IMAGE MANAGEMENT WITH AN MSR TRANSACTION

Mortgage Servicing Rights (MSR) Transactions are a common event in the lending business. Organizations can rely heavily on MSR purchases to either grow or sustain a large servicing portfolio. The transfer process is complex and requires adequate oversight and management to ensure a successful transition. Each transfer involves borrower communications, data, images, physical assets, and funding. We will focus on document management with the following topics:

> physical vs. electronic assets

> image blobs

> image taxonomy (classification and metadata)

> deal timing

> asset cleanup

PHYSICAL VS. ELECTRONIC ASSETS:

As the mortgage industry continues to embrace digital transformation, the amount of physical documents being generated continues to decline. In today's environment, many lenders have documents in both physical and digital formats. During an MSR transfer, it is important to understand the make up of documents within the transaction. The originating lender and the age of the loans will dictate the amount of physical documents within a MSR transaction.

With servicing margins shrinking and budgets under tight scrutiny, having documents in an electronic format is imperative to keep servicing costs at a minimum. If the documents are available in an electronic format, the physical documents can usually remain with the seller, reducing the costs associated with the MSR transaction.

If the MSR transaction contains only physical loan documents, it will likely be more cost effective in the long run to convert the documents to an electronic format. Converting documents at this point will prevent operational bottlenecks later in the loan's servicing life. As an MSR purchaser it is important to include language in the contract that protects against situations where documents are only in a physical form.

IMAGE BLOBS

Image Blobs are a common descriptor for specific image files used in the mortgage industry. These are single image files that contain multiple document types (or document labels). The files are usually large in size, sometimes reaching 500+ pages. Blobs are created when a stack of loan documents are all imaged together without any separation. These files can be burdensome for servicers because finding specific information in a large 500+ page document can be time intensive if this is the only location of information. This type of file is very common with origination stacks and post-closing document stacks.

Blobs can be diagnosed relatively easily during the transaction by analyzing loan image samples. The image samples will provide good insight into the frequency and size of common blob files for the seller. It is not uncommon that missing document images are found in the large blob file after an extensive search.

It is recommended for any buyer of MSR's to request that all blob files be properly separated and classified to ease the burden of finding information later in the servicing life. It is also common that the buyer charges a fee for unorganized images. This fee is used by the new servicer to organize the images, or offset the additional operational cost to work with the unorganized files.

IMAGE TAXONOMY

An imaging taxonomy refers to how images are organized and accessible to the servicer. The image taxonomy is a crucial element for running a best-in-class servicing shop. When purchasing assets, the new loan images must be transformed to fit with the purchaser's imaging taxonomy. As the mortgage industry continues on the digital transformation journey, managing electronic information increases in complexity and importance.

An image taxonomy can be split into two categories: image labels and image metadata.

Image Labeling

Image labeling is part of every transaction and is more traditionally thought of when speaking about imaging taxonomy. Labeling can also be referred to as classification. This is how individual documents are organized in an electronic form. To ensure a successful MSR transfer, imaging files from the seller must be mapped to the buyer's imaging system. This mapping can prove difficult when the buyer and seller organize information differently. Before systematic classification and extraction technology was available, the mapping task would be performed manually. A sample of images would be viewed by the buyer for each organized document to determine how the files would be labeled in the buyer's system.

IMAGE BLOBS CAN REACH UP TO

500+

PAGES

This meant scouring through thousands of images making broad assumptions about the representative sample and applying it to the entire population. If the seller's images were not organized properly or the naming convention was not consistent, the buyer's information would be poorly mapped. Bad data in, bad data out. Typically, the bad data will not be recognized until months after the transactions closes, making corrections very difficult.

With today's latest technological advancements in artificial intelligence (AI), machine learning and hardware, the labor intensive manual process for onboarding images has greatly diminished. AI provides the capability to organize images based on an organization's taxonomy leaving the heavy lifting to a computer processor. Utilizing cloud computing, the image throughput can be easily adjusted to match the processing requirements for each transaction.

An AI engine is rarely perfect which means exceptions can occur when the trained library cannot recognize an image. In this case a decision can be made to allow the system to make a best guess, or allow human intervention to create a 100% accurate output. The exceptions handled by human intervention are usually fed back into the system for training purposes to prevent the same exception from occurring twice. Using AI technology provides an organization with full transparency into the images purchased in an MSR transaction. All of the images can be reviewed and mapped with limited staff. This eliminates any surprises later in the servicing life of the loan and has the potential to increase the organizations pricing strategy for future transactions.

Image Metadata

Image metadata refers to the information embedded in an image. Historically this data was not considered during a transaction when transferring PDF or TIFF loan files because it was not accessible. Now with the combination of advanced optical character recognition (OCR) and machine learning, the text and field level data can be extracted from an image. If this data is not available, then it makes sense to perform the data extraction task at the same time that systematic classification is performed. An advanced OCR system coupled with machine learning can be trained to pull specific field level information from an image to store as metadata. This metadata can be extremely valuable for automating audits, downstream processing, and validating images that are boarded:

> **Audits:** Metadata can help validate that specific fields from an image match the data transferred from the servicing system. Traditional methods consist of taking a sample set of images and performing a stare and compare task between the image and the data. By using a tool that can extract the field level data and perform the comparison systematically, an audit can be performed on 100% of the data.

> **Process Automation:** Tasks later in the life of the loan can be automated leveraging metadata extracted from an image. For example, a common event would be when a loan servicer files for an investor claim that requires specific information from invoice

IF THE DATA CANNOT BE FOUND OR ACCESSED IT DOES LITTLE GOOD FOR ADVANCING OPERATIONAL EFFICIENCIES.

images. Historically, pulling the information from the image was performed manually by staff. With today's advanced technology information can systematically be extracted from an image automating most of the investor claim submission process

> **System of Record Validation (Post loan boarding):** To confirm the system of record data and image data match, a manual stare and compare task is performed by staff. Only a small sample can be reviewed due to the manual labor required. However, by systematically extracting metadata from all images, a complete validation of all images against the system of record with minimal staff support can be performed. Having the ability to validate all images can provide a competitive advantage and piece of mind when buying MSR assets.

Proper data management is critical when leveraging image metadata. Data volume tends to be high and proper data organization is important. If the data cannot be found or accessed it does little good for advancing operational efficiencies.

DEAL TIMING

A deal timeline can be split into five separate milestones:

T−90 DAYS	**TAXONOMY MAPPING** Electronic asset discussion begins Gain understanding on asset formats, naming conventions, and ingestion	This task builds the foundation for how the deal will be laid out. Both the buyer and seller should understand how assets are organized and the amount of work the transaction will take. Understanding the image format and status 90 days before the transaction date is ideal.
T−60 DAYS	**IMAGE BOARDING/INGESTION** Complete image mapping exercise *(NA if using AI/ML technology)* Begin ingesting images	This task is minimal if an AI/ML solution will be used during the ingesting process for classification and data extraction. Processing the images should begin sixty days prior to the transaction date. This can be flexible depending on the transaction size. It is important to plan for all images to be ingested and processed before the transaction date.
T−30 DAYS	**IMAGE BOARDING/INGESTION WITH VALIDATION** Validate image ingestion process with samples Compare image data to tape data.	At this point the firm should have a good understanding about the quality of images contained in the deal and forecast potential gaps where documents will need to be procured. Image ingestion should continue.
TRANSACTION DATE	**TRANSACTION DATE** Image ingestion should be complete Full view into portfolio metrics should be available	Image ingestion should be complete and a full view of the image quality can be assessed.
T+30 DAYS	**POST TRANSACTION** Procure critical documents that are missing Determine exposure for holdback funds	Document procurement should begin for any missing or incomplete documents from the seller. Any data cleanup requirements for loan fallout should be scheduled.
	VALIDATION	Validation occurs throughout the boarding process. Having checks at each step confirms there are no issues at any point of the ingestion, or the deal itself. Some checks can be performed systematically using the right technology and rules engines.

The goal is to have all images processed and validated prior to the transaction date. This provides full line of sight into the population of loans and any potential gaps where documents must be procured. Keeping a strict timeline will reduce any surprises related to gaps in the data.

ASSET CLEANUP

A component typically overlooked in an MSR transaction is the asset cleanup post transaction. From the time the deal discussions begin to the time a deal closes, the loan inventory included as part of the deal can fluctuate materially. Since electronic assets begin boarding well before the deal close date, images boarded the purchaser's system could have fallen out of the transaction. This leads to potential dead assets on the purchaser's system. These assets can cause confusion if not properly managed and disposed of soon after the transaction date.

A best practice is to have processes and procedures in place to remove any images and metadata involved in the loan fallout. This process should occur 30 days post transfer date. Keeping this process on a tight timeline removes the possibility of loan number overlaps with other transactions.

SUMMARY

An MSR transaction can be stressful with many components to consider and manage. Electronic asset management is a critical component that can create substantial costs later in the life of the loan if not managed properly at the time of boarding. With advances in technology, a large portion of work can be automated and scalable leveraging artificial intelligence and cloud computing. Investing in the right technology or vendor image management tool for managing MSR transactions can become a competitive advantage instead of a liability.

WITH ADVANCES IN TECHNOLOGY, A LARGE PORTION OF ASSET MANAGEMENT CAN BE AUTOMATED AND SCALABLE, LEVERAGING ARTIFICIAL INTELLIGENCE AND CLOUD COMPUTING.

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