

*Canon and CUNA & Affiliates present:*

## **Credit Unions Tackle Records Management: A Look at Today's Document Management Options**

**Summary:**

Credit unions are unique. This White Paper looks at the records management problems facing credit unions. It also examines available solution options. It explores paper, micrographic and imaging solutions in simple, understandable language to help credit union decision-makers better understand their options and the supporting technology.

By:  
George W. Morris  
Product Marketing Manager  
Canon, USA  
Image Filing Systems Division

# Credit Unions Tackle Records Management

## Table of Contents

<b><u>Part I: A Look at Today's Document Management Options</u></b> .....	<b>3-13</b>
The Unique Problems That Credit Unions Face .....	3
How Did You Get So Much Paper?	
The Need for Appropriate, Cost-Effective Records Management	
Core Issues for Credit Unions	
Putting it in Perspective: The "Ins and Outs" of Records Management .....	7
First There was Paper, and It was Good... For a While	
Then There was Microfilm, and It was Better	
Microfilm has Growing Pains	
Weaknesses	
Strengths	
The Electronic/Digital (Imaging) Revolution	
Scanning Gives Digital a Boost	
The Digital Advantage	
Workflow	
Disadvantages to Digital	
Each Technology Finds its Place	
The Hybrid Solution Serves Two Masters	
Conclusion: What Credit Unions Want and Need .....	12
Use these Tools to Help your Credit Union Manage Documents	
To Find Out More	
<b><u>Part II: Application Profiles</u></b> .....	<b>15-21</b>
Telcom Credit Union	
Superior Iron Range Community Credit Union	
Southpointe Credit Union	
<b><u>Part III: Frequently Asked Questions</u></b> .....	<b>22-23</b>
<b><u>Part IV: Glossary of Terms</u></b> .....	<b>24-28</b>

*To have a Canon representative contact your credit union, call CUNA Customer Service at  
800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

# Credit Unions Tackle Records Management

## Part I: A Look at Today's Document Management Options

### The Unique Problems That Credit Unions Face

While credit unions share some of the same features with other financial institutions and businesses, they are unique in their structure and challenges. A credit union is a cooperative financial institution, owned and controlled by the members who use its services. Like other financial institutions, credit unions are closely regulated and are under constant scrutiny from various legal and regulatory agencies regarding efficiency, legal compliancy, accountability, preservation, and accessibility of their records.

According to the Credit Union National Association (CUNA), as of mid-2001, there were more than 10,400 credit unions in the United States. About two-thirds of all American credit unions have assets of \$5 million dollars or more, while a significant number are smaller. Credit union membership totals over 80 million; assets exceed \$492 billion; savings stand at \$429 billion; and loans outstanding equal \$320 billion.<sup>1</sup> Although credit unions collectively represent a sizable industry or movement, there is a great deal of difference between individual credit unions in terms of their records management needs due to their variation in terms of size and product offerings.

Managing ever-increasing amounts of paperwork, however, poses the same relative demands to all credit unions *regardless* of their size or constituency of their members. Today, managing all that paperwork can be critical to the levels of service a credit union provides its members.

For credit unions to keep their competitive advantage, they must meet their members' needs and maintain member satisfaction. Efficient service that includes timely answers to members' questions is one area where records management can help achieve these objectives. For credit union management, this is where choosing the appropriate technology and deploying it properly can make a difference.

In a White Paper entitled *The Document Life Cycle*, published by the Association for Image and Information Management (AIIM International), author William Saffady wrote, "Paper, micrographics, and electronic media can and must coexist in document management applications. These media are less competitors than allies. It is not the task of document management to prefer one storage medium over the others, but to match media to specific application requirements."

---

<sup>1</sup>"Key Facts about U.S. Credit Unions," [www.cuna.org](http://www.cuna.org).

## ***How Did You Get So Much Paper?***

Credit unions generate documents from three key areas:

- Teller operations
- Member services
- Internal business administration.

Daily checks, share drafts and supporting daily work require special short-term attention. Financial institutions need to protect this information before it leaves their offices en route to a central processing location or clearinghouse. Documents must be kept secure to maintain member confidentiality and meet the requirements of the various regulatory bodies. As an initial level of safekeeping, many credit unions already are using microfilm or imaging technology to capture images of these transitory documents.

Conversely, credit unions are more likely to keep member files and business files on paper. Member files include the documentation surrounding loans and credit cards. Business files include records regarding administration, accounting, human resources and board minutes. Credit unions tend to store documents on location, often in file cabinets, until well after their retention date. When space limitations no longer permit on-site storage, files are transferred to boxes and stored somewhere out-of-the-way with the other “old files,” or they are relegated to an off-site storage facility.

In today’s business environment, however, credit unions need to find effective processes to manage all of the daily paperwork they handle and then to store it for years to come. Paper filing can become a persistent burden. Today’s technology helps credit unions confront these issues and provide beneficial member services in the process.

## ***The Need for Appropriate, Cost-Effective Records Management***

Serving members and maintaining their confidence are essential ingredients to a credit union’s success. To achieve this, credit unions must be able to locate and retrieve documents on demand. Having the right records management system is critically important.

Moreover, the solution must work within the existing logistics of the organization. Budget, space considerations, compatibility with present systems, availability and skills of personnel are just a few of the issues confronting records and technology-related decision making. In addition, factors such as legal preservation, file integrity, disaster recovery, and changing technology are less tangible, but imperative considerations to any records management program.

## *Core Issues for Credit Unions*

**Space** – Paper documents take up an enormous amount of space. A loan or mortgage file often exceeds 25 or more pages by the time it is paid and closed. Credit unions that have switched to microfilm or electronic storage of documents have been able to reduce their storage and space costs, not only in actual terms, but also with respect to floor planning, office design and even future site planning.

Consider that even a CD disc stores the equivalent space of a 4-drawer file cabinet that costs \$300. Add to the cost of the cabinet the cost of space (square footage), file folders, the time to label and set folders in place, and the time to manage them day in and day out. The file cabinet requires 9 square feet of floor space (assuming that you want to be able to open the drawers). In comparison, a CD-R disc costs about \$2 and takes up virtually no space.

**Accessibility** – Filing and refiling paper documents is costly and inefficient. Each time a paper document is needed, a staff member must search through the filing cabinet, locate the document, physically transfer it to their desk, work with it, and finally, refile the document (hopefully, back in its correct location).

These factors magnify when the needed documents are warehoused off-site. The time and effort needed to locate a single piece of paper can be considerable. Delays and labor costs begin to exceed reason.

Documents stored electronically can be accessed immediately from PCs. In many cases, the credit union representative can provide members with the information they need while they are still on the phone. This prevents “on hold” anxiety and endless rounds of telephone tag. Members are annoyed by an “I’ll have to call you back when we find the file” response to their inquiries.

**Legal Preservation/Security** – Original files on paper are more subject to potential disaster than any other form of media. Light, heat, cold, moisture, and almost every atmospheric condition ages paper, to say nothing of the wear and tear from basic handling. Then, there are the true disasters like fire and flood. Companies buy insurance on their buildings to cover loss and replacement, but lost information or files are often not replaceable, and if they are, it can be at a prohibitive cost.

A common sense strategy to avoid the problem of lost files is to make backup copies of important documents, either digitally or on microfilm. What most companies quickly discover when they do this is that the backup formats are much easier to access than the original paper. They end up using the backups for everyday business and relegate the original paper to the backup role!

Further, if a credit union waits to back up files, either on microfilm or digitally, until their retention period is expired, they have essentially lost many of the accessibility benefits either of these storage media could have provided if they had been implemented from the outset.

**File Integrity** – As with any paper-based filing process, maintaining file integrity is a difficult task to manage. In this context, “integrity” means “everything in its proper place.” In record keeping, it’s common for documents to be misfiled. Studies of record systems reveal that at any moment in time, an average of 5% of all documents are either lost or misfiled. Sometimes whole files can be misplaced. This can happen with the most important documents just as easily as with the least important ones. Locating a missing document or critical piece of information can be time-consuming and, as a consequence, costly. If it’s a legal matter, the stakes can be extremely high.

**Compliance and Disaster Recovery** – For compliance, the National Credit Union Administration’s (NCUA) *Accounting Manual*, Section 5190, addresses the topic of records management for credit unions. It states: “The purpose of microfilming records is to improve efficiency by limiting the resources a credit union must expend to maintain records. This goal may also be accomplished by use of an optical imaging computer system.”

Additionally, according to NCUA’s recent update of Rule 12 CFR part 749 pertaining to records preservation, “Credit unions may store records in any format that is accurate, accessible and capable of being reproduced by printing, transmittal or other methods, as permitted by the Electronic signatures in Global and National Commerce Act, 15 U.S.C. 7001.”

The NCUA update goes on to say, “A credit union is responsible for establishing a vital records preservation program. This program requires procedures for storing duplicate vital records at a vital records center. A vital records center is defined as a storage facility at any location far enough from the credit union’s offices to avoid the simultaneous loss of both sets of records in the event of a disaster.”

Finally, the report update recommends, “...it is always advisable that before a credit union destroys any files that it converts to microfilm or image that it obtain advice about the ultimate legal acceptance of the reproduced format within its regulatory jurisdiction.”

**Service and Compliance** – “*Not for profit, not for charity, but for service* is a credit union motto,” reports the NCUA.<sup>2</sup> To their tribute, “Credit unions have rated No. 1 in customer satisfaction among financial institutions for 10 years,” according to the *American Banker Newspaper’s* Annual Customer Satisfaction Survey.<sup>3</sup> But staying number one is difficult in a changing and competitive environment.

Deploying the right records management technology can serve both service and compliance issues simultaneously. Richard Harvey, CEO of Superior Iron Range Community FCU (formerly Negaunee Community FCU), believes strongly that efficient, fast, reliable records management can have significant impact on member satisfaction and compliance management.

---

<sup>2</sup> National Credit Union Administration, <http://www.ncua.gov/about/what.html>.

<sup>3</sup> “What is a Credit Union?” <http://ncua.gov/about/what.html>.

## **Putting it in Perspective: The “Ins and Outs” of Records Management**

### ***First There was Paper, and It was Good... for a While***

What did everyone do before computers, microfilm, and high-tech solutions? In the beginning, there was paper. Ninety percent of all business information begins as a paper document. (Most computer information is a compilation of data transcribed from paper records). As businesses grew, credit unions included, so did the volume of paper they generated.

The influx of paper continued to regenerate itself – more files, more cabinets, more boxes. And the associated costs and problem issues of managing all that paper compounded as well.

Plus, the high risk and consequences of losing member information became more alarming. To a credit union, loss of information could be devastating – especially if reconstructing lost or destroyed files is impossible.

Businesses had to begin considering the “life cycle” of paper documents. The life cycle refers to how long a document must be retained as well as to the need and frequency for retrieving it. Typically, documents have a period of high retrieval activity when they are new. Their activity diminishes over time until they finally become inactive. Some documents, for legal reasons, must be retained long after they become inactive. They must be available for retrieval during their inactive period should the need arise.

### ***Then There was Microfilm, and It was Better***

Initially, microfilm offered a better alternative to paper. Microfilm emerged as an archival medium in the 1930s. Within a decade, it was utilized by financial institutions, government and large retail stores. Over the next 50 years, as improvements in filming speed and image quality of filmed documents improved, credit unions embraced the technology as well. Standards and regulatory acceptance evolved.

In the microfilming process, a miniature photographic reproduction of the image is made. Because of the miniaturization process, microfilm has immediate advantages over paper in the significant areas of storage and retrieval.

Credit unions began implementing microfilm to film their daily checks and share drafts to create a security backup file for the time that the originals moved forward to a central processing site. Additionally, microfilm offered legal acceptability, technological independence and reliable reproducibility. Since a roll of microfilm can store between 10,000 and 12,000 checks/share drafts, the amount of storage space needed was reduced considerably compared to a filing cabinet crammed with paper.

In short, microfilm gave credit unions the characteristics they needed for a secure archive, providing:

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

- Cost and storage efficiency
- Long-term file integrity
- Low per unit costs for conversion, storage and retrieval
- A practical solution for back up files
- Independence from changes in technology
- Reliable reproducibility of records
- Legal acceptability

Although large numbers of credit unions enjoyed the speed and efficiency of microfilm for transaction files, few utilized the technology for their member and business files. Loan documents, credit card files, accounting and other administrative documents were still generally retained on paper. These remain the areas that offer room for improvement at many credit unions.

### ***Microfilm has Growing Pains***

At first, microfilm was a revelation compared to paper. Credit unions saved space and protected against loss. But as time passed and usage-demand increased, shortcomings became noticeable, especially when compared to emerging digital technology.

### ***Weaknesses***

**Delay-to-Accessibility** – A roll of microfilm can hold about 12,000 checks, which means that at an average rate of 1,000 to 2,000 checks per day, it could take up to two weeks before a roll was filled and ready for processing. Film processing normally takes a few additional days, delaying the availability to access these documents even more.

**Daily Access** – In order to utilize microfilm on demand and as a daily process, a Reader/Printer is needed to locate an image and make a print.

To retrieve documents on microfilm, users would first find a specific microfilm reel, usually stored in cabinet drawers or a vault, labeled by a range of dates. They manually threaded the film into the Reader/Printer and scrolled through a series of dates and batches to find the desired document. After printing the document, they would rewind the reel and return it to the location from which it came (ideally). Then they would send or fax the printed document to the requestor.

Although the process of retrieving and printing an image from microfilm is not as arduous as it may sound, it is still a multi-step process. It is not in the same realm of efficiency as a desktop PC operation, where a few clicks of a mouse can find and send documents in much less time.

## ***Strengths***

The undeniable advantage of microfilm is that anything placed on film has a life expectancy of over 100 years. That's as close to forever as you can get in the document storage world. As a long-term archival medium, nothing yet rivals microfilm.

There also is the fact that when processing batches of documents, microfilm cameras capture images faster than digital scanners. You can film a batch of documents in much less time than it takes to scan them digitally. Therefore, microfilm must be considered as a viable option for high volumes of daily outgoing teller transactions.

## ***The Electronic/Digital (Imaging) Revolution***

Over the last 20 years, digital technology has changed the way we live and do business. Most businesses use digital technology when they turn on their computers everyday.

Many credit unions recognized that digital capture and storage could streamline the short-term records management and retrieval processes. Those who embraced the new technology saw immediate, positive results.

## ***Scanning Gives Digital a Boost***

When credit unions first adopted digital technology, the prevailing thought was that digital imaging opened new prospects for managing information that surpassed the basic attributes of microfilm. This new technology held promise that all businesses, credit unions included, could better address the growing demands of records management and its associated responsibilities. And in many ways, this was true.

What facilitated digital storage of documents was the development of scanning technology. Scanning is the process of converting a form, document, photograph or film into an electronic image that can be viewed on a computer system. This process is also referred to as *image capture*.

Scanned documents can be indexed as they are scanned, and utilized to much the same extent as any other computer supported file. Users can cross reference documents and pinpoint pages...in a flash! Then, using the resources of the PC and their network, they can send the document to its prescribed destination with the click of a button, without ever producing a piece of paper.

## ***The Digital Advantage***

Although microfilming has a faster capture rate than scanning and is still a popular solution for high volume applications, it is the immediate availability and ease of digital

retrieval that makes the difference. In addition, digital capture speeds are closing the gap. Digital offers many other advantages, as well:

- Faster access, search and retrieval speeds
- Low cost media
- Networked distribution
- Multi-user access
- Cost-effective storage
- Inexpensive and efficient back-up
- Electronic image enhancement

One key reason credit unions are attracted to digital solutions is that access is immediate. In contrast to microfilm, digital imaging offers access to documents immediately after they are scanned and stored on a hard drive or disc. Digital can also provide instant verification of the image capture process during scanning. With microfilm, if anything goes wrong, you may not know it until the processed film is returned. Unfortunately, this is usually long after the checks are gone and it is too late to do anything about it.

Digital imaging reduces costs because it enables the user to scan and store a variety of documents with one system. There are compact desktop systems that use state-of-the-art imaging technology to digitally scan documents, quickly. These systems allow data storage on digital media such as CD-Rs or onto a shared or local drive on a network. This makes it easy to retrieve, view and move documents across an enterprise system.

Electronic imaging solutions may include automatic-indexing functions, which can reduce conversion costs by up to 60%. Manual indexing is labor intensive and prone to human error. Automating this function improves accuracy and ensures documents are stored in the correct location. Some systems can read bar codes so that data descriptors can be assigned to searchable fields. A good imaging solution can enable indexing to complement searching to multi-level parameters. This can be beneficial in managing related applications like member files where the member name and number are common denominators.

Additionally, there are hosts of products that can be integrated to meet most any objective. There are even small, turnkey systems that can offer new levels of efficiency for small credit union needs or departmental solutions at the largest credit unions.

### ***Workflow***

Another advantage of digital imaging is the ability to add electronic workflow applications to a system. A typical credit union produces large volumes of paper every week. While traditional imaging systems make it easy to store and access documents and offer credit unions great cost savings, workflow enables a document to be routed automatically as part of a workflow process and also allows users to perform parallel operations. This enables users to reach end results faster and more efficiently.

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

## ***Disadvantages to Digital***

If there have been any disadvantages to digital/electronic imaging, they are inherent in its own innovation and growth. Digital storage technology has changed dramatically over its short history. Depending on when a credit union or other business purchased its equipment, it is likely that the organization already has migrated through a variety of formats. Anyone remember Winchester drives, 7 and 9 track tape, or 8” and 5.25” floppy disks, to name a few? Each was the state-of-the-art technology for its time and each had distinct advantages.

Each time there is technological evolution, some costs are incurred and, therefore, must be planned for. Most early advocates of digital technology agree on two points.

1. It is important to anticipate changes in technology and budget accordingly.
2. As long as you deploy a technology that is appropriate for your needs, budgeting for changes ultimately costs less than the loss of business resulting from avoiding technology.

## ***Each Technology Finds its Place***

CDs provide plenty of storage space at low cost for files that may need to be retrieved quickly. CDs are unbeatable for this purpose. Plus, almost every current model PC comes equipped with a CD-ROM drive.

Microfilm provides an excellent archival solution for documents that have to be retained for many years while retrieval demands diminish with time. Additionally, by archiving to microfilm, credit unions won't face the concern or cost of having to convert a backfile of digitally stored files if the format changes or becomes obsolete or outdated.

In distinguishing between technologies, the relevant reference point is understanding the life cycle of your files. Documents have periods of high activity, low activity and flat out, no activity, but you have to retain them. Typically, during the highest periods of activity, the accessibility of electronic images is obviously advantageous. If, at the other extreme, records have a long retention period but low activity, then microfilm is a plausible consideration.

Each credit union must evaluate both its short-term and long-term needs. According to a 1998 AIIM report, the “information storage life expectancy” of microfilm has an archival life of around 200 years. In comparison, the archival life of a CD-ROM is estimated to be between 25 and 35 years. In a long-term archival circumstance, it's clear which figure best represents “forever.” But in the short-term, a CD provides dramatically faster access and more universal application. The majority of credit union records fall well within the life expectancies of both media.

## ***The Hybrid Solution Serves Two Masters***

For a while, it looked like microfilm was on its way out and electronic imaging would prevail. To many people's surprise, though, digital technology actually gave a boost to microfilm.

Today's new digital microfilm scanners have actually enhanced microfilm's capabilities and practicality. Now, documents can be retrieved and digitized directly from film at a reasonable cost. Credit unions can simply combine microfilm archival storage with the latest scanning and image enhancement technology to enable their microfilm files to be electronically accessible.

However, decades of information remain stored on microfilm and companies still need to access these records. Several manufacturers began producing hybrid systems (systems designed to combine digital scanning with microfilm) and brought microfilm back to the mainstream.

There are capture and retrieval devices that combine the two mediums: Hybrid document scanners that create both a digital and microfilm record at the same time; and microfilm scanners that digitally convert microfilm images to computer manageable documents.

Today, these systems successfully bridge the gap between the speed of digital access and the need for long-term microfilm archival storage.

## **Conclusion: What Credit Unions Want and Need**

There are many challenges facing credit unions, and the solutions should appropriately fit the needs. Credit unions need to retain and manage important financial and member documents. With today's technology and available products, a credit union can find economical systems that offer practical and easy-to-use solutions to address their unique records management needs.

While digital imaging solutions offer many distinct advantages over microfilm, there are some instances where microfilm continues to meet the objectives of credit unions. Hybrid solutions using microfilm scanners have moved an analog media into a digital age, making them a practical solution in many instances.

Each credit union needs to examine its resources, needs, existing technology and objectives to make the best decision. Digital solutions are the best bet in some circumstances. Microfilm has merit in others. And a hybrid solution is appropriate in others. Carefully evaluating needs, budget and objectives, and matching the solution accordingly will yield the desired result.

In addition, credit unions need to apply their document management solutions to more segments of their business (transactions, member files and business) in order to operate more effectively and to provide even better levels of member service in the industry.

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

## **Use These Tools to Help Your Credit Union Manage Documents**

### **First – Know Your Retrieval Needs**

1. Analyze your needs. Determine the activity cycle and lifespan of records from transaction files, member files and internal business files.
2. Calculate the potential amount of retrieval for an average file in each area. Make a graph to show the frequency of retrieval vs. the age of the file. This will tell you when/if you need a digital solution and when/if you need to archive.
3. Once you evaluate your records management needs from these two simple steps, many questions about your specific solution will already be answered.

### **Second – Establish Compliance**

1. Check with your state credit union league's compliance department.
2. Check with your state or federal examiner, depending on charter.
3. Check with your credit union's attorney.
4. Check on Cobweb, CUNA's electronic listserv for compliance issues on [www.cuna.org](http://www.cuna.org).
5. Call CUNA Washington's compliance hotline at (202) 682-4200.

### **Third – Evaluate Solutions to fit Your Needs**

Credit union experts report that an ideal system appropriate for credit unions should:

- Utilize state of the art imaging technology
- Offer options to store data on a company's network
- Make it easy to retrieve, view and move documents in their network environment

Other special features, depending on need, might include:

- Filing/auto indexing functions -- which streamline the storage and retrieval process
- Ability to read bar codes
- Optical Character Recognition (OCR) to facilitate self-indexing schemes and assign searchable data fields

In addition, the system should enable integration with any existing office imaging systems, to complement existing processes.

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

***To Find Out More***

To have a Canon representative contact your credit union to recommend how records management technology can help your specific credit union, contact:

CUNA Customer Service  
5710 Mineral Point Road  
Madison, WI 53705-4454

Fax: 1-608-231-1869  
Email: [customerservice@cuna.com](mailto:customerservice@cuna.com)  
Phone: (800) 356-8010, press 3 (8:00 a.m. – 4:30 p.m. CST)

*To have a Canon representative contact your credit union, call CUNA Customer Service at  
800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

## **Part II: Applications Profiles**

**Telcom Credit Union**  
**Detroit, Michigan**

### **Canon Helps Detroit Credit Union Improve Productivity**

The Telcom Credit Union has come a long way since it was established by Detroit employees of Michigan Bell Telephone Company in 1936. Over the years the credit union has grown to offer a range of services second to none.

“In 1936, our biggest challenge was raising capital,” says Mark Hurt, Telcom’s Technical Administrator, “We did this by selling each member a single \$5 share. They were then able to have money deposited directly from their paychecks into an account and were eligible to apply for a loan – as long as it did not exceed \$200.”

Today, Telcom is one of Michigan’s largest credit unions with \$300 million in assets, 30,000 members, 80 employees, and 25 offices and service centers in three states. It offers a full range of services including: interest-bearing checking and savings accounts; IRAs; disability, car and life insurance; consumer and real estate loans; credit cards; ATMs; money orders; travelers’ checks, etc.

“The main difference between us and other financial institutions is that we exist solely for the benefit of our members,” says Hurt. “Our board of directors, which sets the operating policies, is elected by the members to look after their interests.”

“When we opened in 1936, things were pretty simple,” says Hurt. “Everything was done by hand and all of our records were paper-based. While this worked well, it was difficult to find information. If we were still using this system, we would need massive amounts of space just to store our current records.”

In the 1940s, Telcom upgraded its record-keeping systems and began microfilming its checks and teller files. This improved productivity dramatically and secured member deposit items from the time they left the credit union on their way to the clearinghouse.

“But it was still a manual system,” says Brenda Depcinski, Telcom’s Head Teller, “Members still had to wait for us to research information before we could respond to an inquiry. If they needed a copy of a check for their records, it was a time-consuming and costly process.”

“A staff member had to go to the archive, physically locate the roll of microfilm, and manually search for the check. After we found the check, it had to be printed and sent to the member. Although the system did work, there were shortcomings. Quality was hard to control, sometimes because of the checks or because of the process itself. Searching

*To have a Canon representative contact your credit union, call CUNA Customer Service at  
800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

for a check on microfilm was often a multi-step process, especially when a member's identifying information wasn't always accurate. Depending on how busy we were, the process could take anywhere from one day to one week. We felt there had to be a better method," adds Brenda.

Check management wasn't the only area of its operations that Telcom wanted to upgrade. "All of our loan documentation was on paper," says Sue Bryant, Telcom's Credit Analyst, "While we did not need to convert our existing files, we wanted the new system to go forward. We were issuing more and more loans each year and our paper-based systems were becoming unwieldy."

In 1997, Telcom started looking at solutions. "There were many systems out there, but few of them met our needs," says Hurt.

"We discovered the Canon CD-4046 Digital Document Recorder," he continues, "This was perfect for our needs. The total cost was less than \$8,000 and the productivity benefits were immediate. It was easy to use and learn – and worked with our existing computers. As many of our staff members had PCs at home, and were familiar with our existing computer systems, we did not have to teach them a totally new system. We also needed an immediate productivity boost and a favorable return on our investment (ROI)."

In 1998, Telcom installed their first Canon CD-4046. Today they have two Canon CD-4046s and one (newer model) CD-4050. To say the least, they are very happy with the system.

"We noticed an improvement from the minute we installed our first machine," says Depcinski, "Everyday, we process between 1,000 and 1,500 checks. Although our primary objective is to protect the cash letter when it leaves the office, you never know when one of our members might need a copy. Our longer-term members are especially impressed when we print it out on the spot. Not only have we improved service for them, we've reduced costs for us."

Telcom has made equally dramatic improvements in its loan department. All loans require documentation, and while the amount of information needed varies from loan to loan, files of 15 to 20 pages are common.

"When a member applies for a loan, we scan in the application and index it by member name, account number, loan type and date," says Bryant. "If something changes, such as another person needs to co-sign, we just scan in another page. After the loan is issued, we file it on a CD. Since we can store 300 to 400 loans on each CD, it's a very effective use of space and the information is kept secure. While we do retain the paper records for a year, with Congress passing the Electronic Signatures in Global and National Commerce Act last year, scanned signatures are now legally recognized by the courts."<sup>4</sup>

---

<sup>4</sup> See *Credit Union Magazine*, October 2000, "Electronic Signatures Legislation Raises New Questions," page 108.

Telcom has received many benefits from their system that they did not even consider at the time. Security is one of the most significant. “It’s very easy to make backup copies,” says Hurt. “We simply burn another CD. In the past, I used to worry about something happening to the original files. Now, we’re protected.”

“We keep a backup copy of each CD in the vault and store a copy offsite in case the worst happens. When another branch needs a copy, we can provide it. Productivity has increased greatly because staff can access the information more easily and we no longer have to worry about losing documents or files,” explains Hurt.

“The quality is much better than microfilm – and the cost is much lower. We used to spend \$30 to \$40 a month on microfilm. Now we spend less than \$1.50 for each CD. The Canon system is clearly saving us money. Scanning the checks faster means we get our money more quickly. If the only benefit was sending checks to the Federal Reserve Bank earlier, the system would pay for itself within 18 months. Of course, there are many other benefits.”

Hurt continues, “One added benefit is a happier and more productive staff. We have maintained the staff size while increasing productivity. Using the old method, I would need more staff to provide the services we currently provide with Canon’s solution.”

“If I had to do it all again, the only thing I would do differently would be to start the process earlier. Canon has been great to work with and they went out of their way to make sure we were happy. I’m positive we made the right decision, and never had to second guess myself,” concludes Hurt.

## **Part II: Applications Profiles**

*(continued)*

### **Superior Iron Range Community Credit Union**

(formerly Negaunee Community Credit Union)

**Marquette County, Michigan**

## **If You Don't Change, You Die**

“Not for Profit, Not for Charity, But for Service,” is more than just a slogan at the Superior Iron Range Community Credit Union. It's the way they do business.

“Our goal is to provide our members with the best quality service at the lowest possible cost,” says Richard Harvey, Superior's CEO and Managing Officer. “We aim to offer our members all the services they need so we can be their primary financial service provider.”

The strategy appears to be working. Today, Superior has 42 employees, \$36 million in assets, 3 branches, and over 8,000 members who live, work or worship in Marquette County, Michigan. Established in 1948, the credit union is now in the top 25 percent of Michigan's credit unions.

“One of the reasons why we've grown over the past few years is because we've embraced technology,” says Richard. “I spent 26 years in the Air Force, which is one of the most forward thinking places when it comes to technology. Their unofficial motto is 'If you don't change, you die.'”

“The Air Force taught me the importance of standardizing your systems. The problem with manual systems is not inventing a standardized system, but maintaining it. It's too easy for a staff member to get around a procedure because they are busy or under pressure. This can cause problems later.”

Three years ago, Superior (then Negaunee) began updating its systems. They had 40 years of records stored in boxes, no computers and were drowning in information that they had no need for, or way to access.

“Our microfilm was a mess,” says Richard. “We had five years of daily teller receipts and all operational files on microfilm, and an antiquated dry-silver process microfiche reader/printer. Unfortunately, we had no way to read the microfilm.”

Superior felt there had to be a better system and started looking at solutions. “Most were not suitable,” says Richard. “Many companies showed us what they had, and expected us to change the way we did business so their system would work. Canon was different. They saw the opportunity as a partnership and offered to work with us to develop a solution that fit our needs.”

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

“We now have two Canon CD-4050’s and love them. They work with our network and are easy to use. One of the reasons we bought Canon was because it fit exactly what we wanted to accomplish – with an easy learning curve. It is also expandable. While we are currently using CDs for storage, we can add optical in the future if we need to.”

One of the biggest productivity advancements has been at the teller line. Superior imaged all of its signature cards. “In the past we had to go to the files in back to find a signature card when a teller needed to verify a signature,” says Richard. “This process was time-consuming and expensive. It also led to long lines at the teller stations.

“Now we just click on the CD drive and can get this information instantly. Every month we update the CD, which costs us just \$1.50. Our staff loves the system. While some of our older staff members were worried about the system when it was first installed, they have taken to it like a fish to water.”

“Before we installed the system, we had one computer,” says Richard. “Today we have a network of 35 computers. When we first started looking at solutions, many of our board members were opposed to upgrading our systems because it required a major investment. They were also worried that we would lose our personal touch, and that it would increase our costs and price us out of the market.”

“These fears were groundless. While the system certainly was not cheap, the ROI was outstanding. In just over a year, we had recovered our investment. And, contrary to popular belief, we increased our level of personal service,” adds Richard.

“Information that might have taken hours or days to locate, is now available instantly at the click of a mouse. One of the biggest values of the system is its expandability. This makes it easy for us to introduce new products, expand our range of member services and deal with compliance issues as new rules are introduced and old regulations updated.”

“One of the hardest things a credit union has to do,” notes Richard, “is prove that they are in compliance with all the rules. With manual systems, it is virtually impossible because you need complex audit trails and you have to be able to locate every piece of information the regulator needs. With paper it is often hard to find this information, let alone prove you did it right.”

“The Canon system makes it easy. In fact, we have passed our last two federal audits without a single write up. This is quite an accomplishment.”

“For me,” explains Richard, “the most satisfying part has been the way people’s attitudes have changed. The board members and staff who were most vocal in their opposition to the system, are now its strongest supporters. They wonder how we ever did without it.”

## **Part II: Applications Profiles**

*(continued)*

**Southpointe Credit Union  
St. Louis, MO**

### **Evaluate, Decide, Deploy**

It was a familiar scenario. Paper was stored in file drawers. Checks that needed to be recorded on film were farmed to a local bank for filming. Volume was moderate and the system worked.

That's how it was when Nancy Buehler, Member Service Manager joined Southpointe Credit Union in St. Louis, MO, 15 years ago. But all things change, and when the bank they used for microfilm service was no longer available, decisions about technology had to be made.

“Carefully evaluating our needs was the most direct path toward effective, cost-efficient technology deployment. Because of that, the decisions we made 10 to 12 years ago proved to be the right ones for our situation,” Nancy proudly proclaims.

Southpointe Credit Union just celebrated its 50<sup>th</sup> anniversary. At \$18 million in assets, they are not the largest credit union in Missouri. Nevertheless, Nancy and the staff at Southpointe CU think big and make serving members their highest priority.

They recognized two things early in the technology decision-making process that pointed them in the right direction. First, they closely evaluated their paper and storage needs. Because their paper volume was still manageable, they were able to store original files on-premises, where they could be retrieved with little effort. Second, they re-examined their retrieval needs. Previously, they had outsourced filming for checks. Additionally, they found that their need for retrieving checks was relatively infrequent. They would get a call to retrieve one or two checks per month, and most of those checks were found within the most recent three months.

Therefore, they concluded that their check filming requirements would be best served by keeping the filming in-house. They deployed microfilm equipment in the late 1980s and have been happy with the process ever since.

Even though Southpointe membership has grown steadily over the years, a higher proportion of members now opt for direct deposit. Consequently, the volume of checks per day has remained fairly consistent at an average range of 400 to 500 checks per day.

Nancy does the filming with her staff. Tellers film their own checks at the end of each day, and Nancy films the daily work (receipts and supporting documentation), personally. Nancy reflects on the ease of getting the tellers into the task, “I wouldn't even consider it training. The tellers do their batches, all at close, after they do their balances, so

*To have a Canon representative contact your credit union, call CUNA Customer Service at  
800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

everything reconciles with their check tape. The film is stored in fireproof safes or file cabinets.” She concludes, “For us, it’s a great system that suits our needs.”

The original system lasted about ten years, a remarkable feat amid changing technology. Then, about two years ago, it became clear that it was time to review the strategy and make some modifications. “When we filmed on the old system, too many checks overlapped. When you get overlap, you have to practically feed each check manually, which is too inefficient. At the same time, technology options had advanced, so we decided to compare updating our existing film equipment vs. a digital solution,” Nancy explains.

As in the past, the solution became clear after they carefully evaluated their needs. Nancy continues, “We realized that we just didn’t have the speed and volume retrieval requirements that point to a digital solution. When we learned about Canon’s equipment that featured ‘reliable feeding,’ it appeared that our main problem of overlapping would be solved by simply replacing the older equipment with the Canon microfilmers. With the Canon RF-550DII, tellers can cue a stack of checks and get no overlap, which allows them to process more documents, more reliably. It’s an efficiency issue.”

Another factor in the decision is that Southpointe doesn’t currently film their loan documents. Nancy agrees that if they ever were to add that component, a digital solution would be appropriate, “If we did film loan documents, we would be looking at scanning.”

For now and in the foreseeable future, they are very comfortable with their decision and aren’t planning on making any changes for the next several years. There is no reason to change.

By evaluating their needs very carefully, Southpoint Credit Union was able to determine the level of solution for their requirements and utilize the technology to the fullest.

## **Part III: Frequently Asked Questions**

### ***How do micrographic/imaging services help my credit union?***

Micrographics (microfilm and microfiche) and digital imaging replace paper-based filing systems to improve record keeping efficiency. These efficiencies are most noticeable in saving time, saving space, and reducing storage costs. Increasing manageability also improves security for disaster recovery and legal compliance. In addition to the benefits of using micrographics, electronic or digital imaging systems can dramatically increase access to critical information. This provides better member service as important documents are instantly available when requested, retrievable from any department or branch location.

### ***What is the National Credit Union Administration's view on using microfilm and digital as alternatives to paper in records management?***

*NCUA's Accounting Manual*, Section 5190, addresses the topic of records management for credit unions. It states: "The purpose of microfilming records is to improve efficiency by limiting the resources a credit union must expend to maintain records. This goal may also be accomplished by use of an optical imaging computer system."

For a more in-depth perspective, see *Core Issues for Credit Unions – Compliance and Disaster Recovery*, on page 5 of this White Paper.

### ***When should my credit union consider improving or updating our records management processes?***

Evaluate your situation. Is file space an issue for your credit union? When a member calls, does your staff have immediate access to important files? Do several employees need access to the same files at the same time? What are the consequences if your CU loses a cash letter or a member's loan file? Are required paper documents being stored in a safe place? Do you have a vital records repository or disaster recovery plan? You can act now to protect your credit union and provide improved member service.

### ***In what areas are credit unions applying document imaging solutions?***

The most prevalent credit union application of microfilming and imaging has been in teller operations. In order to protect check and share draft deposits before they leave the main office or branch location, most credit unions have their tellers film or create electronic images of these documents along with their other daily work. Although microfilm has also been applied occasionally to other types of files, digital imaging has accelerated the use of technology to an even broader spectrum of files, like loans and signature cards. Simplicity of use and network accessibility enable credit unions to facilitate records management needs and make files easier to store and access using a digital imaging system.

### ***Is microfilm going out favor?***

Microfilm has long been recognized as a miniaturized filing system, popularly used to protect share drafts and deposits as they move from one location to another. It is essentially a space saving, archival and disaster recovery medium. In recent years, digital imaging has matured to surpass micrographics. With more useful functionality, the superiority is best evidenced in how it enables paper and even microfilmed documents to flow with other electronic media processes like computers, networks and e-mail.

*To have a Canon representative contact your credit union, call CUNA Customer Service at 800-356-8010, press 3, 8:00 a.m.-4:30 p.m. CST.*

However, there is evidence of a leveling-off of digital usage compared to microfilm, and experts agree that microfilm is still a key factor in records management. Throughout the industry, the issue is not one technology independent of the other, but, moreover, the proper application of whichever one or combination of them better accomplishes the users particular records management objectives.

***Which approach is best for us?***

It is difficult to give guidance in a few short sentences. Microfilm is faster to input, while digital imaging is more versatile. Because digital imaging is more compatible with other electronic processes you might be using, it can provide a broader range of benefits. The answer depends on your needs for file retention and retrieval.

***If I microfilm or image digitally, do I have to keep my paper files?***

Generally, where microfilm and imaging have been given acceptance and are recognized as legal replications or facsimiles of the original documents they represent, the originals don't have to be retained. If, however, guidelines stipulate keeping certain original records even after they are committed to microfilm or electronic storage, that in itself tacitly emphasizes the importance of those records and makes the protection of them even more imperative from a disaster recovery or business resumption perspective. Microfilm or electronic images become "working" copies, while important originals are protected and only used when legally mandated.

***What if I already microfilm?***

If you already are microfilming and are looking to update your present equipment, digital imaging opens some new horizons and better supports unit record applications —where an individual file continues to grow after it is created. Because microfilm favors batch or serial records capture, it is still popular for teller files. Whereas most credit union microfilmmers are dedicated to single applications to maintain the film integrity of the files and avoid departmental contention for sharing the camera, digital imaging isn't as constrained. Today's digital imaging and scan-to-CD devices can be effectively utilized inter-departmentally and used for multiple record applications at the same time.

***If I change from microfilm to digital imaging, what do I do with our microfilm files?***

There are products, specifically "microfilm scanners," that enable you to bring documents and files that are already on microfilm or fiche into your imaging (digital) system so they can also be shared electronically or supported by your image system's extended capabilities. Preferable to converting entire microfilm files, though, most businesses update from film to image only on demand or as needed. For example, a inquiry to an earlier file typically initiates a new round of activity, so you can "reactivate" that file electronically.

***What if I am already using digital imaging?***

Credit unions that are already electronic imaging, might explore other application possibilities or approaches. In other words, if you already have digital capabilities, make sure *all* the departments in your credit union have access to the benefits of this technology.

## Part IV: Glossary of Terms

**Analog** – An equipment process that uses a variable signal to capture and represent data or image information in a continuous form. In this white paper, microfilm is referred to as an *analog* process. It captures the image of an original document as a continuous form or picture, the same as analog photocopiers and 35 mm cameras. By contrast, a *digital* process converts image information into discrete elements or “bits” that can be stored or transmitted electronically.

**Archival** – The extent to which a reproduced image will (or won't) last “forever” or its longevity under applied storage conditions. Microfilm is considered archival under prescribed storage procedures. Digital media life expectancy is advancing, but does not yet meet archival specifications.

**Audit Trail** – The historical tracking or accounting of steps and processes applicable to a work process or, in popular parlance, business transactions. Applied to records management, it is the ability to account for the transition of a document from its inception to its fulfillment in the general course of business, whether it remains a paper document, becomes an image, or is ultimately destroyed after its retention period.

**Bar Code Recognition** – Bar codes are patterns of bars and spaces that represent a numeric, text or other coded value. There are several bar code standards that are popularly recognized and used in various applications. For example, Universal Product Codes (UPC) are applied to groceries to identify product, pricing and manage inventory. In records management, bar codes can be pre-printed on documents or written by software programs for printing on labels that can be applied to documents for scanner or filmer recognition to automatically capture data fields and facilitate automatic indexing.

**CD-R** (*Compact Disc-Recordable*) – A CD on which information can be permanently written into an aluminum-reflecting layer. Once data has been written on the CD, it cannot be altered. Information is written to the disc by burning pits in the recording layer in a pattern that corresponds to a conventional CD. A standard CD holds 650 MB of data that can be read from a typical PC CD-ROM drive. Present CD-R media allows multi-session recording that enables additional data to be added to a previously recorded disc. CD-R is a good records management medium because the data cannot be altered or manipulated.

**CD-ROM** (*Compact Disc-Read Only Memory*) – In this article, the significance is the CD-ROM Drive that accepts all current and standard CD media.

**CD-RW** (*Compact Disc – Rewritable*) – A rewritable version of CD-ROM . CD-RW discs have a phase-change recording layer and an additional reflecting layer making it possible to erase and rewrite over existing data. CD-RWs are ill advised for records management because images can be altered, rewritten or deleted by accident.

**COLD** (*Computer Output to Laser Disk*) – A technique for recording and storing computer output to disk. COLD is an ideal technology for database report output like monthly statements. Businesses have found it cost effective as a replacement for paper (computer printout/greenbar ledger) and even microfiche (COM or Computer Output Microfilm) alternatives.

**Device Driver** – A set of low-level software routines that work with, and control, a specific hardware device. The names and functions are often standardized across many similar devices. The instruction set tells the computer how to communicate with a device that is connected to it. Examples are ISIS® and TWAIN drivers.

**Digital** – A digital process dissects image information into *bits* or electronic elements, which, in turn, comprise the dots that represent the original. Just as an image can be reduced to bits, it can be reassembled to represent the original. Computers use “digital” data in performing operations and application functions. In this paper, computers and scanners are examples of digital equipment. See *analog*.

**Disaster Recovery** – The process that would apply if a business’s facility, operation or ability to perform a required service were eliminated. In records management, it implies the loss of records, whether by fire, flood, hard drive crash, theft, etc.

**Document** – An information record, sometimes referred to in singular context and sometimes in a composite reference that represents a whole file. For example, a *loan document* typically means a complete loan transaction. In this article, *documents*, *files*, and *records* are used interchangeably.

**Document Scanners** – An input device that converts information (text and images) recorded on paper and digitizes the information into an electronic image represented as binary data.

**Electronic Document** – A document that has been scanned or created by a digital process. Documents are more useful when stored electronically because they can be distributed to large groups instantly and searched electronically. TIFF and PDF are examples of popularly used electronic document storage formats.

**File** – Either a group of related files, e.g. signature files, human resources files, or a single file comprised of multiple pages, e.g. an insurance claim or an auto loan file.

**Hybrid Solution** – A system that allows you to use two different technologies – such as microfilm and digital scanning simultaneously.

**Interface** – The connection and rules that govern the connection between two devices. For example, SCSI (Small Computer Systems Interface) is a popular interface between a scanner and a personal computer because of the speed of the connection.

**Imaging** – The production of graphic images, either from a video camera or from digitally generated data, or the recording of such images on microfilm, videotape or laser disk.

**Indexing and Document Capture** – The capture or entry of information from a document and the entry of other data enabling the document to be retrieved at a later time.

**ISIS®** (*Image Scanner Interface Specification*) – One of several programming standards that lets a graphics application activate a scanner or similar image capture device. ISIS, along with TWAIN, account for the vast majority of interface specifications used by software developers for image device interaction. The rules of each have both general and specific controls over the scanner operation and selection of image tools.

**Microfiche** –Technically, a microfilm “card” (“fiche” is the French word for “card”). Fiche are typically 4”x 6” film cards with a pattern of rows and columns of images, either computer generated (COM) or copied from jacketed strips of 16mm microfilm, the former being more prevalent. In popular use, COM fiche represents computer report/statement printouts used to replace hard copy computer reports or statement printouts.

**Microfilm** –The original microform, documents are filmed on cameras using reduction lenses for photographically storing images on 16mm (business documents) or 35mm (newspapers and engineering drawings) reels of film. Film needs to be processed before it can be read. Whereas COM fiche (above) uses computer data tape as a source, traditional film systems record the actual documents as the source.

**Micrographics** – The general term for the process of photographic miniaturization (reduction) of document images onto a film based format, e.g. microfilm or microfiche, and the processes that complement its use. Included in this scope are the microfilmers, processors and retrieval devices to produce and retrieve the media.

**OCR** (*Optical Character Recognition*) –The use of a light-sensitive device, such as a scanner or reader, to identify and encode printed or handwritten characters. The scanner matches the patterns of light and dark on a printed page against patterns stored in memory and generates output to the computer or performs another operation, such as sorting or searching. A scanner may be linked to optical character recognition (OCR) software allowing printed documents to be converted to electronic text without having to retype or manually index them.

**Optical Disk** – A high capacity data storage medium for computers on which information is stored at extremely high density in the form of *pits* and *lands* that can be read by a tightly focused laser beam. Although CDs are a type of optical disc, the distinction here is the capacity and central system storage appliance of optical disk vs. the distributed, low cost storage a CD-R represents.

**Process** – A system of operations to accomplish a final result. Actions may be sequentially progressive in manual processes, e.g. paper handling and microfilming or concurrent in automated processes, e.g. computer and workflow.

**Reader Printer** – A device used to retrieve and print from microfilm or fiche. Retrieval can be manual or automatic, the latter accomplished by an electronic search device that counts the machine-readable codes associated with addressed images on film. Once the desired page is selected on screen, a reproduction can be rendered through the built-in “copier” mechanism.

**Record** – See Document and File. Depending on context, records can be groups or single pages.

**Resolution** – The clarity or fineness of detail that can be distinguished in an image, typically one produced on film or by a monitor or printer. In media terms, microfilm resolution is gauged in line pairs per millimeter as measured on a test chart. With scanners (imaging), the term is dots per inch (dpi); the higher the resolution, the higher the degree of clarity, but also the larger or denser the image file size. Typically, the goal would be to achieve a required level of legibility and clarity, but not unnecessarily exceed it.

**Scan to File** – The process of scanning a physical image (analog) into an electronic image (digital) that can then be stored on a computer hard drive or sent across a network to a large group of people. Once on the PC, the document image can be used to the extent that the operating system enables, e.g. store, copy, export, attach, print.

**Scan-to-CD** – The terminology used in this white paper to differentiate the ability to scan directly to CD-ROM without utilizing a component based system to first scan to a PC and then copying (burning) to a recordable CD.

**Scanner** – A device that converts paper and film images into electronic information that can be stored as a digital file. The captured result is an electronic image.

**TIFF (Tagged Image File Format)** – A widely used bit-mapped graphics file format that handles monochrome, gray scale, 8- and 24-bit color, making it applicable to the diverse spectrum of document capture. One merit of TIFF is that Windows® 95, 98, ME, 2K and Windows NT® have a built-in TIFF viewer that makes it an almost universally accessible and highly compatible image format.

**TWAIN** – A scanner interface protocol designed for generic, non-restrictive appliance to control scanner functions from application software. To highlight it’s blue-collar utility,

the writers called it TWAIN, one nickname for the driver is *Technology Without An Interesting Name*.

**Workflow** – The movement of documents through multiple processes in an organization for purposes that might include sign-off, evaluation, performing activities in a process and co-writing.

**Workflow Management System** – The system that defines, manages and executes a workflow process.

**Workflow Process** –The computerized automation of a process or application.

**WORM Disk** (*Write Once Read Many*) – An optical disk that can be written to once but read many times. After the data has been written to the disk, it can't be changed. Because of its large storage capacity (up to one Terabyte) and inalterability, WORMs are suited for long-term storage of documents. CD-R discs are an example of WORM technology.

Windows and Windows NT are registered trademarks of the Microsoft Corporation.  
ISIS is a registered Trademark of Pixel Translations, Inc.