EXPERT
Mortgage Assistance

Power Your Mortgage Process with Msuite

The Most Advanced Automation Tool to Improve Turnaround, Accuracy and Cost Savings

Burdened by the impact of process controls, regulatory requirements and limited IT investment, a mortgage lender's struggle to make mortgage operations more agile and resilient has remained elusive for far too long. However, with the advent of mortgage process automation, a viable and robust solution has arrived. But when we talk about automation, we think of a solution that makes mortgage Lending 'cheaper, faster and better'. But what is it that you would like to get done with technology/automation and with what's the expected outcome? How are you going to know what technology will work to get the desired results? And is the upfront commitment or time, effort, and money worth it without even knowing the possible outcome? The questions are never-ending and so are the tools and technologies. Which is why it takes cumbersome amount of time and effort to even shortlist any potential solutions. There are plenty of options to choose from however almost none guarantees results.

Why MSuite

Most technology solutions are built by tech companies trying to disrupt the market. While in some cases, disruptions do happen, in most others the product gets built with assumptions that may be far from reality. Having served 100+ lenders/servicers over the last decade, **Expert Mortgage Assistance (Flatworld Solutions)** understands the ground reality of Mortgage **industry** hence we built this technology knowing fully well the past, the present and the foreseeable future of this industry.

MSuite was conceptualized, built, and is led by a team with a combined experience of more than 50 years in the mortgage industry. There were no hypothetical assumptions made while building this tool as we had first-hand experience of running operations for dozens of mortgage companies. The result is, we have had 100% successful implementations so far and we **guarantee** results from day 1.

MSuite - Tailor made for the Mortgage Industry

Mortgage industry has tremendous opportunity for automation however the adoption has been very slow. Part of the reason is automation solutions often require huge upfront investments as well as months of efforts from the operations and IT teams. Even after these investments (time, effort, and money), there are usually no guarantees of the efficiency gains or cost savings.
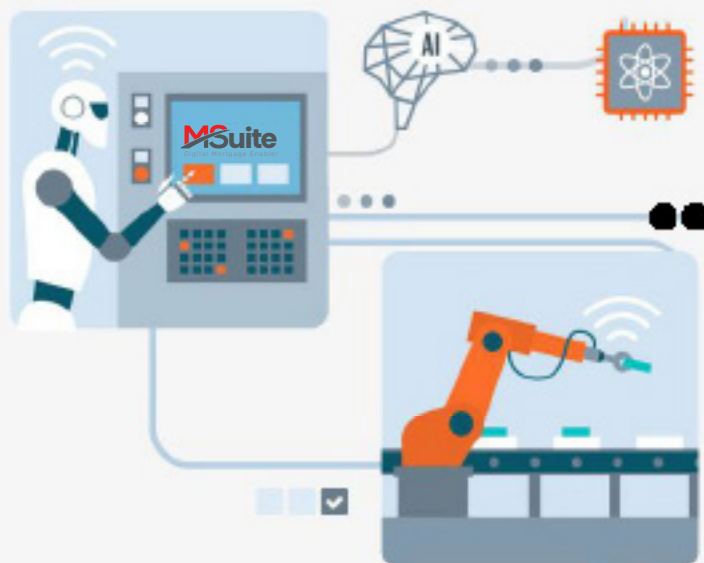
MSuite is the ultimate solution to this fundamental problem with technology adoption. It is built to address all of these challenges with a business model that can be called as "Automation as a Service". It does not entail a large upfront investment, nor ties one down to a long-term contract. This enables Mortgage lenders/servicers implement automation with little to no effort, negligible upfront investment yet guaranteed cost savings and efficiencies. With the proposed solution, CLIENT need not change anything major internally to adopt MSuite. There is little implementation effort from the client's operations and IT teams as all the customization and other technical aspect of implementation is handled by Expert Mortgage Assistance (Flatworld Solutions). The upfront cost for implementation is little to none (depending on the scope) and client knows the transaction pricing right upfront to compare with current cost and confirm cost savings. Since MSuite is Automation as a Service, Expert Mortgage Assistant (Flatworld Solutions) handle all exceptions and ensures the client has a complete solution.

Automation as a Service
Built to Solve Business- Specific Problems with over 95% Accuracy

M-Suite is an intelligent OCR based platform with Machine Learning and AI capabilities

Key Features:

- Equipped with OCR & Computer Vision
- Driven by ML & AI
- In-Built Exception Handling Capabilities
- Cloud & On-Premise Hosting
- Automates Document Indexing / Data Extraction & Validation

Technologies
that Power MSuite

MSuite is powered by cutting edge technologies and the modular build allows us to leverage other latest technologies as and when needed. It's been built to be platform agnostic be it the OCR Engine it uses, the cloud platforms it's hosted on or the business intelligence tools it can connect with for reporting. Currently, MSuite leverages some of the best technologies available across all its functions. Below is an outline of technologies powering MSuite:

OCR Engine

ABBYY FineReader

Google Cloud Vision

Technologies

✔ Computer Vision

✔ Machine Learning

✔ Artificial Intelligence

✔ Data Analytics

Cloud Hosting

aws

Microsoft Azure

Reporting

Klipfolio

Power BI

+ableau

Decoding MSuite

The letter 'M' in MSuite stands for Mortgage and since there are different modules of this automation tool that could be used either in isolation or all together as one solution, we call it a 'Suite'. There are 5 distinct components of MSuite as below:

| Connector | Indexing Engine | Data Extraction Engine | Rule Engine | Reporting Engine |

Connector

This component was designed to enable MSuite to take inputs from various sources of information. Here are examples of input sources MSuite connects with:

API Integration

MSuite can connect with LOS, Servicing Systems, 3rd Party Vendors and other internal/external systems to receive transactional input.

Emails

MSuite can take information from emails for further processing. Transactional information may be part of the email body or it may work as a trigger for MSuite to connect with other systems and process transactions. For example – if a new document is uploaded in a LOS/Servicing system and an email alert is generated for that, MSuite can monitor those email alerts and get into the transaction that needs processing.

SFTP

MSuite can monitor hot folders in SFTP and work on anything that is being uploaded there.

Direct Uploads

MSuite also has a UI for uploading transactions that needs processing.

Essentially, there are no limits around how and when MSuite can be triggered for transaction processing.

Indexing Engine

MSuite's indexing engine has been built keeping the real-world document quality in mind. The indexing engine is capable of recognizing 350+ types of documents including those with varied formats. With the combination of OCR, Computer Vision and Machine Learning, MSuite is able to classify documents with lower scan quality (up to 150 DPI) including images taken from cell phones. With **95+%** of accuracy in a fully automated workflow (no exception handling required), MSuite's indexing engine is one of the best in the industry.

Data Extraction Engine

Lenders/Servicers need to extract data points from various documents (income, asset, collateral, closing docs, final docs, insurance docs etc.) as they need that data in digital format to store in their systems (LOS/Servicing systems). These data points are critical to the decision making as well as triggering various actions on a Loan file. Accuracy is utmost important as a wrong data point in the system can cause various issues during the origination/servicing process. MSuite guarantees 98+% of data accuracy with exception handling where in exceptions are limited only to those data points with OCR confidence score lesser than 90%. MSuite is also capable of accepting digital data **points** from various sources (day 1 certainty, appraisal SSRs, work number, credit data). In case of digital data, there is no need of exception handling and the accuracy is always 100%. This feature is built keeping the future in mind as the mortgage eco-system moves towards digital transactions.

Rule Engine

MSuite performs various QA Reviews as well as other complex tasks (income calculation and upfront underwriting of files with salaried borrowers) within the origination and servicing space. It leverages a robust and dynamic rule engine that allows it to manage thousands of rules seamlessly. The rule engine is customized for every deployment to ensure it covers only those rules that are required for the particular scope of work. The rule engine is easy to maintain, and update based on changing business needs and regulatory framework. MSuite Rule engine currently automates various distinct tasks including a thorough review on files being acquired for servicing and Underwriting of certain loan types with specific borrower profile.

Reporting Engine

Reporting is crucial to track performance of various parameters. MSuite provides detailed reports and trend analysis of the automated task. There are standard reports available to address critical parameters and we also offer custom reports to address specific business needs. MSuite is capable of reporting on almost all the data points being stored by the system.

MSuite Implementation

Digital Mortgage Enabler

Indexing
Automated indexing of 10M+ pages per month

01

Debt Notification Process
Automated undisclosed Debt Notification Process of 12K+ loans per month

02

Audit Process
Automated MSR Audit Process for 10K+ loans per month

03

Income, Asset and Credit review
Automated income, asset and credit reviews for 5000+ loans per month

04

QA Review
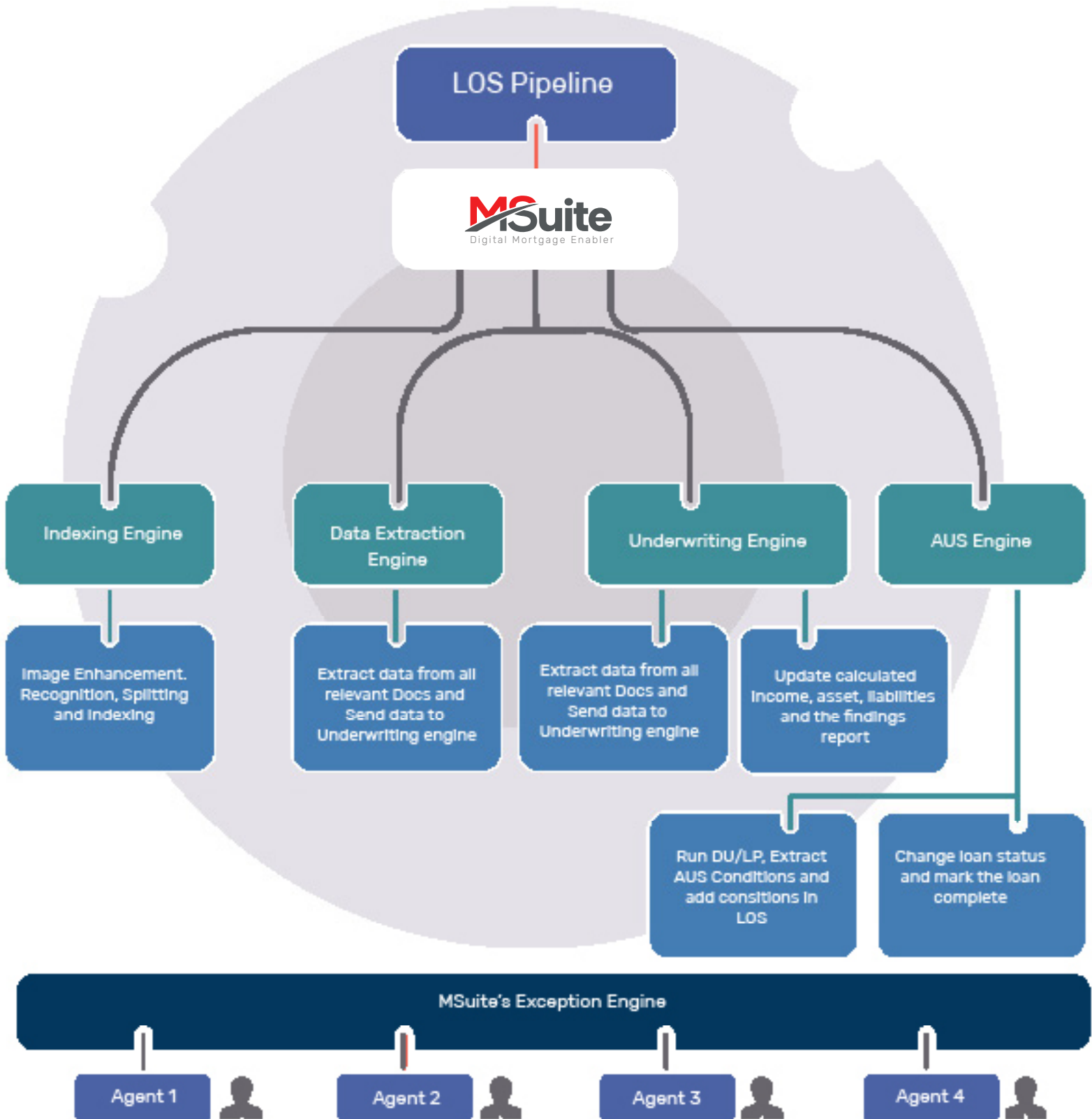Automating QA review for lenders with 50K+ loans per month

05

How MSuite Works

MSuite has a very seamless integration method with the Loan Originating Systems and any other applications from where the data needs to be pulled. This means that no additional infrastructure is required to be setup at the client's location. ALL functions performed on Loan Origination System (LOS) are done using the various API calls, so they follow the same inherent level of security and data integrity as inbuilt into the APIs. Depending on the scope of automation, we design a customized workflow and implement the same for our clients. Here is an example of how MSuite handles various tasks including exception handling:

LOS Pipeline

MSuite — Digital Mortgage Enabler

Indexing Engine

Data Extraction Engine

Underwriting Engine

AUS Engine

Image Enhancement. Recognition, Splitting and Indexing

Extract data from all relevant Docs and Send data to Underwriting engine

Extract data from all relevant Docs and Send data to Underwriting engine

Update calculated income, asset, liabilities and the findings report

Run DU/LP, Extract AUS Conditions and add consitions in LOS

Change loan status and mark the loan complete

MSuite's Exception Engine

Agent 1

Agent 2

Agent 3

Agent 4

Connecting to Loan Origination System (LOS) via API

We require the following information to be able to connect to Loan Origination System (LOS):

- Loan Origination System (LOS) Username
- Loan Origination System (LOS) password
- Loan Origination System (LOS) Instance
- API Key

The Loan Origination System (LOS) Platform uses OAuth 2.0 for authentication and authorization. OAuth enables a client application to access information on behalf of the user without disclosing the credentials.

Working with Loan Origination System (LOS)

Using the Loan Origination System (LOS) API, MSuite is able to request or update any loan information from Loan Origination System (LOS). The access level is determined by the access level of the Loan Origination System (LOS) user that you setup for us. MSuite is also able to fetch docs and data from Loan Origination System (LOS) and push them back using the API.
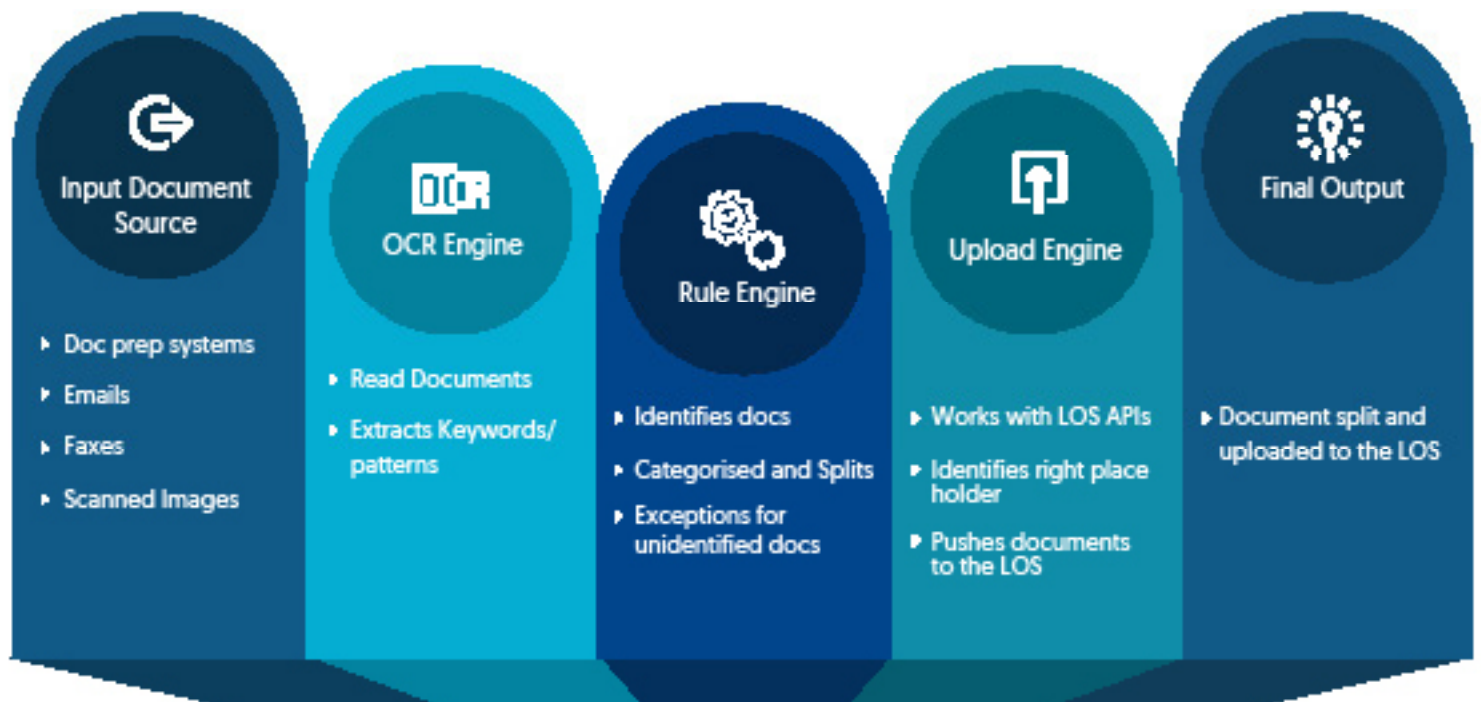
Typical Automated Indexing Workflow

MSuite Connects to Loan Origination System (LOS) via the API. It fetches any unindexed docs on specified Loan Origination System (LOS) placeholders. OCR and Automated indexing is performed by MSuite. The indexed docs are then pushed back to respective Loan Origination System (LOS) Placeholders using the API. Any updates to loan (such as milestone changes or date updates etc.) are also done by MSuite and automated email alerts could be sent to client's staff once the process is done.

MSuite could also pick the unindexed package from a shared drive connected to the scanner or an SFTP server.

Input Document Source
- ▸ Doc prep systems
- ▸ Emails
- ▸ Faxes
- ▸ Scanned Images

OCR Engine
- ▸ Read Documents
- ▸ Extracts Keywords/ patterns

Rule Engine
- ▸ Identifies docs
- ▸ Categorised and Splits
- ▸ Exceptions for unidentified docs

Upload Engine
- ▸ Works with LOS APIs
- ▸ Identifies right place holder
- ▸ Pushes documents to the LOS

Final Output
- ▸ Document split and uploaded to the LOS

Automated Upfront Underwriting Workflow

LO/UNDERWRITER

Alert LO with missing documents disqualifying the loan from generating AUS

Loan to be assigned to the processor to work on the conditions

Loan to be assigned to the underwriter to clear the conditions

Generate CTC

LOS

MSuite Compatible Loans:
Purchase-Owner occupied Refinance W2 borrowers

MSuite Queue

LOS Doc Folder

Update Loan Data

Upload the findings report to LOS

Run AUS

Loan updated with the conditions from AUS

MSuite

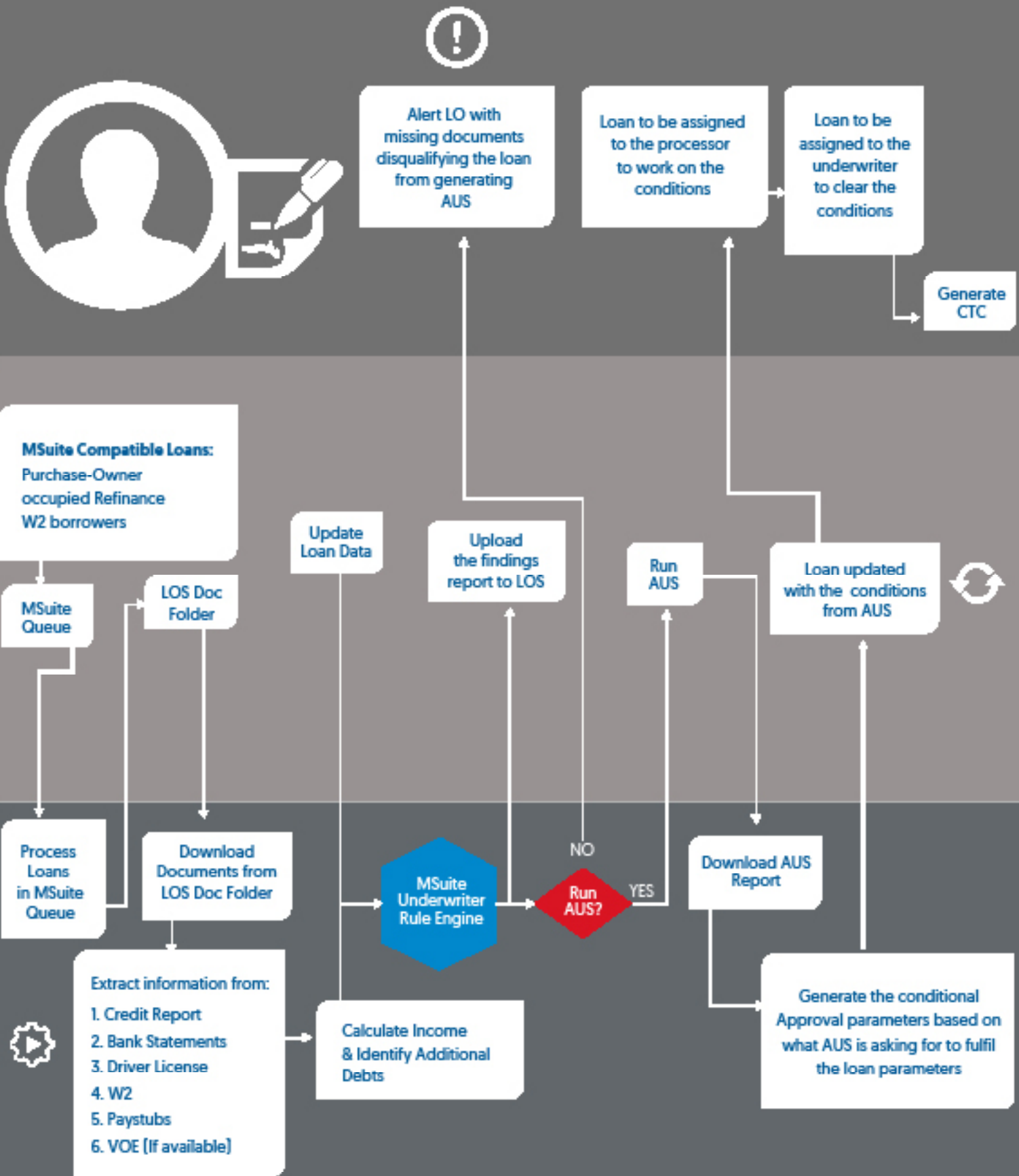Process Loans in MSuite Queue

Download Documents from LOS Doc Folder

Extract information from:
1. Credit Report
2. Bank Statements
3. Driver License
4. W2
5. Paystubs
6. VOE (If available)

Calculate Income & Identify Additional Debts

MSuite Underwriter Rule Engine

Run AUS?

NO

YES

Download AUS Report

Generate the conditional Approval parameters based on what AUS is asking for to fulfil the loan parameters

Information required from client to implement automated indexing

➜ Access to Loan Origination System (LOS) as listed above

➜ Master List of Buckets (Loan Origination System (LOS) Placeholders)

➜ Sample packages that could be used to test and calibrate MSuite so that it uses the exact same placeholder names as the current ones.

Test Environment

We offer clients the option of running MSuite first on the Loan Origination System (LOS) UAT server before rolling it out on production server. This allows the client to understand and test the process before it is put to production. This is possible when there is full access to Loan Origination System (LOS) UAT server.

Road Map to Success

Contract Sign Off — 1

2 — Document Mapping and Integration (5-15 Days)
- Expert Mortgage Assistance (Flatworld Solutions) sets up the integration of the live environment
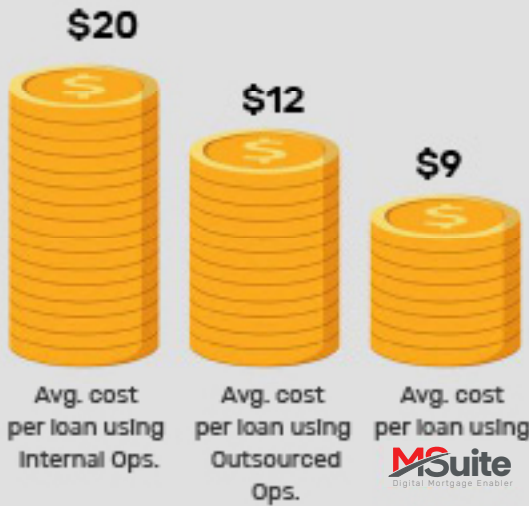- Final testing of the live environment and document mapping

3 — UAT - Feedback (3-4 days)
- Access to TEST environments of LOS
- Assignment of test files
- Feedback / Changes on the output

4 — Customization based on feedback (3 - 4 days)
- Expert Mortgage Assistance (Flatworld Solutions) receives feedback from the onsite team
- Modifications / corrections as per the feedback received

5 — Go Live !
- MSuite to start pulling the files for processing
- Files pushed to the live environment
- On-site team notified

ROI with MSuite

Below is an illustration of ROI for a lender leveraging automated indexing having a monthly volume of 1000 loans.

$20

Avg. cost per loan using Internal Ops.

$12

Avg. cost per loan using Outsourced Ops.

$9

Avg. cost per loan using

Cost Components	Internal Operations	Outsourced Operations	MSuite
Upfront Cost	0	0	10000
On-going cost per file	20	12	9
On-going monthly cost*	20,000	12,000	9,000
Payback period for upfront cost	28 days	100 days	-
Annual Cost	2,40,000	1,44,000	1,18,000
Saving on MSuite	1,22,000	26,000	-

* Assuming the loan volume per month is 1000

The Benefits of MSuite in Nutshell

Up to **70%** quicker turn times on tasks automated by MSuite. Get documents indexed and data input complete in minutes

Up to **75%** lesser effort in making changes to document placeholders and/or mapping of data points within the LOS

Virtually no limit to the processing capacity. Manage **100%** or more volumes with a simple 24-48 hour advance notice

Up to **80%** reduction in indexing and data input errors consistently across all documents processed by MSuite

50+% of cost savings on manual processes handled onshore and up to **30%** cost savings for manual processes offshore

MSuite
Digital Mortgage Enabler

Conclusion

Automation is not for everyone and it's certainly not for every task. Leveraging technology and automation is a strategic decision for an organization and such decisions must be taken based on data and not just potential promises. Implementation of an automated workflow must be done only after having complete **understanding** of the scope of work as well as its impact on the overall operation. An ideal automation solution must help with at least 3 things, improve turnaround & accuracy, reduce operational costs, and make operations highly scalable. While most automation solution provide at least one of these three benefits, a **select** few offers two. MSuite is the only solution that provides all of these three benefits to lenders - better turnaround & accuracy, cost savings and scalability.

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