

In a Time of All-Things-Digital and the Age of the Internet, Paper Still Survives. Why?

Paper has been the backbone of business transactions for centuries, but it has challenges. Technology to scan, capture, and convert these documents to a digital, more manageable and secure format has been in place for nearly thirty years. However, despite having technology available for improving business processes through the conversion of paper to digital, there has still been relatively slow transition to this technology in the Mortgage and Title industry.



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Introduction

Paper has been the backbone of business transactions for centuries, but it has challenges. Technology to scan, capture, and convert these documents to a digital, more manageable and secure format has been in place for nearly thirty years. However, despite having technology available for improving business processes through the conversion of paper to digital, there has still been relatively slow transition to this technology in the Mortgage and Title industry.

Documents created either internally within the organization or those received from customers and business partners create numerous problems. Hard copy paper documents manually move through the business process, slowing down response time, restricting immediate access to information, and creating immense demands on staff to re-key data, and then copy and file these documents. There are also legal regulations related to how these documents are handled, stored, and secured.

In this report, we look at the challenges, risks and costs of working with paper, and the benefits of moving away from paper or using it more efficiently. We will provide an introduction to the technologies available for digital conversion, and demystify and define the language and/or jargon employed in the document imaging industry.

Paybacks can be dramatic in terms of improved response times, greater productivity, reduced risks and improved security and the huge cost savings of both producing and handling less paper. This paper will educate any business and its workers in the Mortgage and Title industry. Solutions here are presented for all sizes of businesses—small businesses processing only a few pages per day, all the way up to large enterprises managing millions of documents each year.

Innovations in document-managing technology are not going to move the Mortgage and Title industry off of paper altogether. However, adjustments can be made in areas that will realize the greatest benefit with the least amount of effort doing so. While there isn't a one-size-fits-all solution, there are improvements companies of any size can make, and we want to help you with this process.

Read on to learn how your operation can address and enable these concepts to your business and your bottom line.

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In a Time of All-Things-Digital and the Age of the Internet, Paper Still Survives. Why?

Why? Well for one it's low-tech, theoretically easy to use, and everyone is comfortable using paper. Maybe it has to do with a sense of trust—people like the feel of paper and holding something tangible makes it real. In an age of Internet fraud and cyber security hacks, paper somehow seems safer. So we keep using it. In fact, paper usage has increased in some areas of business, and the Mortgage and Title industry is no exception. Just look at a loan packet. Paper is comfortable, but it has its challenges, more than you may realize.

Paper Processing is Slow

First of all, it can be slow. It is time-consuming to collaborate on a document—say a contract, for example—with several people if everything you want to make revisions to requires printing a new copy each time and manually sending it around for comments and changes. That is why folks use email to send around a file for review.

Unfortunately, with this process, now you have countless copies of the document and nobody is sure who has the latest and greatest version. Communication gets lost, security breaks down and this process is not effective. If you are working with an organization that has multiple locations, access to paper documents can run at the speed of the mail service, or at best a fax machine. This does not actually work when sharing oversized documents that can run into the hundreds of pages and even different-sized layouts like letter and legal.



Paper is not as Cheap as You Think

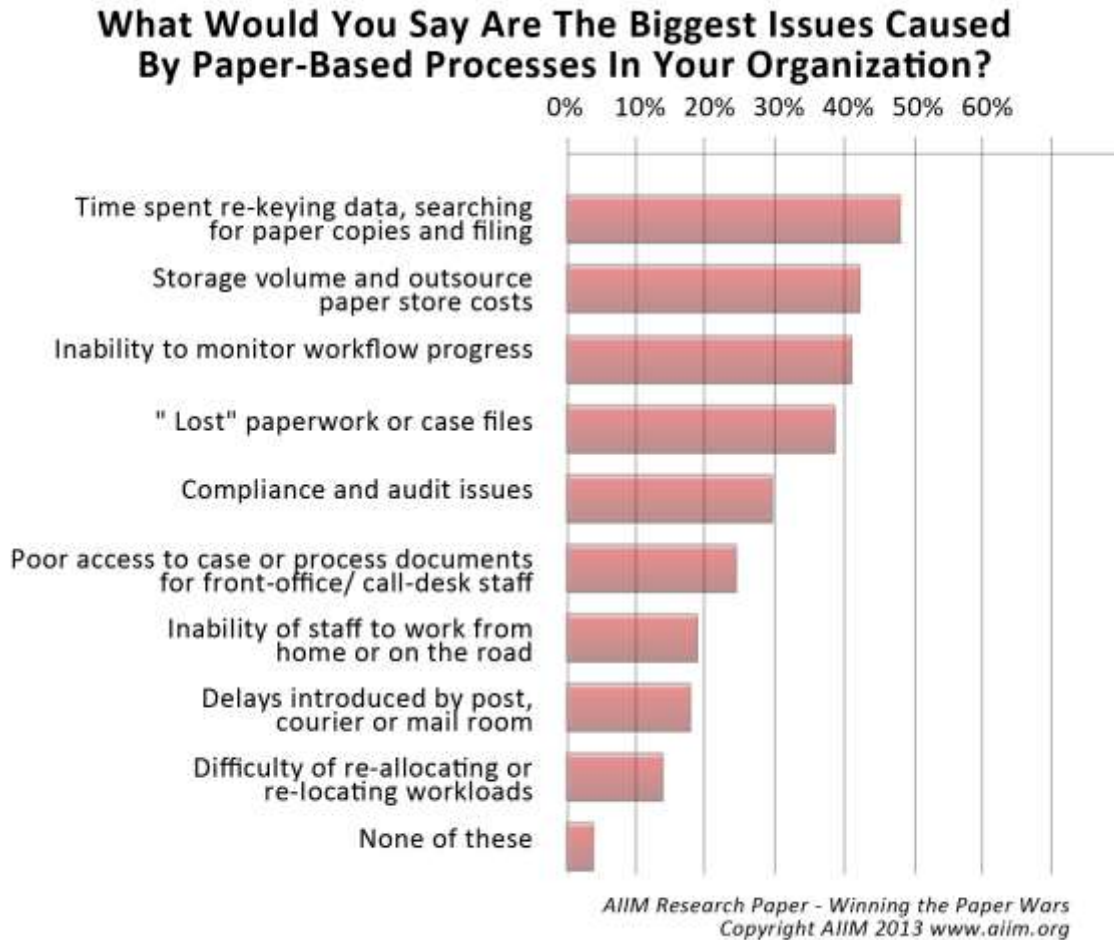
It is surprisingly expensive to work with paper. You might not consider it, but it adds up. Printer toner, paper, envelopes, folders, mailing costs, the cost of time for each person to manually handle it, and the lists go on. Then storage comes into play with banker boxes and filing cabinets. For records management, these documents keep piling up to the point where organizations have to consider renting storage space to hold all of these documents. If you lose a document, you also need to consider the cost of finding or reproducing it—not to mention the time it takes to file and later find those files. It is far more expensive than you

realize, and if your business relies on paper, like the mortgage and title industry often do, the cost is considerable.

Why Go Paperless

In addition to the hard-dollar savings realized by reducing paper, there are a number of soft-dollar savings that can help increase productivity along with improving a business's bottom line. Business process management automation, workflow—whatever you want to call it—runs much more efficiently when documents are electronic. The process can move at "Internet Speed."

A recent survey by AIIM, the Global Community of Information Management Professionals, of over four hundred organizations, was asked to rate the top three issues caused by paper-based processes in their organization. Let's look at the top issues in detail.



Data Extraction

Title Insurance is an excellent example where content from files like Grant Deeds, Releases and residence evidence (like that found on utility bills) need to be entered into other forms or systems. This process is extremely time-consuming and labor intensive, and there is no

room for errors. One simple mistake can invalidate an entire document, resulting in not only the cost of the time to fix it but also potential fines or the hassle of legal issues.

Workflow and Automation

Instead of dragging a document around the office from inbox to inbox, let software automate the processes. Workflow and BPM (Business Process Management) can make automated decisions based on rules set around the metadata, plus the language and indexes that describe a document, to send and route it to the right people at the right time and in parallel, speeding the work process. In fact, the file may never move; notifications are sent to participants who just click a link, pull the document from a central location, and make changes, review information, or collaborate all on the same file.

Compliance

Software can also help in facilitating compliance mandates. When a digital document needs to be retained for a particular length of time, the software can monitor that. As the retention schedule comes to an end, the record is automatically deleted, or someone is electronically notified to review it before the destruction. Records management solutions are great, but you have to get all your content under these governance policies. It can't be just some of your documents, but all of them; it is the law.

Customer Service

Let's not forget customer response time. Access to digital files is instantaneous—no more "I'll call you back, I have to go pull your file." Even though customers know the business process may have started on paper, like for a loan application, they still expect you to have access to their information and documents on-demand.

How Do You Take Your Paper Files to a Digital Format?

So how do you get these paper-based documents into a digital format and allow them to associate with electronic-based transactions? Introducing the world of "document imaging and content management." Over the next few pages, we'll breeze you through some potentially new language about Optical Character Recognition, Content Management, and ton of other terms that end up making a lexicon of acronyms in the Document Management space.

The Process To Transform Paper Files Into A Digital World Takes Five Main Steps.

Step One – Input / Scanning

Scan the page to make an electronic file, usually in an Acrobat format—also known as a PDF, or a TIFF, which is an older format that was used to store images with text. If you are scanning a few



pages, an MFP/copier is a fine option, able to take on dozens of pages at a time. You'll probably want a dedicated scanner with a sheet feeder. When you start getting into high-volume scanning, you'll need a production scanner that can also clean up files, in addition to processing hundreds of pages a minute. It should handle multiple paper sizes in the same batch, and even analyze each page as it is scanned to determine best format to save the file, for example color vs. black-and-white. Would you believe software today can even take out a coffee stain off a paper scan?

Step Two – Conversation / OCR

During most cases, the file is analyzed for text using technology called Optical Character Recognition (OCR) this pulls the words off the document so you can search, index, and locate the file.

OCR is effective on computer-generated text, but it will not always work. If the text is too small, or the image is distorted, or the pixels in the fonts are too grainy, or a number of other visual gotchas, you may either obtain no readable information or have too many errors. Most materials produced today work fine; it's the older records and copies of copies that present real challenges. Some folks will say this technology can do handwriting recognition. It can work in certain cases like boxed form field with hand printing, but more often than not, it will not work, mainly because of the legibility of many people's handwriting.



Step Three – Identification / Indexing

Determine what data you need to use to organize the file and what data is just there to read. This is the stage where metadata is extracted and assigned to the file. Some of these indexes maybe used for storing or digitally recording the image in the right digital location, other data might be part of a business transaction and extracted for utilization in such a transaction.

Doc ID	Acct #	Date Due
123	8974654	3/1/14
234	5647894	4/3/14
456	5641237	3/13/14
678	8974562	3/23/14

For example in a loan application the application may be filed under a client's first and last name plus a loan application number; the rest of the data on the application will be using for processing the loan. That data would be injected into the loan processing software.

One of the more costly parts of the imaging operation is the identification of this key index information. Not all software can automatically find these indexes, time-consuming and labor intensive steps can be required to map these key indexes to the fields required for later processing.

Step Four - Storage

You now need to send the data and the document into a repository. This could be as simple as storing it as a PDF on a hard drive. This is not the most scalable solution since these files are not necessary well organized; they are just a bunch of PDFs with descriptive file names.



More often, the records are released with their metadata into a document management system. These systems can be simple electronic filing cabinets that organize the files well using the metadata or powerful Enterprise Content Management (ECM) solutions. ECM systems are designed to not only store the file but also manage it for its lifecycle.

Step Five - Retrieval

A DMS or ECM system can now host the file and allow folks to share, collaborate, extract data, associate it with other documents, and get this file to the right people at the right time. The DMS software's rules will allow you to automatically store documents in the right location, archive, and destroy them when the time is right.



Some organizations have scaled their DMS repositories to hold billions of files. The range is really limited only by the hardware and the ability for the software to store and retrieve these files at a speed acceptable to the client.

Why Isn't Every Business Using Document Imaging for Every Paper-Based Transaction?

Paper Comes in All Kinds of Shapes and Sizes, Forms and Formats.

With each variation of the form, content, layout, and complexity of the document come different challenges. For those familiar with a loan package, think about all the different document types, page sizes, designs, colors, formats, sources, and file types.

We'll now describe these different document types, with reference to the mortgage and title industry, and illustrate where the challenges lie and how they are being addressed.

There are three main paper or document formats; structured, semi-structured, and unstructured.

Structured or Fixed Form

These are generally the easiest documents to index and store. The documents are created as forms, and then someone fills in the form. The data is always in the same place; the indexes are clearly defined since the form identifies to the client where to enter the information. Think of these fields like fields in an electronic form or database. It is generally a one-to-one ratio. For example: First Name, Last Name, Street Address, Zip Code, Loan Number, and so on. Examples of forms in the mortgage and title market would include HUD-1, tax forms, and loan applications.



For software to know how and what data to extract, a sample document is scanned into the system, and the fields are mapped out as a template. Nothing actually moves around these pages, so the software just knows to look in the same place every time for information. You can see an example of how easy this works by using software like Adobe Acrobat Professional. Run an image of a form through this software, and it'll automatically identify areas it thinks are form data. The imaging industry has had great success with these document types for more than a decade.

Semi-Structured Forms

These documents are once again "forms" but the data tends to flow a bit more around the page. Many of these types of documents are the ones sent to you with information—not ones you have someone else complete. There's some structure though; for example, expecting key fields to be at the top of the page but they may change from vendor to vendor.

Examples of this format would be an invoice or a closing statement. In most cases within a closing statement on page one, at the top, you'll have "Company, Address, Phone, Buyer/Borrower, Escrow No., Close Date, Proration Date, Preparation Date, and Property Address" but then comes the tricky part: the line items.

On semi-structured documents, not only do the primary key indexes at the top move in exact position from client to client but then the line items like "Charges, Adjustments, and Fees" could appear on any line in a table. For that matter, even on another page. These documents present some real challenges, but software has come a long way and can do a pretty good job with the key indexes. Many organizations choose to not capture all the information on the page and just focus on a few indexes so they can store and search for the file on these indexes.

Description	Date	Debit
Escrow Commission		\$1,100.00
New Loan Charges		26,111.89
Proration		40.00
Escrow Fees		1,000.00
...
Total		\$11,218.99

Software is trained to look for words like "First Name," or "Escrow No." and then associate the words next to that term as the index. In many cases, these items are enough to file a page and associate it with the rest of the mortgage package, and then allow it to be "organized."

More advanced, high-volume, loan-processing organizations have implemented advanced software solutions to capture all *critical data* from a loan package. It takes more training and costs more money, but in an extremely competitive market it returns a very attractive ROI on the investment.

In other instances due to the complexity of the documents, some organizations do simple index extraction and then send the images to a data-entry shop to manually key in the rest of the desired data. These Document Processing Outsourcers (DPOs) have become popular with organizations where they can send this service overseas to low-cost processing centers running 24/7 with potential turnaround times of less than a day. Though attractive, the cost can add up when you are paying for every keystroke. In addition, it's hard to scale up and down as volumes change which is very typical in this industry.

One critical department, where semi-structured documents are processed very successfully, is in accounting. Invoices are a semi-structured, high-volume process to most organizations and can save a company a ton of time and human effort entering the information into line-of-business and accounting software packages. AP processing is, in fact, the largest use of Document Imaging software, since every company has an accounting department.

Unstructured Documents

The third document classification type, Unstructured Documents, presents the biggest challenge for Document Imaging. These documents are defined as having little structure and consistency; they are more free-flowing reports, like the one you are reading today. Examples of such include Correspondence, Deeds, Title Release, Contracts, Plant Records, Claims, and hopefully not complaints.

Those familiar with the documents processed by the Mortgage and Title industry will not be surprised to learn that it is estimated that nearly 80 percent of all documents in business, in general, fall into this category.

The challenge falls into a variety of factors. First the index or metadata that clients wish to extract is free-form and unstructured; it could be a sentence, paragraph or whole page, or a few key words embedded within a description. For example, on a Release document the Borrower Name is usually embedded within a sentence on the first page, but that sentence changes based on how the Title Insurance company wishes to describe it.



On a Grant Deed the Borrower Name presents the same issue. Even worse—the Legal Description can extend over two or more pages. The formats are irregular; even a human has to be trained how to read the document to determine what is really the Legal Description.

Due to these complexities it's been next to impossible to prepare your typical document imaging solution to address these complex formats, and organizations have had to fall back on either their own staff to enter the data into a line-of-business system or ship the images over to a DPO for data entry. Axis saw an opportunity to introduce new technology at this challenge and has recently introduced a new software solution to address these very complex formats.

Handwritten Documents



Although PDF forms and Web forms have improved things, the majority of paper forms are filled in by hand. In fact, in the business-to-business area, the passing of the typewriter has made this worse! The legacy requirement in many businesses for wet-ink signatures merely adds to the prevalence of paper-based, handwritten forms.

Forms are generally littered with other handwritten fields for name and address, numerical and text data, and in many cases these forms contain free text or open-ended comment fields. These are often the most crucial about customer satisfaction, previous histories, extenuating circumstances, etc.

Software works well only on forms with constrained boxes that have a single letter in each box on the form. In cases like checks, where the dictionary of terms falls only into numbers, there is a much higher chance of handwriting recognition success.

The form contains the following sections:

- *** IMPORTANT *****
- In case of a recall, we can reach you only if we have your name and address registered.**
- Please Print Grand Total Below**
- PLEASE PRINT CUSTOMER'S NAME (LAST NAME FIRST)**
- CUSTOMER'S ADDRESS**
- DATE**
- IDENTIFICATION NUMBERS** (Grid with columns 1-12)
- DEALER I.D. #**
- SELLER'S NAME**
- SELLER'S ADDRESS**
- CITY**

Fortunately, the Mortgage and Title industry has realized this challenge and has taken steps to move away from paper forms and has substituted these with online application or PDF forms. For those trying to capture the legacy handwritten information from images, they still have to fall back on the DPOs.

Document Extraction Software Solutions for All Your Document Challenges.

Axis Technical Group teams have been providing software and service solutions for a variety of industries including Mortgage, Title, Healthcare, and Financial services for more than a decade. After years of experience working with clients experiencing document management challenges they determined there was an enormous gap in the market for a solution for their client's most challenging documents: the unstructured content.

Artificial Intelligence for Your Document Capture

Axis AI is an advanced data extraction solution for unstructured documents that help organizations save time, money, and speed decision making. Using proprietary algorithms, including those used to perform Natural Language Processing (NLP), Axis AI reads and extracts data from sentences, paragraphs, or entire pages written in natural English. NLP follows rules that are used to create content in free form. It knows what a verb, noun, pronoun, and adjective are. Just like a human, it reads the whole document and then goes back and searches for the key indexes or the whole descriptions that it is trained to discover and extract.

The system works by taking sample documents, or truth data, and training the Axis AI system what these documents and the required data look like, just as you would teach a human. Once in production, real information is then processed through the software for automated data extraction. As new documents are introduced, the system learns and adapts to new formats and structures.



Unparalleled Data Extraction

The result is unparalleled data extraction that minimize or eliminate time-consuming and expensive manual re-keying processes and far exceed the results obtained from competing systems, which are typically complex, cost-prohibitive, and ineffective.

One Size Does Not Fit All

At Axis, we know companies in the Mortgage and Title market range in sizes from small regional offices to large national organizations with thousands of employees. Our solution is generally designed for the higher volume document challenges, but we still are available for providing advice for everyone. We know that most companies will experience the benefits of imaging, and the scale of those benefits relates to how many documents being managed. Here are a few guidelines to consider, based on your company's paper volume:

Small operation with less than ten transactions per week

You'll find that just scanning as PDFs and storing documents on your network file system—hopefully with a well-organized folder structure—will improve your operations. There are a number of solid scanner solutions on the market that cost less than \$500 that will do an excellent job of scanning, converting to PDFs, and even OCR-ing the files so you can search for them using the words in the document (taxonomy). It is easy to set up and offers a great entry-level solution.

Medium Operation with up to 100 transactions per week

You are now getting into processing thousands of documents per year; that is a lot of paper. It is volumes of data entry; automated indexing automation now makes sense. Not only

should you consider an advanced document imaging scanning software solution but also a document management repository. Security, collaboration, workflow, compliance, disaster recovery, and so on now come into play.

As your electronic filing cabinet starts to grow into the tens of thousands of pages, you'll need the ability to search and link the documents and transactions together. This does not have to be an expensive financial investment, but it also shouldn't be taken lightly. Often, those quick, bad investments result in confusing solutions that result in lower user adoption because nobody in your company wants to use the product. This is usually because they cannot find the information they stored. If you need advice for a real solution, ask us; we might have a solution for you, or at least lead you in the right direction.

Large Operations with more than 100 Transactions Per Week

This is where full capture automation comes into play; Axis solutions fall into this category. As already described, Axis AI was designed for the unstructured content in your operations, but it is also capable of capturing semi- and structured content and not just paper. When we run our extraction engine on a document, we are merely reading and analyzing the text, we do not care if the text originated from a paper document or digital files. Therefore, we can accept just about any file format like Word docs, emails, Web pages, or anything with text and structure. Our software will use the same rules to find your critical indexes and data. Once the information is extracted, the Axis AI software can release the images, documents, and indexes to practically any repository.

The more you are typing information from pages—either digital or paper—into another system, the more you'll realize the benefits of document extraction automation.

Benefits of Document Capture Automation to the Mortgage and Title industry

All branches of the Mortgage and Title industry are continually looking to reduce costs by implementing technology designed to integrate and augment their current investments. Replacing manual practices with data capture software solutions, businesses experience a number of benefits.

Reduced Manual Labor Costs

Automated document processing can reduce labor costs associated with performing manual data entry and other manual processes. Software can scale faster than you can onboard and train new employees, which is a challenge for both in-house data entry and that associated with a DPO; they also need to train their staff. When times are slow, and less document processing is required, turn off servers; you will not have a team of data entry clerks with nothing to do. You may also be considering a hosted solution known as Software as a Service (SaaS), these licensing models are also an excellent option since you don't have to purchase new hardware to manage increases in volumes, you simply purchase more volume licensing.

The more you use the software, the more you are likely to reduce the overall cost per page. Once training is completed, and the system is configured, your ongoing cost per page is very predictable.

Increased Data Accuracy

Humans make mistakes. Often in DPO shops they do double key entry, meaning that the information is entered twice. This still doesn't completely eliminate human error. Software validation, business rules, dictionary lookups, and a variety of technical tweaks to the software can all be applied to reduce errors. SLAs can be realized with accuracy rates reaching or exceeding those of manual data entry.

Do More In Less Time

Faster turnaround times on data capture lead to businesses able to service their clients faster. When errors turn up, system operators are immediately notified, and the situation can be resolved immediately instead of waiting days for a DPO shop to alert you of issues that may delay your business process.

Get Rid of the Paper Filling Up Your Office

Once digitized, your paper documents can be placed in the recycling bin. You'll now have digital backups and have a real disaster recovery option. If all you had were paper documents, and those files were destroyed by a fire or water-related event, your mission critical information would be gone forever.

Better Access to Information

Your clients, staff, and partners can now have instant access to the information and documents they need to make their business decisions. No more callbacks or music on hold; your information will be available on demand from anywhere you want to share. Mobile, home office, or at the headquarters, your business-critical documents and data will be ready when you are.

We Are Ready When You Are

At Axis, we are proud of our roots. We know that everyone starts as a small operation, and we are here to help organizations of all sizes. Our solutions are not one-size-fits-all and is not for everyone, but we are still interested in helping anyone in the Mortgage and Title space with their document management challenges. If our software is not a good fit for your operation, that's okay—we will be happy to point you in the right direction where you can find a solution that fits your current needs.



For the organizations where Axis AI software and services match, we are ready to help move your document management initiatives forward. Give us a call and let's talk about your challenges. We have plenty of clients who've done just that. That's one reason Axis Technical Group has become one of *Inc.* magazine's fastest growing companies in Orange County, CA.

Please take a look at our materials online, including demonstration videos, solution presentations, data sheets, and our blog with incredible information from industry experts, to learn more how Axis can help you today.

About Axis Technical Group:

Axis Technical Group is a trusted business IT advisor to companies in the mortgage, title and financial services industries. The Axis team provide the sophisticated skills and resources of a global consulting firm with a personal, solution oriented approach. Axis' software division develops Axis AI, a data extraction solution for unstructured documents that helps organizations save time and money and speed decision making.

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