

Electronic Imaging and Microfilm:

A Look at Document Management Technology Options

Executive Summary

Technology is constantly changing. This allows companies to improve their productivity, their profitability, and to offer improved service to their customers. Appropriate use of technology enables businesses to gain a competitive edge.

This White Paper looks at the document storage and access problems facing companies and examines solutions. It explores paper, micrographic, and imaging solutions in simple, understandable language to help decision makers better understand their options and the supporting technology.

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Electronic Imaging and Microfilm:

Part I

A Look at Document Management Technology Options

Overview

Storing and securely accessing documents is vital to the success of any business. As well as being able to retrieve records on a moment's notice, organizations need to consider how they will access that same information in the future. Both long-term and short-term document management strategies must be considered.

The good news is that choosing the right technology to support document management need not be a blind guess. Anyone can gain command of the situation by first evaluating their business profile.

When examining the business profile, it's important to consider ALL the areas where paper records and files are maintained. This needs to be considered for both internally and externally generated documents. Customer service files, invoices, accounts payable and accounts receivable documents, human resource files, ledger, tax and legal records, and more, depending on the business, are candidates for a document management storage and retrieval strategy.

A streamlined approach is to go from department to department and evaluate what paper comes in, how it comes in, where it is stored, how frequently it needs to be retrieved and for how long must it be retained.

Short-Term and Long-Term Strategies

Don't Let Paper Turn You into Pulp

Traditionally, information was stored on paper and transferred to boxes when its “high-activity” period expired. When a file or part of a file was needed (inevitably it was), a brave person ventured into the warehouse and grabbed the box hoping that everything was where it should be. Sometimes it was; sometimes it wasn't.

Research from The Gartner Group revealed that when a company does not have a document management strategy in place, employees spend between 20 to 30 percent of their time storing and retrieving information. This number is expected to rise to 40 percent by 2003. (GartnerGroup, *Research Note*, September 27, 2000)

A 1996 Coopers & Lybrand study found that 7.5 percent of paper documents get lost completely and 3 percent are misfiled. While this may seem like a small number, the study pointed out that the average executive spends 150 hours per year – or three hours a week – just looking for lost documents.

That same study estimates that it costs \$120 to locate a misfiled document and \$250 to recreate a document that is permanently lost. With the average office worker responsible for at least 15,000 documents, 1,050 are permanently lost and 450 are misfiled. This means a business could spend more than \$310,000 just looking for, and recreating, information. Considering that the average business document is copied 19 times, the cost of maintaining a paper-based system is formidable.

While in the short-term, “high-technology” promises fast access to vast amounts of image data, technology itself is constantly changing. That's where a long-term “archival” approach can be extremely effective while dramatically reducing storage and conversion costs. While it is true that many of the files stored in archives will rarely be accessed, organizations must ensure that they are able to access a file whenever they need it.

Embracing Technology

In an effort to bring these costs under control, many companies have turned to technology. Unfortunately, however, technology is evolving all the time, and equipment is constantly being updated and replaced with the latest, greatest solutions. Stored data may be perfectly preserved – but inaccessible.

In the 1980s, when the digital era emerged, organizations backed up their data on hundreds of floppy disks – each 12-or-14-inches in diameter. Those with more modern systems had 5¹/₄-inch floppy disks. How many offices have drives to access this data today? Many of the offices with this equipment can't access the data because it is in DOS ® , CPM or other outdated formats.

The Quest for Standardization

Technology, by its very nature, outdates itself every few years. Organizations need to plan for this. Many businesses, scared of making the wrong decision, have held off and done nothing, preferring to wait until the industry develops a universal standard that all technology manufacturers will adopt.

Unfortunately, standardization is not likely to happen. While technology industry trade associations do attempt to set standards, technology manufacturers have their own ideas for creating spectacular technological breakthroughs. The downside to aggressive research and development is that there are always several conflicting standards available, such as DVD-R and DVD-RAM today.

Considering Backfile Conversion

There are more document storage and management systems available now than ever before, each with its own standards, advantages and disadvantages. Many companies that installed digital systems as recently as a few years ago are now being forced to update because the systems are no longer supported or the information stored is not compatible with the systems they are now using.

With document retention periods increasing, long-term archiving is becoming even more critical. It's the only defense against obsolescence.

A Records Retention Primer

Even though many documents, forms and records may not be needed after they are archived, many must be retained for a variety of business practice and legal purposes. While the time periods vary from industry to industry, the trend is to store information for longer periods of time. The longer a document is stored, the longer it is subject to human error, unforeseen disaster, and deterioration from climate conditions.

Today, there are more than 3 trillion paper documents in the United States alone and this is growing by one billion pages a day. Annually, companies spend more than \$5 billion printing out documents that are thrown away after the recipient gets them – because the documents are obsolete.

One reason so much time is wasted gathering information is badly managed filing systems. Only 10 percent of corporate data is in structured databases, the remaining 90 percent – often critical to business processes – lies unmanaged in chaotic file system structures. Professionals spend 5 to 15 percent of their time reading information, but up to 50 percent looking for it!

Record Retention Standards

Linton, Shafer & Company, a large, regional accounting firm, has compiled a list showing how long documents need to be retained. While the time period does vary from document to document, most need to be stored for between 3 and 10 years. Some need to be kept forever.

How Long Do Documents Need to be Kept?

Accounts payable ledgers and schedules	Permanently
Accounts receivable ledgers and schedules	10 Years
Audit reports of accountants	Permanently
Bank reconciliations	5 Years
Capital stock and bond records	Permanently
Cash receipts journal	Permanently
Checks (cancelled but see exception below)	5 Years
Checks (cancelled for important payments, such as taxes, property purchases, special contracts, etc.)	Permanently
Contracts and leases (expired)	3 Years
Correspondence (general)	3 Years
Correspondence (legal & important matters)	Permanently
Deeds, mortgages, and bills of sale	Permanently
Duplicate deposit slips	3 Years
Employee personnel records (after termination)	Permanently
Employment applications	Permanently
Expense analyses & distribution schedules	7 Years
Financial statements	Permanently
General ledgers	Permanently
Insurance policies (expired)	5 Years
Insurance records, current accident reports, claims, policies, etc.	Permanently
Inventories of products, materials & supplies	7 Years
Invoices to customers	7 Years
Invoices from vendors	7 Years
Journals	Permanently
Minutes books of directors and stockholders, including by-laws and charter	Permanently
Notes receivable ledgers and schedules	10 Years
Payroll records and summaries, including payments to pensioners	7 Years
Petty cash vouchers	4 Years
Property appraisals by outside appraisers	Permanently
Property records - including costs and depreciation schedules	Permanently
Receiving sheets	3 Years
Sales records	7 Years
Tax returns and documents relating to determination of income tax liability	Permanently
Voucher register and schedules	7 Years
Voucher for payments to vendors, employees, etc.	7 Years

Solutions

Choose Your Weapon

To simplify your decision making process, take the whole world of available technology and narrow it down to two categories of choices for reliable records management: analog and digital. Paper is no longer a viable option. In this context, analog means microfilming, digital means scanning to a computer.

Analog Strengths and Weaknesses

The strengths of microfilm complement the weaknesses of a digital system. A microfilm solution doesn't require a lot of staff training. It is a proven, truly archival medium with a life expectancy of 100-500 years. It also is robust, reliable, and cost-effective, and it provides a solid foundation for scanning to other media.

Adding to microfilm's uniqueness is the fact that it is the only medium that is readable *without* specialized equipment. Sure, it is more practical to use a reader/printer. But, in a pinch, the only requirement is a magnifying glass. No computer hardware or software is ever needed. In fact, microfilm is the only fail-safe medium that can be read virtually anywhere, at any time, by anyone.

For long-term archival storage, or for short-term storage where retrieval rates are low or instant retrieval isn't an issue, microfilm is a smart choice.

The main downside to microfilm is that it is hard to locate and access stored information on the fly, a necessity in the short-term retrieval needs of most businesses. It also must be processed before the images are available for retrieval.

Digital Strengths and Weaknesses

The strength of a digital system complements the weaknesses of microfilm. Digital technology provides instant access to stored files. Scan paper to a computer system, and you can instantly retrieve the files whenever you want them. It can be that simple.

This accessibility alone is enough to drive most businesses toward a digital solution. The downside exists, but it isn't sufficient to overshadow the benefits. From almost any point-of-view – customer service, legal, accounts payable, etc. – digital shines.

The downside of digital? Long-term retention requires disk management and a migration strategy. Upgrading a current system can cause shutdown for hours or days – a costly event for any company where time is money, not to mention training, or retraining staff. Moreover, since there are rules and regulations governing the retention of business files, expect a major upgrade in the next 7 to 10 years if the company installs a wholly digital system today.

Common Thinking

Adapting technology is inevitable, so the best way to deploy for maximum return on investment is to analyze your situation, now. The chart below will help you do a quick analysis of your unique circumstances. Simply write in the name of the departments in your company with the storage and retrieval functions that best suit their needs. Will you choose analog, digital, or both?

According to Ron Thompson Jr., consultant at OSAM (Optical Systems and Micrographics), “When you get right down to it, it’s just a filing system. That’s why it’s important to fully evaluate the actual needs.”

“Evaluate the paper lifecycle,” Thompson continues, “When paper comes into a department, does it come through the mail, is it one isolated document or are other papers added to it through their lifecycle? What files are your biggest concerns? Do you have a retention schedule? Do you need a backfile? Do you need multiple viewing capability? If you know the answers to these questions, you’ll have a pretty good idea which system is right for you.”

Thompson makes one final, extremely important point, “Very few companies have an adequate disaster recovery procedure. Paper is the most vulnerable form of storage in a disaster. Having readable backup, from both the business and legal points-of-view, is essential for this reason alone.”

<i>Scanning Advantages</i>	<i>Microfilm Advantages</i>
Instant retrieval	Truly archival (long life 100 – 500 years)
Security backup (electronic)	Security backup (duplicate rolls)
Forms readily available	Low-cost solution
Networking of images	Proven technology and standards
Decreased labor costs	Compatible with electronic technology
Easy to access up-to-date information for decision-making	Fast capture
Improves staff productivity	Easy to view and scan
Improves customer service by offering instant access to data	Space efficient
Reduces the need to print documents	Will always be viewable
Requires very little physical storage space	Only archival medium that is legal in all 50 states
Faxing and word processing capabilities	Decreased labor costs
Multiple security levels	No costly upgrades
Capable of automating workflow	Holds an unlimited amount of data in a single photograph

Is Newer Better?

Many people believe that because digital technology is newer than microfilm, it has to be better. It is advisable to avoid blanket acceptance of a technology just because it is new. Remember 8-track tapes and BetaMax videos? They were new once.

New is also a relative term. Digital has been around for about 20 years, microfilm for about 70 years. Both were embraced and used prolifically from the outset. This compelled manufacturers to make systems better and less expensive.

Over time, both technologies evolved in ways that were driven by actual business needs. Because of their evolution, both are worthy of consideration, and age should not be a factor in the decision process.

Microfilm – Slow and Steady Wins the Race

Film-based imaging or microfilming documents began in the 1920s. Several microfilm formats exist. Roll microfilm is 16mm or 35mm wide film with documents arranged sequentially along the film length.

Microfilm is still the only medium recognized by all federal and state government departments in all 50 states as a certified legal copy of a document, once the original is gone (it's standard practice to destroy the documents after they've been microfilmed, but it is advisable to check with your legal counsel before doing so). All courts also accept microfilm images as if they were the originals because it is virtually impossible to make undetectable changes to microfilm images.

Since microfilm does not take up a lot of space, an enormous amount of data can be stored in one place. Its simplicity, longevity and ease of use make it an excellent archival medium.

Digital Imaging – Fast, Versatile and Controllable

Digital imaging not only ensures the integrity of confidential data with multiple security levels – it also makes more information available to those who need it, regardless of their location. This ease of access improves decision making by giving staff access to the most accurate, up-to-date information available.

Giving staff instant access to customer records, financial reports, production statistics and product information improves productivity and customer service by allowing users to get ALL the information necessary to make informed decisions quickly.

For example, a loan officer could check a customer's credit rating, payment history and savings record, while the customer was there. The loan officer could then add additional information such as current salary, assets and liabilities to determine if the customer qualifies for the loan. Should more information be needed, the current file could be electronically saved and additional information added later. Compared to microfilm, this is magic.

Digital imaging can have a significant, positive impact on every part of business activity where paper is handled. A common Accounts Payable scenario occurs when a vendor calls with a question about an outstanding bill. A staff member can access this information and instantly provide accurate answers. Since almost all data can be accessed from the desktop, there is no need to go to the warehouse to locate information. Questions are answered on the first phone call.

With digital imaging, document retrieval is no longer measured in days or hours – but in minutes or seconds – because everyone has access to the information they need with just a few mouse clicks. This is the perfect solution for high-activity periods in the document lifecycle; however, once the activity drops off, other options for managing and migrating the image data must be considered.

Digital imaging is a rapidly changing technology. The one thing history has taught us is that current formats will change. The good news is that businesses can and do enjoy the benefits of increased profits resulting from deploying digital imaging, as long as they think forward to their long-term storage needs and are prepared for changing technology.

Putting It All Together

The Courtship of Analog and Digital

Given all the options, most companies would choose both. Digital imaging for ready access and microfilm for long-term archival storage. While some organizations have taken this route, they are few and far between. The dual solution has for the most part been costly, cumbersome and counter-productive. But the demand for dual systems or “hybrid systems” is growing and some manufacturers are responding.

To date, only one manufacturer has continued to embrace true hybrid capture technology with R&D developments that facilitate producing both a digital and an analog record simultaneously in a cost-effective manner.

The Marriage of Analog and Digital

The Canon DR-5060F solves the age-old problem of long-term record keeping and instant accessibility. Designed for service bureaus, county government, insurance and claims processing, medical records, human resources applications, and financial services such as mortgages, consumer and commercial loans, as well as credit cards, the DR-5060F scans to a computer and backs up documents to microfilm in a single operation. Index data for both formats is also captured and passed on to the host system.

Capable of scanning up to 100 pages per minute, the DR-5060F can process different sized materials, including checks, business cards, letterhead and even 11” x 17” computer printouts, in the same batch without user intervention. Both simplex and duplex scanning are offered and resolutions of up to 300 dpi are supported. To improve readability, OCR reading and forms processing, 256 levels of grayscale are available in text or photo modes, as well as programmable color dropout for forms processing.

The DR-5060F’s automatic document feeder, handles up to 500 sheets at a time, and automatically adjusts for paper size, thickness and skew before scanning, virtually eliminating misfeeds. It easily manages most scanning applications including government records, insurance claims and freight bills.

The DR-5060F is easy to operate. Even users with very little experience will have no problem mastering it. A control panel on the main unit makes it easy to adjust brightness and contrast, select scan settings and use the preprogrammed function keys. Buttons on the control panel activate the scanning, filming or simultaneous scan/film backup modes.

With one touch of a button, users can film simplex and duplex documents on 16mm roll film, with either 24x high capacity or 57x reduction ratios. The DR-5060F can store the following on film in a space that measures only 4" x 4" x 1":

- 2,850 pages of letter-sized documents at 24x reduction ratio (Portrait orientation).
- 6,500 pages of letter-sized documents at 57x reduction ratio (Landscape orientation).
- 16,500 checks at 57x reduction ratio.

Microfilming is controlled by three easy-to-use features on the front panel. A film remaining indicator shows how much microfilm is left on the current reel, a space/trailer key lets you enter a space between images at any point on the roll.

Both ISIS ® and TWAIN drivers come bundled with the DR-5060F to ensure flexible connectivity and compatibility. All DR-5060F drivers work with Windows 95 ® /98/2K/Me and Windows NT ® operating systems and support the SCSI-II interface.

Canon's DR-5060F also supports the following options:

- An Imprinter that prints user-designated characters at any position on recorded documents to streamline the indexing and processing of stored images.
- The Endorser ED600, which stamps an 8-digit number plus a customizable stamp on documents as they are recorded.
- A Bar Code Decoder, so that information attached to documents via a bar code is also read and stored with the scanned document.

Why Scan and Microfilm Simultaneously?

Longevity in two mediums, one with defined conservation standards, one with easy accessibility
Ensured physical access to the original
Guaranteed legal acceptance in all 50 states
Access of the reformatted material is consistent and easily accomplished

Conclusion

Most businesses need the assistance of some form of technology to effectively manage and secure their important documents. Paper is cumbersome and particularly sensitive to disaster.

Business owners and managers need to carefully evaluate their records retention and retrieval needs to determine if their best course of action is to deploy analog (microfilm), digital imaging or both.

Digital is an excellent short-term solution in situations where retrieval demands outpace microfilm's retrieval speed, and when documents need to be shared by more than one user. Microfilm is excellent as a short-term solution where retrieval demand is minimal and also as a long-term archival solution since files stored on film will last for over 100 years. Additionally, microfilm can easily be scanned and brought online on-demand.

For users who require both analog and digital, the Canon DR-5060F offers the best of both worlds in an efficient, cost-effective format requiring minimal staff training. It is the only scanner with a photographic memory, making the best of both worlds attainable now.

Part II: Applications Profiles

**County Recorders Office
OSAM, Phoenix, AZ**

“One Good Deed”

When it comes to managing information, County Recorders Offices face very difficult challenges. They are responsible for the safekeeping of an overwhelming amount of public records, primarily land records including deeds and liens against property. They also face heavy retrieval usage from Title Companies tracing ownership records and researching lien information for real estate transactions.

Recorders Offices contain a mind-boggling wealth of public information, often going back 100 years or more. The oldest records are stored in paper files and in oversized paper ledger books. Many have some form of database/microfilm combination that was installed 30 years ago. This database/microfilm combination may have been state-of-the-art in its day, but it's obsolete by modern standards.

Therein lies the problem. Insiders at County Recorders' Offices are already intimate with the potential nightmare of getting information into an archaic system. Then, when end users come along, everyone gets a first-hand lesson on how frustrating the retrieval process can be. When both sides of the scanning and retrieval process are models of inefficiency, it's time for a change.

“That's almost always the challenge,” according to Ron Thompson Jr., a Consultant at OSAM (Optical Systems and Micrographics) of Phoenix, AZ, “...overhauling the entire system. I know of situations where County Recorders offices have spent many years of intense effort and creativity to accomplish that goal.”

Since Recorders Offices began using microfilm 20 to 30 years ago, and sometimes through today, the recording of public documents is often done through a county-shared mainframe. When a document comes in, it is indexed into the mainframe for access from dumb terminals. This is very slow, and it is only the first step of a much longer process.

About five steps later, most of them manual, the document is ready for filming. Even after the filming, it has to be edited and verified before it is ready for the public. If that sounds like a lot of work for each document, consider the fact that it's common for a County Recorders Office to process up to 6,000 pages per day in this manner!

Once the filming process is complete, users who need to access the documents have to go through several steps to actually find and print them. Users have to locate the documents on the dumb terminal, which refers them to a microfiche card. Then, they have to locate the microfiche at a separate station, display the document on a reader/printer and print a copy from there.

“When I talk to people in County Government, the goal is almost always to have documents available electronically,” says Thompson. “End-users need to be able to sit down at a computer and view the documents on screen without having to go to a separate viewing station or to locate film. If users want to buy a copy of the document, they should be able to just click a print button.”

Once a Records Office “goes digital,” they must also consider the necessity to convert a backfile of microfilm or paper to the new digital format so that previous records will also be available on computer. “Even though your office may be modernized and ready to go online, there might be 100 years of backfile, and you need to think about converting at least a few years, if not 10 or more years, of that backfile to digital,” Thompson advises.

On an ongoing, daily basis, County Records Offices who have gone digital still must keep a copy of all records on microfilm for archival purposes in most states. So, hybrid machines that can scan to both microfilm and computer simultaneously are cost efficient, labor efficient and perfect for the task.

Canon introduced the Canon RFS-1000 hybrid system around 1996/1997. That model has evolved into the DR-5060F. The newer model has faster scanning to digital capability, high quality resolution and more functionality.

Thompson has always recommended the Canon RFS-1000, capable of scanning to both film and digital and now recommends the new DR-5060F, “A few years ago, when the first hybrid machines hit the market, I compared Canon’s RFS-1000 to the nearest competitor and found that the Canon was half the price!” he proclaims. “This significantly lower price enabled me to show people how they could buy two RFS-1000s for the cost of one of their competitor’s models, without sacrificing functionality. The extra RFS-1000 was slated to be the backup so there would never be down time.”

“It turns out that most people are glad they bought two RFS-1000s,” Thompson reflects, “because with higher usage, both are frequently in service at the same time. Figure an average County Records Office currently scans from 3,500 to 4,000 pages on an average day and up to 10,000+ pages on a day at the end of the month when business peaks. To handle that workload, the new DR-5060F scans faster and has more functionality than the previous model.”

Thompson cites Canon’s hybrid systems as essential ingredients in achieving the efficiency goals of a County Records Office or any office needing to keep microfilm for archival purposes. He concludes, “To make your whole system realize its true potential, each component has to serve its specific need and interface easily with the other components in the chain. The Canon hybrids do just that. Everywhere they are installed, they remain an essential part of the whole solution.”

Part II: Applications Profiles

(continued)

First Union National Bank Philadelphia, PA

“Placing the Customer First”

Although banking may have reached an all-time high when it comes to complexity and technology, the foundation on which banking was built remains the same --cash in and cash out. One of the keys to prosperity hasn't changed either, keeping customers happy.

One of the areas where complexity and technology collide is Customer Service. Customers expect virtually immediate access to important documents. The bigger and more powerful the customer, the greater the demands placed on Customer Service. In fact, Customer Service is often the place where the line is drawn between retaining a customer and losing one.

That's the challenge Michele Heilmann, Assistant VP International Customer Service for First Union National Bank, accepted 11 years ago and embraces to this day. Her department supports domestic and foreign-based customers who utilize foreign products that First Union has to offer. Wire transfers and check related products are the major tasks. For example, if you went to London and received a check drawn on a London bank, First Union sends it to the foreign currency bank, they convert the currency from pounds to dollars, and credit your account.

A total of 36 employees report directly to Michele from 3 sites: First Union's headquarters in Philadelphia, PA, and satellite offices in Summit, NJ and Miami, FL. Michele's department serves multi-national corporations, other US banks who don't have overseas transaction capability, and customers overseas who draw inbound cash dollars going overseas.

When Michele arrived on the scene 11 years ago, First Union's method of capturing check images was state-of-the-art, yet inadequate for their needs. Before her time, they sent checks to a service bureau for microfilming, but just before her arrival, they deployed their first in-house microfilming equipment. “We had problems from the first day,” Michele recalls, “Paper jamming and downtime were the biggest complaints. We run 3 shifts, 24 hours a day. A customer in China really doesn't care that it's 3AM in Philadelphia, they need service, and rightfully so, they expect service. It seemed like every time the filmer went down, it took days, maybe weeks, to fix, and that didn't measure up to our Customer Service goals.”

First Union also wanted more capabilities than a simple filmer could offer. As time went on, it became clear what that meant. Michele wanted the capability to scan checks to both film and computer to have an electronic image of a check available immediately without having to wait for the film to be processed. While film served the need for archiving, digital storage brought the retrieval speed to where they needed it to be. Enter the Canon RFS-1000, a device that met both their needs.

“Office efficiency has improved significantly since deploying the Canon,” Michele continues, “There is a dramatic improvement in image quality. There is a piece of paper called a check saver that they couldn’t film on the old system and it works great on the Canon.” The RFS-1000 also films both sides of the check in sequence so hours are saved every day as less manual labor is required.

The RFS-1000 is used by the check area that actually does the processing. At the end of the day, or throughout the day, they film everything. They don’t digitally scan everything, just what they know might be important for fast retrieval. The bottom line is, when the need for retrieval arises, immediate retrieval is available.

For example, First Union has rep offices in several countries that assist in international investigations. Previously, the investigations were repetitive because the international office couldn’t get a copy of the check immediately. Now, Michele’s office captures the images, exports them to a file and sends the file electronically to the overseas rep office. It used to take 3 days to get resolution. Now they get immediate resolution.

While the film version is sent out for processing, the digital version is immediately available.

Another specific area where digital scanning is particularly important is fraud prevention. Where fraud is suspected, a check image is immediately sent electronically to the Loss Prevention Department. They supply supporting documentation and stand a much greater chance of containing fraud, a most valuable customer service.

Customer Service has also eliminated much of the “printing” function that used to be associated with a microfilm-only system. Since the RFS-1000 is compatible with RightFax Online, employees can retrieve the image and fax it online to the customer without ever printing a copy.

Uptime has also dramatically improved with the RFS-1000. “The equipment can’t be down,” says Michele. “With the optional service contract, we get service guaranteed within 4 hours. There hasn’t been much need for this, but with a system working three shifts, you can imagine that service is required from time to time,” she continues, “What I like is that the service company always comes with the parts they need to fix the system, quickly, with no excuses or unnecessary delays.”

Training took about a day. Michele laughs as she recalls the training day, “Not everyone took to the idea of new equipment immediately,” she remembers, “But Tim Morris, our Canon representative, took charge personally and made sure everything went smoothly. We were up and running the next day.”

“It’s a critical device,” Michele reflects, “And I know I can count on the Canon to do the job day in and day out. That’s one less thing for me to worry about, and you can’t argue with that!”

Part II: Applications Profiles

(continued)

From Microfilm to Digital to Hybrid

“A Tale of Two Service Bureaus”

Virtual Image Technology

Fort Mill, SC

Brothers Scott McQueen, Executive VP Sales, and Marc McQueen, Director of Marketing, take the words “service bureau” very literally as it applies to their company, Virtual Image Technology (VIT) of Fort Mill, SC.

“The ‘service’ part of service bureau is the name of the game,” says Marc. “It’s all about helping your customer evaluate their needs and providing a solution that is appropriate,” echoes Scott.

“When a bank acquires another bank, massive data conversion is required. But service bureaus aren’t just for data conversion. If a company wants to save money by storing their vital information with us as in an ASP model, we’re ready to accommodate with our own web browser solution. The modern model of a service bureau is centered on flexibility,” continues Scott.

Their father, Martin MacQueen, still a vital leader in the company, founded Micro View in 1975, in Charlotte, NC to serve the microfilming needs of banks. The elder MacQueen bought film recorders and processors, went to banks with a “better, cheaper, faster” alternative, and business steadily grew.

Business skyrocketed in the late 1970s to early 1980s when a major competitor got out of the film processing business, leaving the bulk of existing customers to MacQueen. At the same time, computer output to microfilm became popular. Martin already had the right equipment to take advantage of these opportunities. By 1990, he had nine regional offices.

Today, VIT has 800 active customers and processes about 3 million images per day. VIT also makes about 50,000 photocopies per month from microfilm and microfiche. The company has gone beyond banking to serve many industries. In the old days, VIT would deliver the processed microfilm to the customer. Today, many companies prefer to let them archive the film and just produce copies as needed.

Although the company was built on microfilm, it continues to migrate to a digital environment as do their customers’ needs. “Each format has its purpose,” says Marc. “It helps to think in terms of the lifecycle of a document. It could be very active in first 90 to 120 days. But, once it becomes inactive, what do you do with it? At some point, everyone needs both microfilm and digital solutions. When we consult with clients, we try to show them the value of using both. We ask questions like what is your retention

schedule, what are your retrieval activity needs, how many people need access, and where are those people located?”

According to Scott, “It makes sense to do both (microfilm and digital), but many people don’t want to do both. I wonder if they want to get away from microfilm simply because it’s old.” Marc adds an age-old truth, “If a company has some predisposition against microfilm, it’s hard to make them suddenly recognize microfilm’s value... until they have an issue where they lose data. Then, suddenly, microfilm makes sense.”

Recognizing the move toward digital, the brothers changed the name of the business in 1998 from Micro View to Virtual Image Technology, to allow for an expanded view of their many services. Today, 54% of the business is digital.

“Everyone can appreciate the obvious benefits of digital, especially if a company has very active retrieval needs and satellite offices,” continues Scott. “But for archiving for more than seven years, microfilm is the most cost-efficient format. You never need proprietary software to retrieve it. We’ve done legacy-system-conversions from systems that are three years old that people have to get out of because they are no longer supported. It can be an expensive, hard-learned lesson if you don’t consider the benefits of both microfilm and digital when deploying a solution.”

Now in their new 100,000 sq. ft. facility in the Charlotte suburb of Fort Mill, Marc and Scott are looking to the new Canon DR-5060F to offer efficient scan-to-CD and scan-to-film capability. They are dedicated to offering digital preservation, whether, on line, near-line, or off-line in analog [microfilm] media.

Offering customers peace of mind without the capital investment of deploying solutions in-house is the motto by which the McQueens run their business. That sounds like a recipe for success.

DRS Imaging New York, NY

In the face of digital solutions surpassing microfilm, The DRS Group Vice President Les Stehmer is pleasantly surprised at microfilm’s staying power. “Believe it or not, 18 months ago it appeared that the trend was going to be all the way to digital, but now we’re seeing a stabilization associated with a cost factor,” Stehmer proclaims, “People are not buying new things.”

Currently, DRS’s business consists of 60% microfilm and 40% digital. But it wasn’t always that way. When Murray Newman started DRS in Manhattan in 1965, it was a pure microfilm service bureau for financial institutions. In time, the service expanded to include law and litigation process and commercial solutions. Les Stehmer’s company, started in 1980 (originally called Superior Microfilming), was bought by DRS in 1998.

DRS broadened its base over the years to lessen its dependence on banking. Today, banking is 20% of the total, medical is 30%, municipal is about 20%, and the remaining 30% is diversified among several areas.

Like every good service bureau, Stehmer offers knowledgeable consultation to his customers. “What is the nature of the files and how are they to be used?” are the first questions he always asks. “If you have documents that are historic to some extent that have to stick around and be retrieved, film them and convert the film to digital for accessibility. If they have a predetermined shelf-life like a year or two, don’t bother microfilming, scan them straight to digital and discard them after their expiration,” he advises.

Most people in the service bureau business remember well the time when digital began to make an impact on microfilm usage. They are also keenly aware of how converting backfiles of unreadable digital data remains an ever-growing segment of service bureau revenue. Stehmer cites 1990 as the year when people became interested in electronic storage. Converting backfiles is 40% of his business now.

Like a true professional, Stehmer knows all the cost-factor comparisons. “Imaging is more expensive than filming, but if you film first, then convert the film to digital, they are more close to equivalent, cost wise. Microfilm capture is faster, retrieval is slower. Digital capture is definitely slower, retrieval is faster.”

He finds the accuracy comparison between film and digital to be different, yet equivalent. “In microfilm, you have film inspection, and in scanning you have a monitor. However, after scanning, you have processes like despeckling, but after film there is no further process. That’s part of what accounts for the faster capture speed of film,” Stehmer notes.

On the topic of changing technology, Stehmer explains, “Service bureaus have analog stuff that’s 30 years old and is as good as the day they bought it. But on the digital side things change. Simplest way to put it, in 1994, you bought a blank CD for \$8, now you can buy them for 25 cents each. On the digital side the prices are coming down, which is also a consideration.”

Regarding companies who now want both film and digital storage for their important documents, “For a penny or two more per page, I can give you both film and the electronic image – quite a few companies have gone that route. The hybrid application is alive and well.”

Part III: Glossary of Terms

Analog – Refers to microfilm in this White Paper. Almost everything in the world can be described or represented in one of two forms: analog or digital. The principal feature of analog representations is that they are continuous. In contrast, digital representations consist of values measured at discrete intervals. Microfilm is analog because it is a continuous photographic image, compared to a digital image, which is computerized and uses individual dots (pixels) to represent the image.

Archival Approach – Also archival strategy. In records retention, documents that must be retained beyond their “active” lifespan are usually placed in some form of archive. The “approach” is the strategy for storing these files and also is the mechanism to access them should the need arise.

Backfile – Paper files or electronic files that exist in an office at the time when a new format or technology is installed.

Backfile Conversion – The process of updating the backfile to the new technology to accommodate retrieval using a new system.

Backup – An extra copy of files or important documents as a safeguard in case the originals are destroyed or inaccessible.

Color Dropout – The ability of a scanner to ignore the background color template in forms and documents, enabling the capture of only the text data.

Digital – In this White Paper, refers to more advanced forms of document management than microfilm, such as the electronic processes of creating an image of a document by scanning to CD or other electronic storage repository.

Disaster Recovery – Deploying a backup strategy that enables the business to access important documents in the wake of a catastrophic occurrence such as fire, flood and/or natural disasters.

Document Management – A strategy for processing important paper documents to ensure their retention, proper storage, retrieval and access.

DPI – (*Dots Per Inch*) Determines the resolution at which a document is captured. Normally when the dpi increases, the scanning speed is proportionately slowed. For document retention, 200 or 300dpi are acceptable standards for the combination of clarity and speed.

Duplex Scanning – A capability to record both sides of a document without refeeding.

DVD-R – An optical disk storage media. The “R” stands for “record-only” and as such, files stored on a DVD-R are unalterable. The storage capacity of a DVD-R is currently 4.7 GB. Currently a proprietary format, no industry-wide standards have been set.

DVD-RAM – A high-capacity, high-performance optical disk that allows data to be read, written and erased. It is designed to work exactly like a floppy disk, allowing users to copy and delete files from it, and use it to run programs. DVD-RAM offers all of the benefits of DVD including high capacity and compatibility with CD formats combined with enhanced rewriteability. Comes in single-sided 2.6 GB capacity or double-sided 5.2 GB capacity. Currently a proprietary format, no industry-wide standards have been set.

Electronic Imaging – Also digital imaging. The act of taking a document and scanning it to create an image that is stored on floppy disk, CD or hard drive.

Grayscale – The ability of a scanner to read multiple shades of black and gray to insure capture of all-important information on a document.

Hybrid Systems – Scanning devices that can scan to both microfilm and computer simultaneously, creating an analog backup copy for archival purposes and a digital copy for instant retrieval.

ISIS Driver – (*Image and Scanner Interface Specification*) - ISIS is a system of software modules, each of which performs a specific imaging related function. ISIS modules are available to control scanners and printers, assist in the viewing of images, compress and convert the format of image data, and read or write files containing image data.

Microfilm – A film media for storing images where an actual photographic image of a document is recorded (in reduced size) on a roll of 16mm or 35mm film and processed using conventional film developing.

Microfilm Reader – A desktop device that displays an enlarged, and therefore easy to read microfilm image.

Microfilm Reader/Printer – A microfilm reader with an additional capability to print the on-screen image.

Microfilm Scanner – A device capable of scanning microfilmed images and transferring the image data to a computer.

Multiple Viewing Capability – Enabling more than one user to access the same document simultaneously, whether in-house or in satellite offices. This is available only in digital format.

OCR – (*Optical Character Recognition*) Software that enables a computer to read and interpret scanned handwriting and other text contained in a document.

Reader – See Microfilm Reader.

Reader/Printer – See Microfilm Reader/Printer.

Records Management – See Document Management.

Records Retention – Legal standards by which businesses must abide that dictate the duration specific business documents must be kept and made available in court if required.

Retrieval – The act of finding and producing a document from a storage facility such as a warehouse, filing cabinet, microfilm, CD or other electronic file.

RFS-1000 – The Canon RFS-1000 Rotary Filmer/Scanner is the forerunner to the new DR-5060F Hybrid Document Scanner.

Scanning – The act of taking a paper or microfilmed document and creating an electronic image on a computer.

SCSI-II Interface – (*Small Computer Systems Interface*) A high-speed computer interface that is the defacto standard for document imaging systems today.

Simplex Scanning – A single-sided recording capability.

Storage – The place where documents are kept for safekeeping such as a warehouse, filing cabinet, microfilm, CD or other electronic file or some combination as it is advisable to keep backup files in more than one format.

TWAIN Driver – An image capture API for Microsoft Windows and Apple Macintosh operating systems. The standard was first released in 1992, and is currently ratified at version 1.9 as of January 2000. TWAIN is typically used as an interface between image processing software and a scanner.

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