HCL

Mortgage Origination Landscape

Transforming Financial Services Operations with digitalCOLLEAGUE

www.hcltech.com

Table of Contents

For home owners, mortgage is the largest source of debt and has a great effect on their finances and solvency through tough COVID times. For banks and lenders, mortgages are the most significant asset on their books, and thus impact on originations, repayment schedules and default rates can have significant detrimental effect on their financial profitability, liquidity and customer response agility.

FNMA (Federal National Mortgage Association) forecasting the lowest 30-year mortgage rates and the increase in stress owing to uncertainty in monthly payments, the refinance and origination markets are all set to receive spike in input requests. Servicers, originators, and financial institutions can stay afloat by choosing the best amongst the below options,

- Reduce lock to fund timelines for keeping both customer experience and cost intact.
- Respond to the increased volumes with reimagined tech-led business processes and operations.
- Quick turnaround on increased requests while keeping quality intact.

US market view: Trends, challenges and needs

Servicing industry

Increase in stress in monthly payments

Foreclosure ↑ Bankruptcy ↑ Forbearance ↑

Stressed servicers, originators and financial institutions.

Significant increase in customer inquiries

- Large volumes of customer relief requests. Call a vast number of these customers to help them transition from passbooks to online and digital banking.
- Increased activity in secondary market.

Need of the hour

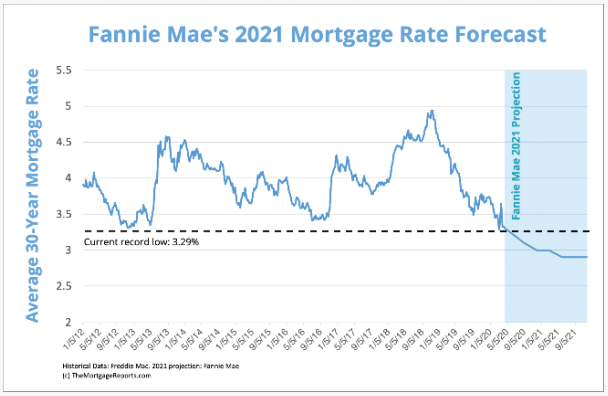
Operations – scaling CC ops, automation, WFH enablement, Fraud Protection, digital Operations (auto appraisals, e-signatures, risk and compliance controls, regulatory approvals), Forecasting customer demand for new mortgage loans and refinances.

Opportunities

- Responding to increased volumes - mortgage payment deferral programs, reallocate and retrain resources, capacity of digital self-service channels.
- Recovery Strategy - Re-imagine business process within technology-enabled business transformation, advice and guidance to customers.

Origination industry

FNMA forecasts lowest mortgage rates



Increase in refinance and new origination

- Origination and refinance volume influx.
- Cost pressure and hence increase in.

Opportunities

- Quick turn around and quality work and hence digitization.
- Reduce lock to fund by improving TAT – Induce digitization.

It is becoming very important to harness next-gen digital operating model for solving end-to-end needs. This can happen only when we bring in digital transformation. While there have been legacy origination and servicing systems in place with most of the establishments, the new game is all about bringing in the entire set of digital accelerators together.

Mortgage Origination digitization through digitalCOLLEAGUE

HCL digitalCOLLEAGUE is the ecosystem to leverage various building blocks and accelerators from the 'digital resource hub' to augment end-to-end transformation.

Leveraging digital resource hub – a collection of accelerators

Processes and sub processes				Digital levers ecosystem	Impact
Loan origination	Lead generation	Initial set up	Disclosures	**RPA** • Identify required document • Navigate to TPT side to place the order • Follow-up and retrieve document • Basic checks and data entry	Loan cycle time reduction by 10 – 15% Loan quality improvement by 40 – 60% Data entry accuracy increase by 60 – 80% Servicing loan set up TAT reduction by 15 – 20% Early collections alerts, increase by 5% Improve CSAT, NPS by 5-10% Enhance Employee Experience Improve control, mitigate risk and adhere to regulatory compliance benchmarks
	Indexing	Pre-qualification			
Processing	Application processing	Fraud check	Loan package creation	**EXACTO™ (AI/ML-IDP)** • Identify existing document • Index and bookmark documents • Extract data from documents • Create loan corpus for data entry and calculations	
	Order outs	Verification (VoE, VoD, VoM, VoR)			
Underwriting	Application review	Collateral analysis		**Chat Bot (AI/NLP)** • Inform borrower on status updates and document requirements during origination • Self service and loan life cycle companion	
	Capital, capacity, credit analysis	Conditions clearing			
Closing / post closing	VoE & VoA	Lead generation	Post closing audit	**iMOS (BPMS -TOSCANA)** • Track every stage • Automation resolution • Preconfigured alerts	
	Escrow set up	Settlement services			
Ancillary services	Loan boarding	Invoice processing	Payoff processing	**Analytics (ML, BI)** • Segmentation, Classification, • Statistical Propensity Modelling • Prioritization, Prediction, Recommendations	
	CS and collections	Default mgmt. and loss mitigation			

Digital transformation levers/enablers like RPA, AI/ML, NLP, BPM, and analytics can help transform mortgage origination processes.

Robotic Process Automation (RPA) uses simple rules to emulate repeatable tasks eliminating low-value manual interventions. Robotic process automation is a UI based automation lever which can automate rule based non-judgmental and non-cognitive activities which can lead to better employee experience and reduction of manual labor.

Machine Learning (ML) can automate tasks involving complex rules and requiring pattern understanding. Machine Learning algorithms can help in bringing artificial intelligence for process transformation.

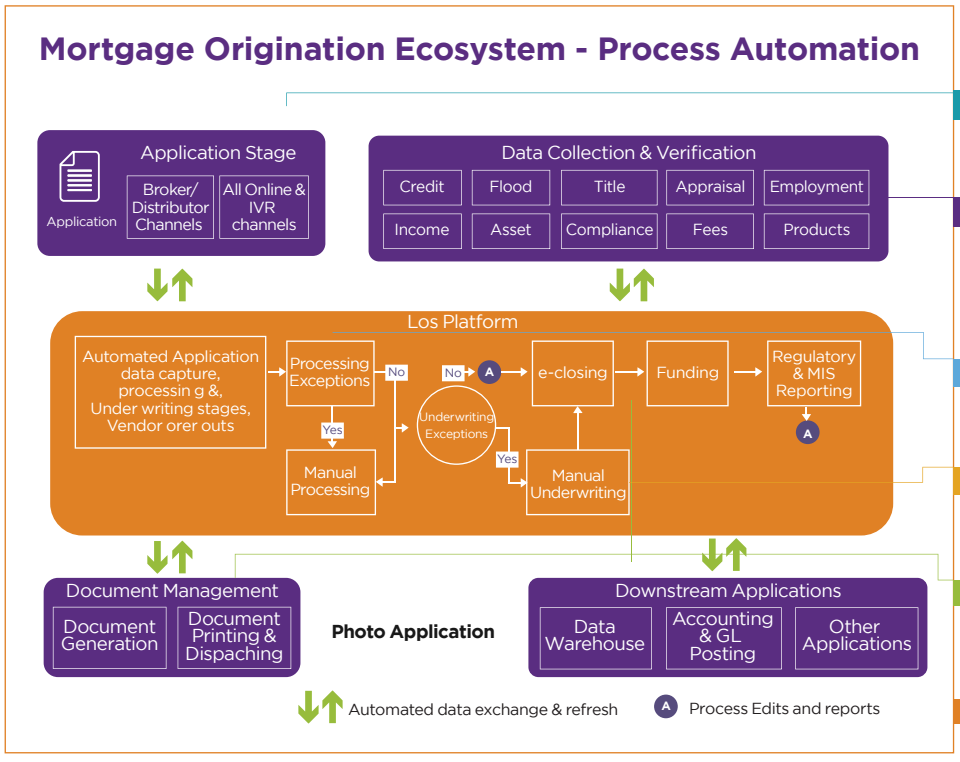
Workflow (BPMS) intelligent cross functional workflows can help people and bots work coherently in a process with well-defined hand-offs, And can also help in human in the loop driven intelligent automation.

Natural Language Processing (NLP) NLP is a class of machine learning algorithms which can help in natural language understanding and translation. Chatbots are the example of AI driven by NLP. NLP technologies can be instrumental is transforming customer engagement touch points.

Cognitive Services/AI (Intelligent Document Processing, Language, Search etc.) can be deployed to extract, transform & digitize the content/knowledge to quickly determine the right course of action cognitively.

Origination process & digital opportunities:

Bird view, challenges, responses, and need of the hour



Challenges

- Significant increase in customer inquiries
- Call from a vast number of customers to help them transition from passbooks to online and digital banking
- Large volumes of customer relief requests that require adequate operational capacity and flexibility
- **Ensuring CX:** Service level, turnaround times, e2e digitalization, collections prioritization.
- **Product Life Cycle Impact:** Pull out 'riskier' mortgages (e.g., buy-to-let mortgages, high loan-to-value [LTV] mortgages) & bring digital/innovation in products.
- **Operations:** Scaling customer service operations, automation, WFH enablement, fraud protection, digital operations (auto appraisals, e-signatures, risk and compliance controls, regulatory approvals etc.), forecasting customer demand for new mortgage loans and refinances.
- **Income:** Deferred mortgage payments, reduced deal flow, increased defaults and loan-loss provisions.
- **Balance sheet:** Lower cash inflows, financing the liquidity crunch.
- **Risk:** Segmenting credit worthy vs credit-risk profiles, effectively pricing interest rates, predict defaults.

Responses

- **Responding to increased volumes:** Mortgage payment deferral programs, reallocate and retrain resources, capacity of digital self-service channels.
- **Business risk:** Evaluate portfolio risk, restructure product shelf, advanced analytics such as business intelligence to better calculate risk and predict hardship.
- **Recovery strategy:** Re-imagine business process within technology-enabled business transformation, advice and guidance to customers.

Need of the hour

- Scaling operations
- New ways of working
- Automation/Digital workforce enablement
- Operational agility

Mortgage Value Chain – Next-Gen Digital Operating Model

The entire mortgage value chain can be divided into four major processes namely: origination, servicing, default management and ancillary services. Each of these processes can be further divided into sub-processes, activities and tasks. For example, origination comprises loan origination, loan processing, underwriting, loan closing & funding and post-closing activities. Similarly, servicing comprises securitization and loan servicing and so on. The focus of this paper will be loan origination digital transformation.

When we think of a next-gen digital operating model for the mortgage value chain we look at all activities done at key-stroke level to accomplish the business goals. If we look at activities, some of those are rule-based activities, some activities involve a lot of cognitive decision making and some are really complex activities with a lot of decision making involved along with multiple to and fro as well as complex comprehension cognitive evaluation. Based on the nature of the activity, the efforts and the level of cognitive decision-making involved, we map appropriate digital transformation levers for intelligent automation of the end-to-end landscape.

RPA helps in automating rule-based tasks; artificial intelligence is all about embedded cognitive services like intelligent character reading/intelligent document processing (EXACTO™) while natural language processing is for voice-to-text transformation and caters to speech-, language-related cognitive transformation augmented with human intelligence in the loop. Machine learning engines around classification, prediction, patterns recognition, data mining, etc. can help in complex decision making BPM is the orchestration unified intelligent workflow layer with which humans and bots can interact and finally BI is for real-time holistic integrated insights at business and operational levels to create a digital-decisioning ecosystem for augmenting decision making.

Digital transformation levers come together to transform business operations and deliver multiple tangible and intangible benefits. We have categorized the benefits into five key buckets namely:

CX – which is all about delivering stellar customer experience
EX – improving employee experience by improving engagement in strategic tasks
Cost – reducing cost of operations and cost to serve
Revenue – impacting top line and finding new business opportunities
R&C – mitigating risk and improving process control and compliance

Mortgage Operations

Origination					Servicing		Default Mgmt.	Ancillary Services
Loan Origination	Loan Processing	Underwriting	Loan Closing & Funding	Post Closing	Securitization	Loan Servicing	Default Mgmt.	Ancillary Services
Lead Generation	Review Loan Appl	Appl. Review	Settlement & Closing Fee	PC Audit	Investor Underwriting	Loan Onboarding	Default Reporting	Title Search
Pre-Qualification	Get Support Docs	Collateral Analysis	Confirm Closing Logistics	Loan doc. to Investor	Warehousing	Customer Support	Collection/ Recoveries	Title Review
New Loan Set Up	Get Sales Contract	Credit Analysis	Send Closing Package	HDMA Reporting	Residential Mortgage Backed Securities	Payment Processing Mortgage Reconciliation	Bankruptcy & Foreclosure	
Send Disclosure	Verify Employment	Capital Analysis	Confirm Package Accuracy			Escrow Management	Loss Mitigation	
Intent to Proceed	Order Insurance	Capacity Analysis	Get Wiring Instructions			Payoffs Processing	Loan Modification Underwriting	
Doc. Indexing	Order Title Report	Compliance, Fraud	Pre-Funding Review			Dispute Resolution	REO Mgmt. & Sales	
Rate Lock Mgmt	Appraisal Report	Loan Decision	Authorize Disbursement			Mortgage Re-conveyance		
	Package Creation					Investor Reporting		

Digital Transformation Levers						Transformation/Automation Propensity					
RPA	AI	ML	NLP	BPM	BI	<20%	Low	20-60%	Med	>60%	High

The application of integrated multiple levers can achieve multiple benefits, and based on the weighted average holistic score of intelligent automation achieved, we categorize the activities into three buckets namely: low, med and high. Low means the activities where the propensity of digital transformation/intelligent automation benefits is less than 20% (of all possible tasks done under this sub-process only 0-20% can be digitally transformed with a positive business case/RoI). Similarly, 'med' means activities where the propensity of digital transformation/intelligent automation benefits is in the range 20-60%. High means activities where the propensity of digital transformation/intelligent automation benefits is in the range 60-100% (that is, some of the activities can be made entirely automated end to end and also makes sense from the RoI perspective).

Digital Transformation Levers – Propensity Heat Map (1/2)

Digital Transformation Propensity			Digital Transformation Levers						Benefits				
			RPA	AI	ML	NLP	BPM	A	CX	EX	Cost	Rev.	R&C
Origination	Loan Origination	Lead Generation	✓		✓		✓		↑	↑	↓		
		Pre-Qualification	✓	✓	✓						↓		
		New Loan Set Up	✓	✓							↓		
		Send Disclosure	✓								↓		
		Intent to Proceed	✓								↓		
		Doc. Indexing	✓	✓	✓	✓	✓			↑	↓		
		Rate Lock Mgmt.							↑				
	Loan Processing	Review Loan Appl.	✓						↑		↓		
		Get Support Docs.	✓								↓		
		Get Sales Contract								↑			
		Verify Employment	✓	✓	✓								↓
		Order Insurance	✓								↓		
		Order Title Report	✓								↓		
		Appraisal Report	✓								↓		
		Package Creation					✓				↓		

Low

Med

High

Digital Transformation Levers – Propensity Heat Map (2/2)

Digital Transformation Propensity			Digital Transformation Levers						Benefits				
			RPA	AI	ML	NLP	BPM	A	CX	EX	Cost	Rev.	R&C
Origination	Underwriting	Appl. Review	✓	✓	✓			✓	↑	↑	↓		↓
		Collateral Analysis	✓	✓	✓			✓	↑	↑	↓		↓
		Credit Analysis	✓	✓	✓			✓	↑	↑	↓		↓
		Capital Analysis	✓	✓	✓			✓	↑	↑	↓		↓
		Capacity Analysis	✓	✓	✓			✓	↑	↑	↓		↓
		Compliance, Fraud	✓	✓	✓			✓	↑	↑	↓		↓
		Loan Decision	✓	✓	✓			✓	↑	↑	↓		↓
	Loan Closing & Funding	Settlement & Closing Fee	✓								↓		
		Confirm Closing Logistics	✓								↓		
		Send Closing Package	✓								↓		
		Confirm Package Accuracy	✓								↓		
		Get Wiring Instructions	✓								↓		
		Pre Funding Review	✓							↑	↓		
		Authorize Disbursement	✓								↓		

Low

Med

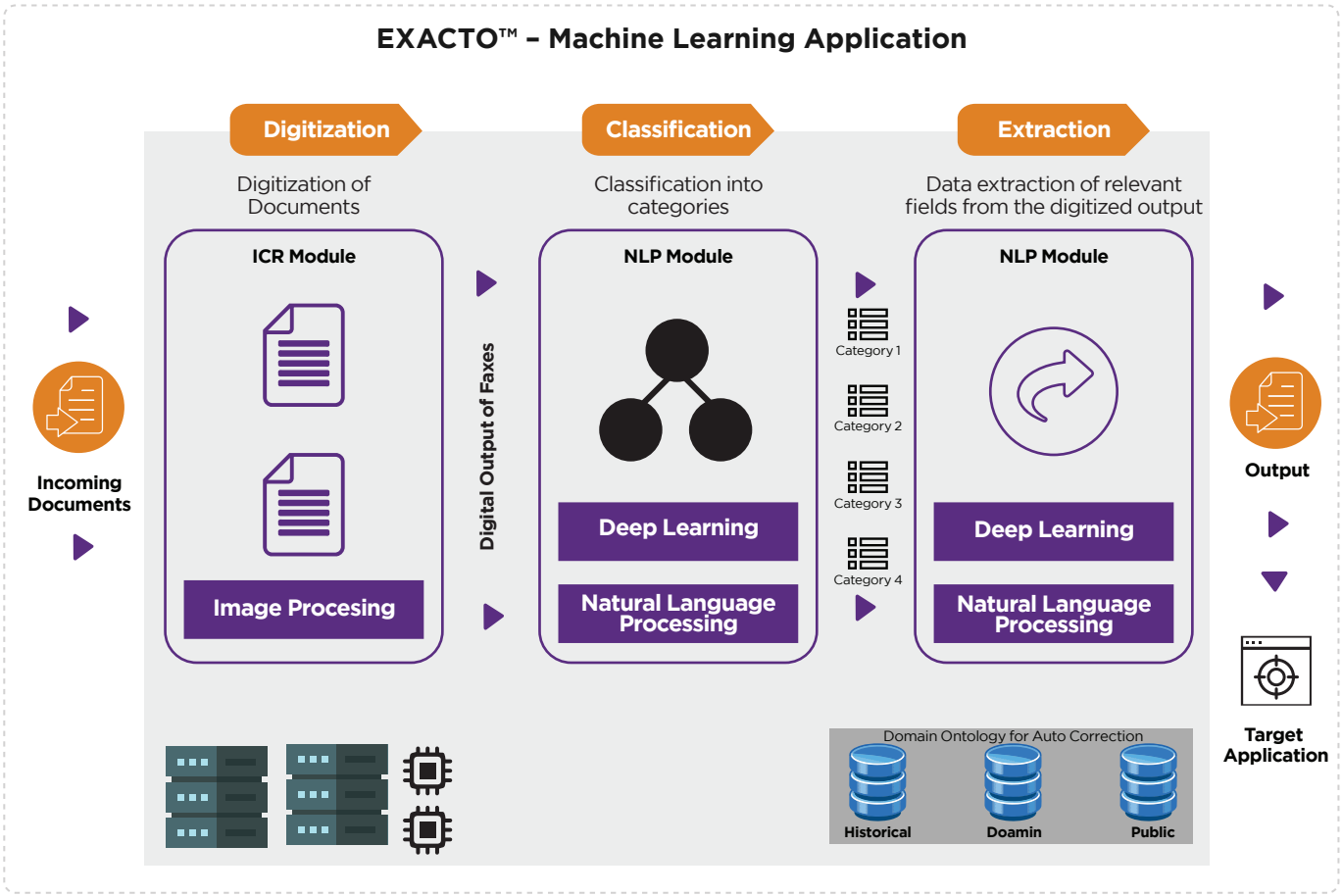
High

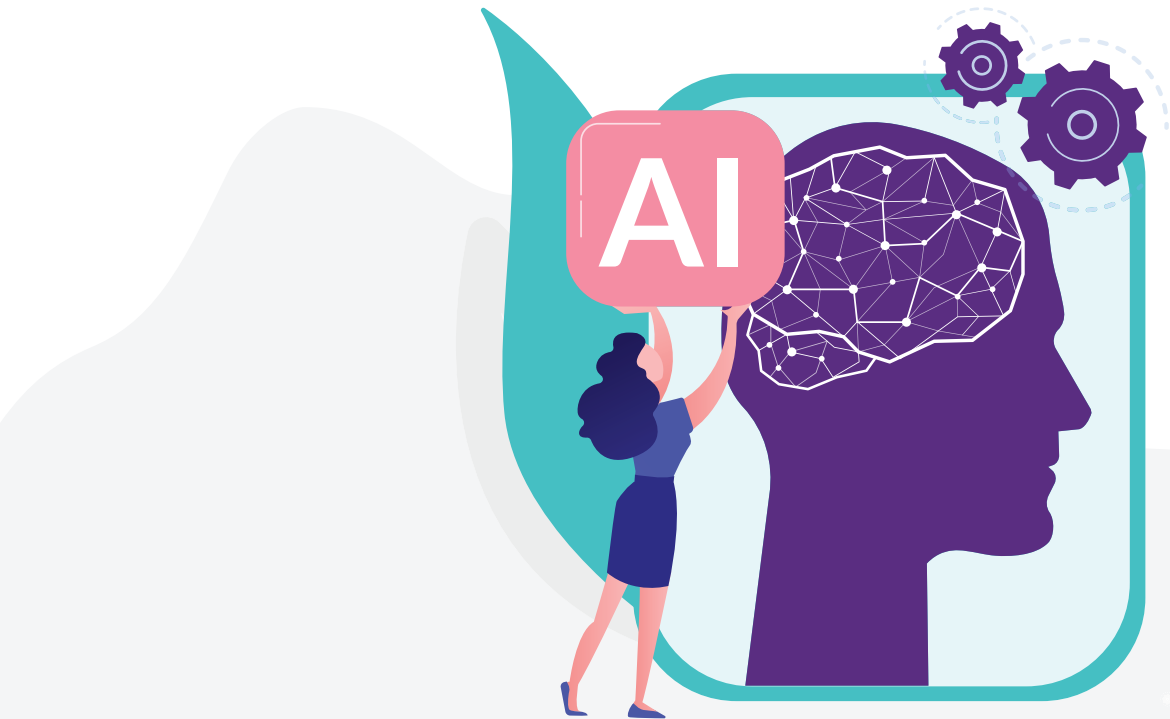
HCL DPO Digital Solutions Deep Dive

HCL DPO's digitalCOLLEAGUE ecosystem and platform of digital enabling solution components — RPA, EXACTO™, I-MOS, AI & analytics (machine learning & BI) can come together and transform the entire landscape of mortgage origination.

EXACTO™

IDP Solution Powered by Artificial Intelligence & Deep Learning

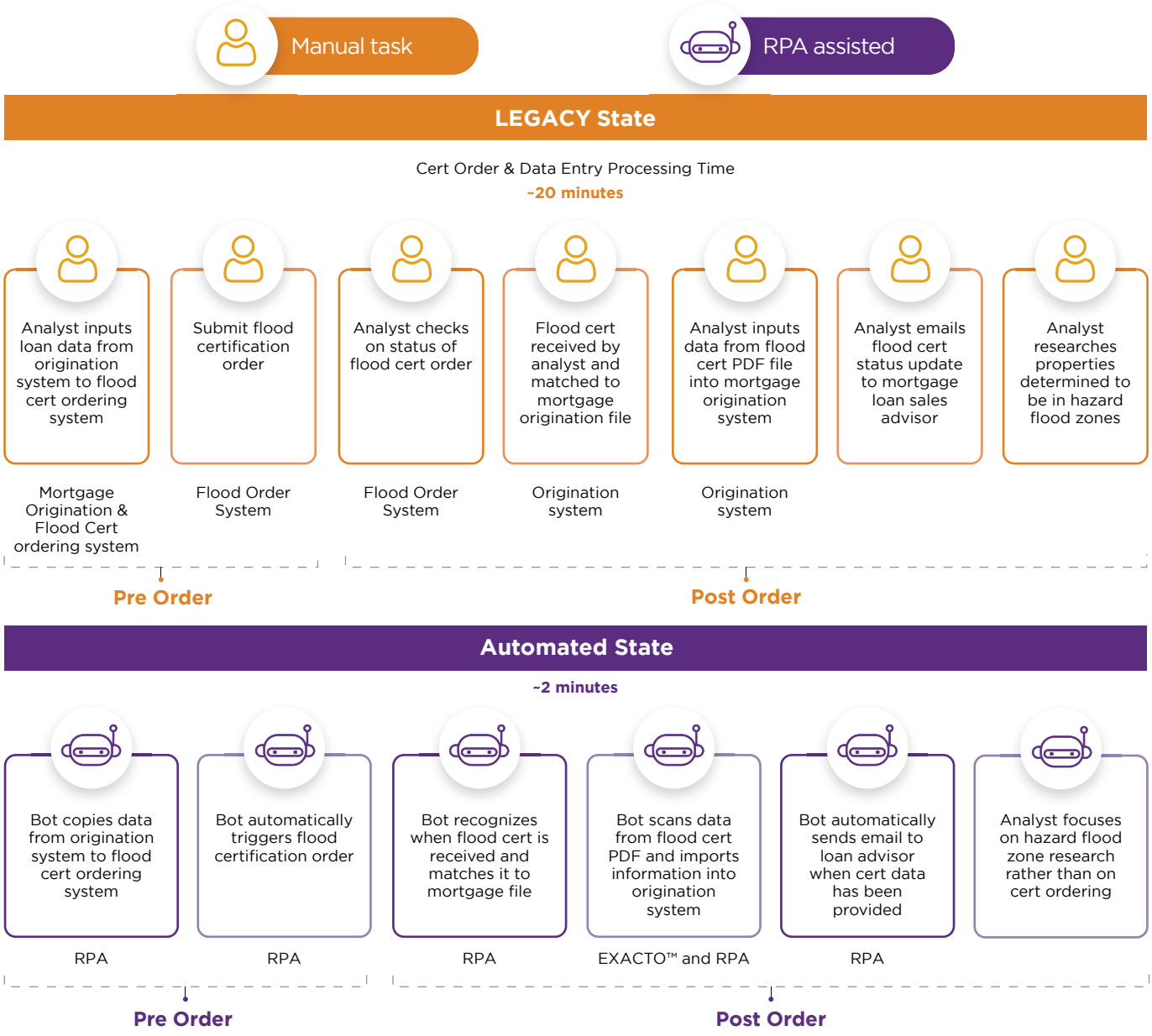




RPA for E2E Automation of Floor Certification Process

Mortgage Flood Cert Ordering Process: Legacy Vs. Automated State

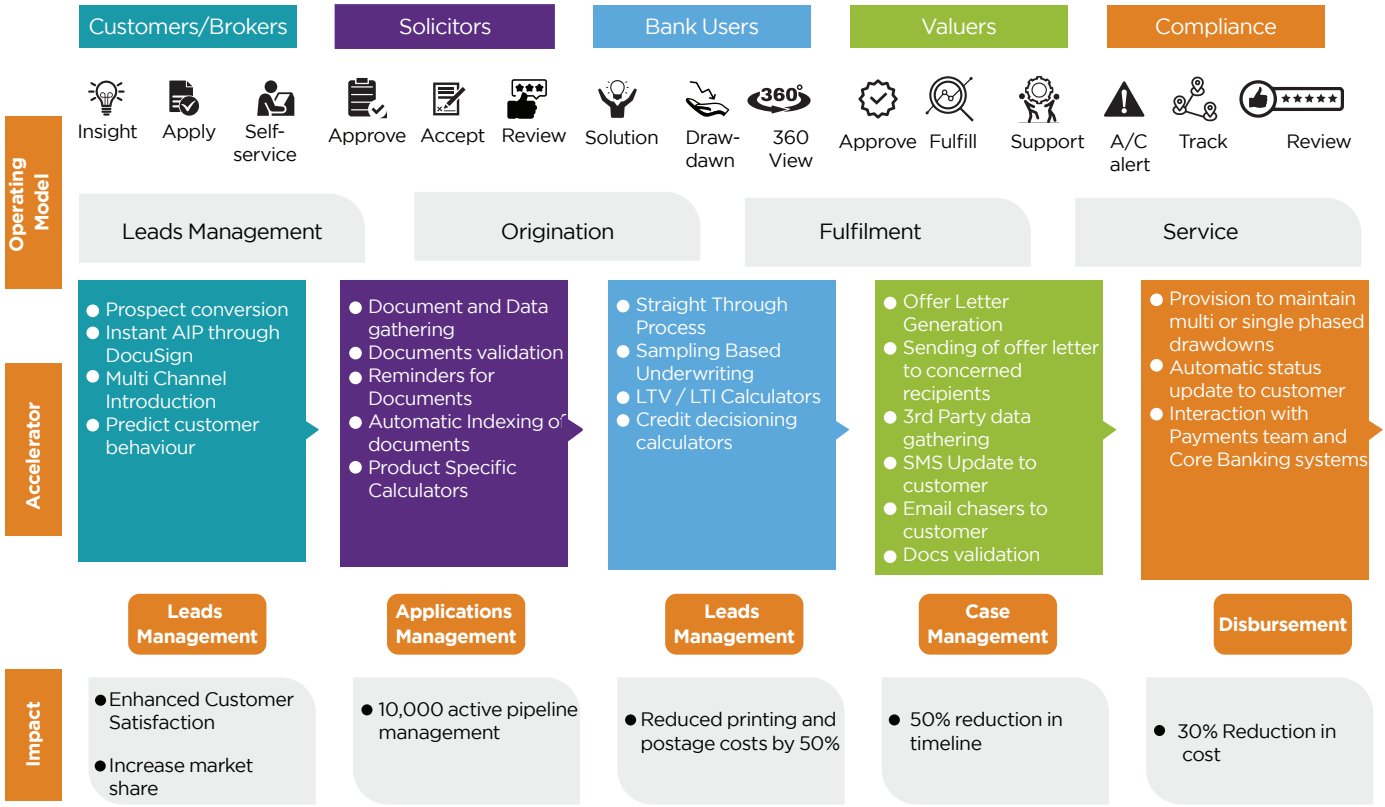
RPA can automate the entire end-to-end mortgage flood certification process including ordering, status updates, and flood zone data entry.



As part of origination, robotic process automation can automate the rule-based tasks — RPA can be used to order services such as appraisal, credit, title, flood certificate (as shown above), FHA case numbers, employment verification, etc. The bot can order the services based on defined business rules, read and enter the results of the services into the appropriate systems and compare invoices to disclosures for regulatory compliance. RPA can also bring down the processing time from 20 minutes to 2 minutes (without any errors) and thus save significant human hours.

Similarly, RPA can also do pre-funding data and document verification, workflow automation, document ingestion management, quality control and assurance, data validation activities etc.

iMOS (Intelligent Mortgage Origination System)



Analytics Interventions for Transforming Mortgage Origination

Drivers	Interventions	Benefits	Key KPIs
Lead Generation: Manual consolidation and data entry, lack of intelligent recommendation system	Machine learning for Prospects qualification & segmentation, cross sell recommendation	Automation, New Revenue Opportunity identification, Cost Savings, Digitalization of Process	Lead Generation Cost Lead Conversion Ratio
Credit Assessment: Manual, Multiple systems and databases, Error Prone	Machine learning for Credit Risk Profiling & Segmentation, Classification	Proactive Risk Control, Accurate & Automated process of Credit Onboarding	Customer Satisfaction Index Error Rate
Employment Verification: Manual, Multiple Systems & databases, Error Prone	Machine learning for Classification, Segmentation & Predicting Fraud Propensity	Enhanced Risk Mitigation Approach, Accurate & Automated process	Turn Around Time on Employment & Income Verification
Underwriting (Collateral, Credit, Capital, Capacity, Compliance & Fraud Analysis): Manual, Multiple internal & external data sources, Error prone, high cost of operations	Machine learning for Credit decisioning, Risk profiling & segmentation, Predicting the propensity to default, Forecasting trends, Scenario analysis (simulations) BI for automated regulatory & compliance reporting	Accurate and automated risk assessment, Risk mitigation & better control, Faster turn around time, Cost savings	Qualified Applications Ratio Loan to Value Ratio Specified LTV adherence Ratio Income to Payment Ratio Credit Risk Grade Buckets Vulnerable Loans Reduction & Regulatory Violations Ratio
Post Closing: Manual, Multiple Systems & databases, Applications, Error Prone	BI for automated regulatory and compliance reporting	Risk Mitigation, Compliance adherence, lower cost of operations	Timely Fulfillment & Loan Disbursement Lead Time Number of missing documents Regulatory adherence and Compliance

Analytics interventions (business intelligence & machine learning) across the mortgage value chain can transform activities like lead generation by recommending the next-best action and giving auto suggestions on customer journeys and credit assessment. This can be done by automating the process leveraging machine learning algorithms and intelligent integrated unified data hub for real-time insights. Business intelligence platform forms its basis at strategic, tactical & transactional levels to create a digital-decisioning ecosystem for augmenting humans in decision making. KPIs/metrics across origination can help in tracking lead and lag indicators. Automating the process can thus reduce human labor, improve employee experience, deliver stellar customer experience (by understanding pain points across customer journeys) and improving speed to market.

Transformation landscape for Mortgage Origination LoB for a leading American multinational financial services company

Above diagram illustrates the to-be state transformed state view of mortgage origination for one of our marquee leading American Multinational Financial Services Company. We provided advisory on the digital transformation roadmap leveraging intelligent automation levers so that mundane manual activities can be automated, manual errors can be reduced, customer experience can be enhanced with digital self-serve channels and end to end process orchestration layer helps machines and human interact seamlessly, finally enabling a digital decisioning ecosystem with business intelligence smart analytics layer.

Conclusion

The mortgage industry is highly process-driven. Owing to the COVID-19 pandemic, many individuals are facing difficulty in paying loans, resulting in stopped payments or multiple requests for amendments and loan modifications. This has increased pressure on the mortgage industry owing to regulatory adherence, scaling of operations during pandemic, and remaining sustainable by identifying and mitigating risks proactively. Digital transformation levers like RPA, AI-ML, NLP, BI, BPMS, etc., have the capability to address the pressing issues because digital solutions can scale up quickly, enable self-serve, help in real-time decision making and improve customer satisfaction owing to faster response times. For achieving the state of a fully-digital enterprise, banks must focus on defining a strategy for building a digital transformation roadmap to address key challenges and evaluate digital levers which will help deliver the envisioned benefits and iteratively improve the integration and collaboration among customers, employees and digital interventions. HCL can help across the entire process of discovery, design, development and deployment of digital levers, while also de-risking the engagement with prioritization based on business case and RoI.

Authors

Sadanand S Mudgur
Director, Digital Process Operations,
HCL Technologies

Coming from the data warehousing and data mining background, Sadanand Leads the and Analytics Practice within the Digital transformation umbrella. In his previous stints, he has handled diverse roles such as setting up BI and Analytics team from ground zero, Business Analytics, Client Delivery Lead, Customer Excellence, and FP&A. He also comes with 10+ years of Mortgage industry with ideating and leading innovative solutions across origination and servicing. In several occasions, he has developed innovative performance systems and strategies that has delivered superior business results and leveraged the potential of information and Analytics in creating business advantages. Sadanand holds BSc (hons) in Computer Studies from Teesside University, and MS from University of Greenwich, London.

Rahul Sirohi
Manager, Digital Process Operations,
HCL Technologies

An IIM alumnus with 7+ years of business consulting experience in IT Industry. Rahul is a presales solution architect with HCL DPO Digital Transformation practice. He has helped clients transform operations, create new value & deliver stellar customer experience leveraging digital process consulting and digital enabling levers like Standardization-Lean, Process Excellence, Process Mining, Automation (RPA-AI), Analytics, BI and Customer Journey Digitization across industry functions like SCM, FAO, ITSM, HRM, S&M, Mortgage, Manufacturing, E&U, OTC, CLM. Rahul holds a B Tech in Electronics from Harcourt Butler Technical University, Kanpur and Post Graduate Degree in Management in Systems & Strategy from Indian Institute of Management, Indore.

HCL Technologies (HCL) empowers global enterprises with technology for the next decade today. HCL's Mode 1-2-3 strategy, through its deep-domain industry expertise, customer-centricity and entrepreneurial culture of ideapreneurship™ enables businesses to transform into next-gen enterprises.

HCL offers its services and products through three lines of business - IT and Business Services (ITBS), Engineering and R&D Services (ERS), and Products & Platforms (P&P). ITBS enables global enterprises to transform their businesses through offerings in areas of Applications, Infrastructure, Digital Process Operations, and next generation digital transformation solutions. ERS offers engineering services and solutions in all aspects of product development and platform engineering while under P&P. HCL provides modernized software products to global clients for their technology and industry specific requirements. Through its cutting-edge co-innovation labs, global delivery capabilities, and broad global network, HCL delivers holistic services in various industry verticals, categorized under Financial Services, Manufacturing, Technology & Services, Telecom & Media, Retail & CPG, Life Sciences, and Healthcare and Public Services.

As a leading global technology company, HCL takes pride in its diversity, social responsibility, sustainability, and education initiatives. As of 12 months ending on December 31, 2020, HCL has a consolidated revenue of US$ 10 billion and its 159,682 ideapreneurs operate out of 50 countries. For more information, visit www.hcltech.com

www.hcltech.com