



# AUTOMATING THE ROUTE OF EFFICIENCY IN POST-CLOSING AUDIT

## Abstract

Post-Closing Audit (PCA) process is a key enabler in the mortgage origination value chain; it is done once the loan has been approved and funded. Infosys BPM's client, a large American financial institution, had a completely manual PCA process, which led to several challenges in speed and accuracy. Infosys BPM implemented an end-to-end automation solution for the PCA process, involving diverse teams from both the client and Infosys BPM.

## The Journey After the Mortgage

Most of us consumers do not clearly understand how a mortgage service works from the bank's perspective. Very few of us think about what the bank needs to do after a mortgage has been fully paid up. They need to verify if a mortgage has been a lucrative financial activity for the bank as it progresses over a number of years and goes through plenty of financial ups and downs. Therefore, a detailed examination of the mortgage after its closure is needed. This process is called post-closing audit (PCA).

Large banks like our client do it in-house, while some other institutions outsource this to third-parties. In case of our client, PCA used to be a completely manual process. This gave rise to growing challenges such as the following:

### Linear expansion of staff:

The client needed to expand their PCA staff depending on the number of mortgages they closed. Essentially more loans meant more staff.

### Speed and accuracy issues:

Manual processes are usually riddled with accuracy issues. The speed also suffered greatly.

### Compromised loan quality:

Manual audit's lack of high accuracy gave rise to lower quality insights from each PCA. This meant, naturally, the client found it difficult to improve the quality of their loans over time.



## Envisaging an Automated PCA

The key disadvantages they faced in the PCA process, mentioned above, led the client to work with a reputed business partner who could automate the process and provide specific advantages. This is how Infosys BPM was involved in the project. Infosys BPM developed a solution that provided automation of the existing PCA operations and improved the process efficiency by 50% approximately.





## Automation Solution: The Big Picture

The Post-Closing Audit Automation solution incorporates:

### Document Classification & Indexing

Identification of the right document types and versions (through a Machine Learning-based approach) from the large sets of documents received as inputs

### Data Extraction from Documents

Use of Optical Character Recognition (OCR), Natural Language Processing (NLP), and related techniques to extract the right data items from the varied set of document types

### Enrichment of Data and Rules

Enrichment/standardization of extracted data as per generic and domain-specific requirements, and application of mortgage-specific rules to audit the data elements

### User Interface for Agent Validation

Comprehensive UI for agents to conduct single-stop validation by bringing all relevant data, document images, etc., side-by-side. The UI includes multiple tools, such as color coding and section/data element highlighting, for improving agent productivity.

The solution warrants participation from multiple teams from both Infosys BPM and the client. The details are as follows.

### The Client

Use of Optical Character Recognition (OCR), Natural Language Processing (NLP), and related techniques to extract the right data items from the varied set of document types

### Infosys BPM

Identification of the right document types and versions (through a Machine Learning-based approach) from the large sets of documents received as inputs

In this specific PCA automation project, the scope of the Infosys BPM team is as follows.

Products covered	No. of documents automated	No. of audit rules configured
<ul style="list-style-type: none"><li>• Conventional Loans</li><li>• HELOANs</li><li>• HELOC</li><li>• Final Docs</li><li>• Construction to Perm and Govt Loans (FHA &amp; VA)</li></ul>	70 (Approx.)	900 (Approx.)

## Implementing Our Auto-PCA Solution

In every successful solution design, the primary step is understanding the requirements. Infosys BPM partnered with SMEs from the client to carry out

detailed process walkthroughs across all the products covered above. The team discussed audit checkpoints, documents, and data points, and business rules

involved in the business processes.

The implementation of the Post-Closing Audit Automation solution involved the following steps:



### 1 Classification and indexing

All the required documents within the processes were classified and indexed to efficiently recognize them for processing.

### 2 Prepping for data extraction

The required document types needed to be configured for extraction of required data points.

### 3 Business rules application

As per the post-closing checklist, various business rules were applied to effectively compare document data across other documents and/or data from client systems.

### 4 Audit export to Excel

Detailed reports of the findings of the audit were prepared and exported to Excel for downstream processing by other client business groups.

In order to seamlessly move daily loans for processing, loan data and loan documents from the client systems were pre-processed through the PCA solution.



## Solution Implementation Challenges

The implementation of Infosys BPM's automation solution wasn't without its due challenges. The following are the main challenges we faced during the implementation stages.

● **Multiple document types and variations:** 70 different document types and their variations had to be configured to successfully recognize them within the solution.

● **Large volume of audit rules, data points:** Almost 900 business rules had to be configured involving a larger number of data points from the documents to extract and standardize data.

● **Multiple systems:** The integration needed three different systems to ingest loan documents and data. The complexities included aligning the arrival times of data packets and arranging them for timely processing before next day's work shift.



## Improving Efficiency, by a Mile

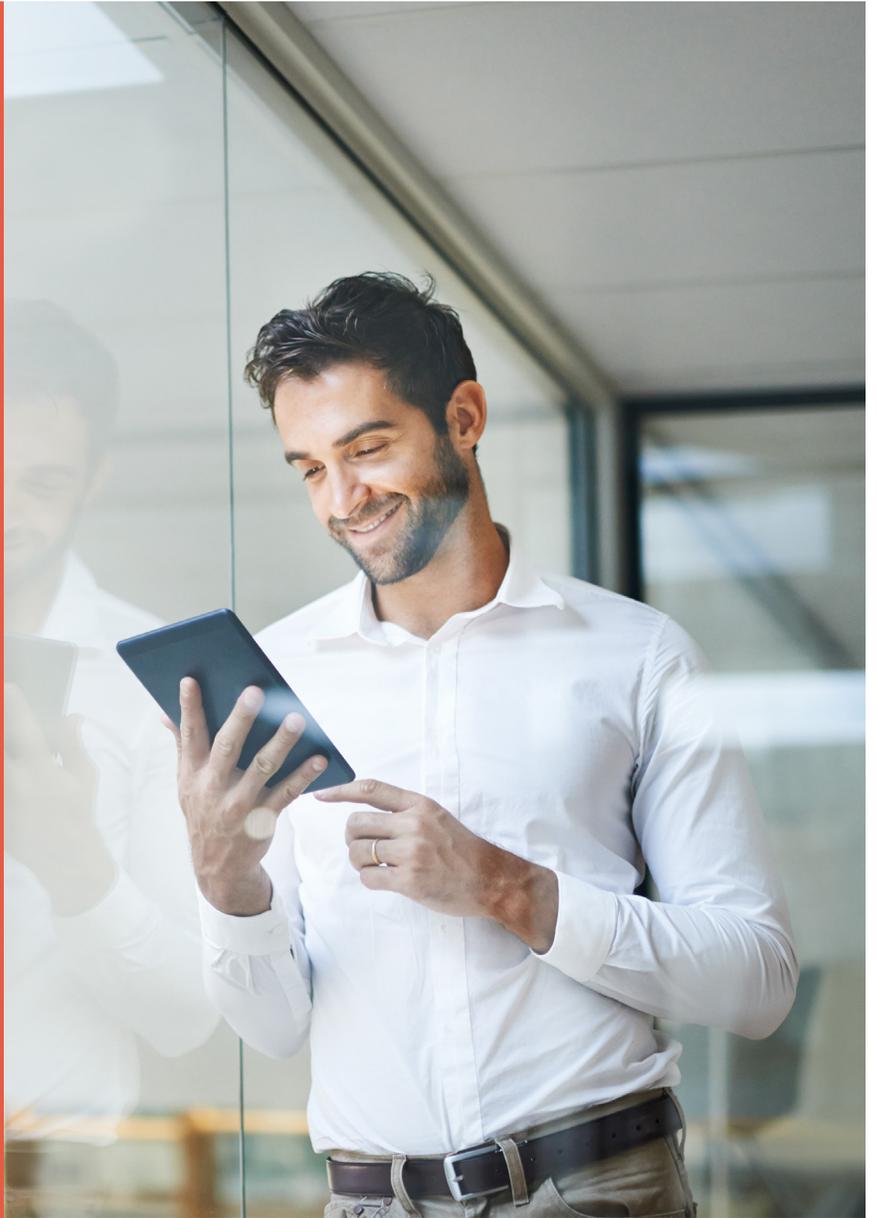
With such a sophisticated solution, Infosys BPM was able to deliver several key benefits to the client. The following are specific benefits of this PCA solution.

- **50% reduced average handling time (AHT):** The solution managed to reduce the AHT from 30 minutes to 15 minutes for conventional loans. As the solution matures, it is expected to provide further reduction.
- **30% increase in volume:** The solution managed to increase the average volume of loans processed from 8,730 to 11,330.
- **FTE reduction:** With 30% increase in volume, the client would have needed 30% more FTE, but with the automation solution, that requirement was eliminated and additional capacity was created.
- **Increase in upline:** The client is estimated to get substantial increase in upline after increasing loan volume by 30%.
- **95% accuracy:** Accuracy is being maintained at over 95% for all processes, giving enhanced process benefits.
- **77% decrease in cost:** The client's cost of operations has decreased by 77%.

## Digital Benefits

In addition to the above-stated key benefits, the following digital benefits were also delivered by the solution.

- **Improved governance:** With this enhanced loan tracking mechanism, the client is expected to see a drastic reduction in cure rates (a measure for non-performing loans) and the need for vintage analysis (a method to analyze the credit quality of loans).
- **Accuracy improvement:** Accuracy has both upstream and downstream impact. High accuracy of post-closing process provides better loan documentation, which leads to better quality of loans, better risk and compliance management, and improvement in the customer experience.
- **Democratized digital value chain**
  - Post-closing is a sub-process of origination. Digitization of this process will influence other larger processes and democratize the automation process.
  - Digitization success in post-closing encourages the client to pursue digital journeys for other processes and enhance their scale of operations.



## Client Speaks



Great Job everyone. I am looking forward to seeing the early results.

- Senior VP - Home Mortgage Operations, The Client



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