuable lawyer or paralegal time searching through boxes of paper looking for a specific document. The system eliminates the problems of misplaced or misfiled documents. Multiple lawyers or paralegals, even in remote locations, can view the same document. Today's image viewers allow the user to "annotate" the document images using electronic "post-its" and search the contents of these annotations. Similar electronic tools allow for redacting or highlighting specific portions of the document text. However, the tools do not actually alter the original. The system merely creates an electronic overlay and places it on top of the selected area of the unaltered image as part of the systems display or print functions. These

overlays can be displayed or suppressed at will by the user. Additionally, most systems provide security measures that allow the user to limit access to the contents and even mask the existence of these annotations.

Not long ago deposition transcripts on floppy disks seemed revolutionary. Today, that information, in searchable form, saves firms enormous time and effort. In the same way, a system with thousands of documents on optical disk linked to sophisticated retrieval tools rather than in dozens of boxes will provide a comparable increase in productivity and a significant competitive advantage. Deposition and trial preparation time can be reduced dramatically and the number of staff needed to support a major project can be similarly impacted.

The ultimate benefit of the image system may be at trial. Since these systems are highly portable, it is no longer a logistical nightmare to bring large numbers of documents to the Court House. Many judges are allowing computers in the courtroom either as tools to aid counsel or, in some cases, as part of the trial presentation process to the jury. Document exhibits can be shown to the jury on monitors, marked with highlights to relevant portions. Complex electronic information such as x-rays, medical test results or CAD drawings could be presented in this way. This trend is likely to accelerate in the near future. Accordingly, the use of imaging systems may move from competitive benefit to practice requirement.

Work Product Retrieval:

Law firms have organizational cultures, but do they have an organizational memory? That is, can a lawyer immediately find the document or file which he or she needs? Can she readily find the spreadsheet or correspondence, the fax, invoice, permit, report or design? Institutional memory for a law firm is the ability to retrieve information, based on case, client, topic or any number of indices.

Consider how much time the attorney, legal assistant or secretary spends looking for documents. Using document imaging, paper based information can be incorporated into a computer system as permanently stored, remotely accessible "files". This practice would enable the lawyer or her secretary to find it in a matter of seconds without leaving their desks. Once in the system, documents don't get lost since they can no longer be removed or misfiled by users. Time, expertise and information are a lawyer's most valuable assets. With an imaging system, the attorneys can use their time and expertise to provide client services, rather than to look for information.

File Room and Records Management:

Law firms invest substantial resources in file rooms, including space, security measures, off-site storage, personnel and time. Most critically, law firms entrust their information to the file room in order to secure the information and make it accessible when needed. However, placing records in a file room or off-site storage facility may make information both harder and more expensive to locate. Substantial amounts of overhead dollars are consumed by records management and retrieval costs. Storing records in an imaging system both maximizes retrieval ease and speed and dramatically lowers storage cost and staff expense.

Using document imaging, a firm could:

- Search across all active or inactive files for any client without leaving your desk.
- Share or route a document among several staff members without making photocopies.
- Substantially reduce off-site storage requirements
- Virtually eliminate off-site retrievals
- Retrieve documents using a variety of indices
- Reduce, even eliminate misplaced documents
- Reduce photocopying costs
- Save storage costs (an optical jukebox, occupying less floor space than one file cabinet, containing 20 optical disks can hold about 500,000 pages, replacing over 25 file cabinets of paper).

Financial Document Control:

Law firm back office and client billing operations require that large amounts of paper records be kept and placed in files for extended periods of time to substantiate client charges or firm expenses. This is an expensive, time consuming process that requires substantial file storage space. Document imaging is ideal for managing client statements, receipts, checks and other supporting financial documents. Capture all of these disparate items using the image scanner. The documents are now part of the electronic network and can be routed, annotated and approved - all electronically. If augmented with basic data linked to the firm's accounting system, any authorized user can retrieve these documents by vendor, client, matter or any number of indices. Once located through the search of the system, this supporting documentation could be routed by e-mail or faxed directly from the imaging system to the person requesting back up data. Imaging eliminates unnecessary photocopying, saves storage costs and retrieval time. It also eliminates the embarrassment of losing corroborative data.