Automating Loan Processing for a US-Based NBFC

DCM INFOTECH LTD

39159 Paseo Padre Pkwy
Suite 309, Fremont,
CA - 94538

+1 (510) 494-2321
sales@dcminfotech.com

1. Introduction

DCM Infotech, a leading IT services company, partnered with a US-based Non-Banking Financial Company (NBFC) to automate their loan processing setup. The NBFC, which provides personal and mortgage loans through over 500 branches across the US, faced significant challenges in speeding up loan approvals and reducing operational costs. This case study explores how DCM Infotech leveraged Microsoft's Power Platform to address these challenges and deliver substantial business benefits.

Client Background

The client is a prominent NBFC in the US, offering personal and mortgage loans. With over 500 branches nationwide, the client operates in a highly competitive market, facing pressure from both traditional banks and fintech companies. To stay competitive, the client invests heavily in technology to enhance agility and reduce costs.

2. Business Challenges

The client faced two primary business challenges:

Speeding Up Loan Approvals 

In the retail finance industry, customers often migrate to organizations that offer faster loan approvals or lower interest rates. The client needed to accelerate their loan approval process to retain customers and prevent them from seeking alternatives.

Cost Reduction 

The client aimed to cut costs using technology, such as automation and AI, to enable most approvals to be done online after document verification.

3. Technical Challenges

To address these business challenges, the client encountered several technical hurdles:

AI Model Development

Building AI models capable of analyzing documents quickly and accurately with minimal human intervention.

Training AI Models and Bots

Training AI models and bots to recognize and process various types of documents required for loan approvals.

API Integrations:

Implementing APIs to interact with credit rating agencies and government agencies for Social Security Number (SSN) verification.

Customer Profiling

Using AI and analytics to profile customers and assess their loan repayment capabilities.

4. DCM Infotech Solution's

DCM Infotech, a trusted service provider for the client, had previously assisted in migrating their data centers to Azure cloud and implementing the complete Microsoft stack. Leveraging their expertise as a Microsoft partner, DCM Infotech proposed using Microsoft's Power Platform to automate the loan processing setup.

Solution Component

Power Automate

Automated the processing of loan applications, reducing manual intervention.

Document Intelligence

Scraped PDFs and defined Document Intelligence Automation (DIA) models to read and analyze document contents.

API Integrations

Used appropriate APIs and connectors to integrate with DIA models and process hundreds of sample letters stored in blob storage.

Power BI

Built validation tools to ensure the accuracy of letters and used machine learning (ML) and AI techniques to predict loan renewal lists for branches.

5. Implementation

The implementation process involved several key steps:

5.1 Loan Application Processing:

Power Automate: DCM Infotech utilized Power Automate to streamline the loan application process. This involved creating workflows that automatically routed applications through various stages, from initial submission to final approval. The automation included:

Document Collection
Automatically collecting required documents from applicants

Data Extraction
Using AI models to extract relevant data from submitted documents.

Verification
Integrating with external APIs to verify applicant information, such as credit scores and SSNs.

5.2 Document Scraping and Analysis:

Document Intelligence Automation (DIA): DCM Infotech defined and trained DIA models to read and analyze the contents of sample PDFs and letters. This involved:

Model Training

Using machine learning techniques to train models on various document types, ensuring they could accurately extract and interpret data.

Blob Storage Integration

Storing sample documents in Azure Blob Storage and using connectors to access and process these documents.

The following documents were used to train the models and automate the workflows

Loan Application Forms

Standard forms filled out by applicants, containing personal information, loan amount requested, purpose of the loan, and other relevant details.

Identification Documents:

- **Driver's Licenses:** Used to verify the identity of the applicant.
- **Passports:** Another form of identification for verifying applicant details.
- **Social Security Cards:** Used for SSN verification.

Income Proofs

Pay Stubs: Documents showing the applicant's income from employment.

Tax Returns

Annual tax filings used to verify income and financial stability.

Bank Statements: Records of the applicant's bank transactions to assess financial health.

Credit Reports

Reports from credit rating agencies detailing the applicant's credit history and score.

Property Documents (for mortgage loans):

- **Title Deeds:** Legal documents proving ownership of the property.
- **Appraisal Reports:** Documents assessing the value of the property.
- **Mortgage Statements:** Previous mortgage documents if the applicant is refinancing.

Supporting Documents

- **Utility Bills:** Used to verify the applicant's address.
- **Employment Verification Letters:** Letters from employers confirming the applicant's job status and income.
- **Insurance Documents:** Proof of insurance for the property being mortgaged.

Correspondence Letters

- Letters sent to and from the applicant during the loan application process, including approval and rejection letters.

5.3 API and Connector Integration:

API Integrations: DCM Infotech implemented APIs to interact with external systems, such as credit rating agencies and government databases. This included:

Credit Score Verification	SSN Verification	Connector Usage
Integrating with credit bureaus to retrieve and verify applicant credit scores.	Connecting with government databases to validate Social Security Numbers.	Utilizing Power Platform connectors to seamlessly integrate these APIs into the automated workflows.

5.4 Validation and Accuracy:

Power BI Validation Tools: DCM Infotech developed validation tools in Power BI to ensure the accuracy of processed letters. This involved:

Data Visualization	Error Detection	Continuous Improvement
Creating dashboards to visualize the accuracy and performance of the DIA models.	Implementing algorithms to detect and flag errors in processed documents.	Using feedback loops to continuously improve the accuracy of the models.

5.5 Predictive Analytics:

Machine Learning and AI: DCM Infotech employed ML and AI techniques in Power BI to predict loan renewal lists for branches. This included:

Customer Profiling	Predictive Models	Branch-Level Insights
Using AI to analyze customer data and create profiles based on repayment behavior.	Developing predictive models to forecast which customers were likely to renew their loans.	Providing branch managers with actionable insights to target potential loan renewals.

6. Data Privacy and Security

Given the sensitive nature of financial data, DCM Infotech implemented robust data privacy and security measures to ensure compliance with regulations and protect customer information.

6.1 Data Privacy Issues:

Compliance with Regulations	Data Encryption	Access Controls	Anonymization

Ensured compliance with data protection regulations such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA).

Implemented end-to-end encryption for data in transit and at rest to protect sensitive information.

Established strict access controls to ensure that only authorized personnel could access sensitive data.

Used data anonymization techniques to protect personal information during the AI model training process.

6.2 Credit Score Analysis:

Secure API Integrations

Integrated with credit rating agencies using secure APIs to retrieve credit scores without compromising data privacy.

Data Minimization

Collected only the necessary data required for credit score analysis, minimizing the exposure of sensitive information.

7. Results and Impact

The automation of the loan processing setup delivered significant benefits to the client:

Reduction in Processing Times

Loan processing times were reduced by more than 77%, enabling faster loan approvals and improving customer satisfaction.

Resource Optimization

Freed-up manpower was redeployed to more customer-facing roles, enhancing service quality.

Improved Accuracy

As AI models matured from 70% to 88% accuracy, the number of errors decreased, and the need for human verification dropped significantly.

Enhanced Predictability

The implementation of AI improved the predictability of loan repayments, reducing the risk of defaults.

8. Conclusion

DCM Infotech's strategic use of Microsoft's Power Platform enabled the client to overcome their business and technical challenges, resulting in faster loan approvals, reduced operational costs, and improved customer satisfaction. This case study highlights the transformative impact of automation and AI in the financial services industry, demonstrating DCM Infotech's capability to deliver innovative solutions that drive business growth.