



# HOW FINTECHS CAN ENABLE BETTER SUPPORT TO FIS' CREDIT DECISIONING?

## Introduction

*Innovative solutions from FinTechs provide multiple opportunities for financial institutions (FIs) to make automated and precise credit risk decisions.*

From a lending value chain perspective, a recent survey by American Bankers Association revealed that 50% of large banks are using digital loan origination channels. However, most of the digitization has happened on the process front - such as loan application, document uploading, incorporating e-signatures and digitizing the medium of customer communication. The downstream credit decisioning process is mostly manual with only 13% of smaller banks and 32% of larger banks offering automated and therefore instant credit decisions.

This low adoption of automated credit decisioning system is leading to dissatisfied customers for the traditional FIs. According to the 2017 Fed survey on business credit, applicants in large banks seemed most dissatisfied with long waiting time for credit decision (33% of respondents) and difficult application process (28% of respondents). On the other hand, only 10% of applicants to online lenders were dissatisfied for these reasons.



Credit decisioning by FIs using traditional methods suffer from the following key issues



**Multiple disparate systems with fragmented data:** Large banks, having grown through numerous mergers and acquisitions over time, have imbibed several core banking systems which are segmented by region or business unit. Consequently, for majority of such banks, their decision engines fail to take into consideration all of the customer data that reside in different systems to enable accurate scoring

**Siloed customer data for the products available:** To understand the credit repayment behavior of a customer, and how the customer is managing finances, it is important to consider various accounts / products that the customer is associated with. Unfortunately, for most banks, there is lack of single view of customer which is needed to enable holistic and accurate credit decision making



**Rigid legacy systems:** For many banks, their legacy systems are a hindrance to flexible and faster decision-making process as heavy dependence lay on the IT teams to make code changes (as per the business strategy change) to multiple systems across geographies

**Lack of transparency and prevalence of bias:** Manual decisioning brings along biases during credit assessment as most of the business today is relationship based and credits are offered without holistic consideration of current financial acumen of the customer



Though there's an interest in automating the credit decision system, FIs are still relying on manual efforts due to various challenges - such as mindset around risk

taking ability with the new technologies. Also, strategies leading to change in decision making rules take longer time to implement due to limited automation,

and therefore this delays the realizing of benefits for FIs. As a result, FIs are losing competitive advantage in the market.

## Credit Decision Transformation

*FinTechs have solutions ranging from digitization of customer interfaces to complete automated credit decisioning.*

FIs will not be able to grow and meet the customer's expectations if they rely on traditional credit decisioning methodologies. FinTechs are already

capturing a lot of share from the banks' portfolios. This is evident from the fact that in U.S., according to Transunion, FinTechs issued 38% of the total personal loans in 2018 while the traditional banks' share has gone down to 28% from 40% 5 years ago. A lot of venture capital deal activities in the FinTech space over the past few years has helped them innovate through end-to-end technology driven credit lending transformation.

FIs should start critically looking at their traditional credit decisioning flow - right from data collection phase up to determining whether to approve or reject a credit application of a customer. This would help them uncover opportunities for collaboration for automation via FinTechs' latest technology capabilities such as artificial intelligence and machine learning (AI/ML).

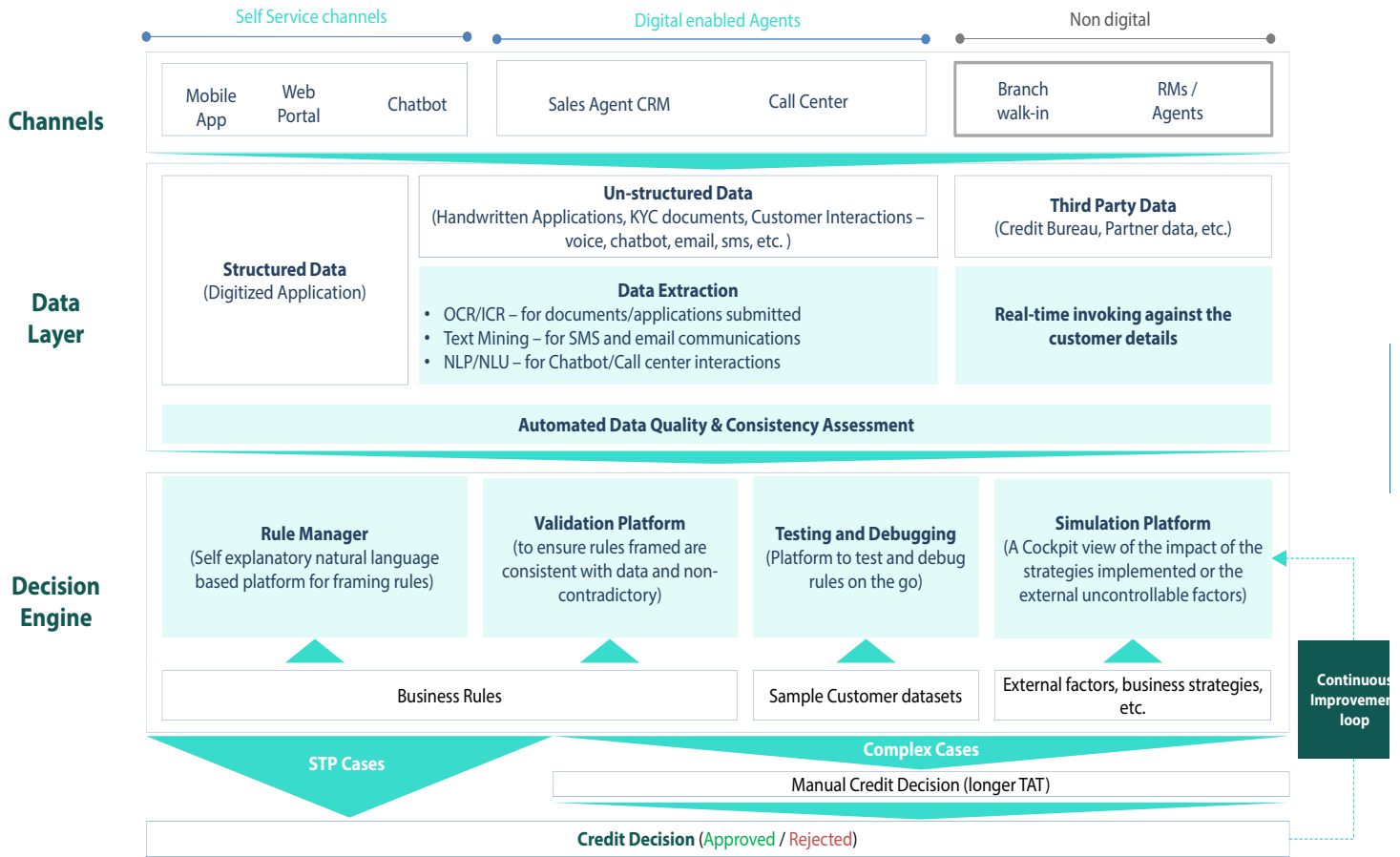


Exhibit 1 – Functional architecture of an automated credit decision system

Following are a few among many possible opportunities for automation for FIs in their typical credit decision workflow.

1. **Data collection and intelligent**

**extraction (Data Layer):** Though the customer interface today has seen significant transformation to digital channels, the key to an effective data

layer lies in the real-time extraction of relevant details about the customer. The situation gets more complicated when the applications/ documents submitted by customers vary in structure and has a mix of handwritten and printed details. The complexity further increases when the customer is interacting with chatbot/

call center for application fill-up. FIs can leverage various solutions ranging from optical character recognition (OCR) to intelligent character recognition (ICR) to natural language processing (NLP) that are deployed by FinTechs to aid in an intelligent and customer friendly data collection.

Process	Potential business cases	Solution
Extract information from documents	Structured – Documents having a standard structure (e.g.- balance sheet, P&L and cashflow statements, credit rating docs, etc.)	OCR
	Semi-structured – Documents whose layout varies and is not standard across customers (e.g.- purchase orders, SME invoices, etc.)	OCR + ICR
	Unstructured – Complete or partial hand-written documents with substantial variations from one customer to another (e.g. - hand written applications, property agreements, etc.)	ICR
Assisted form fill-up through chatbot	Intelligent chatbots having the ability to: <ul style="list-style-type: none"> <li>- Understand what product the customer is looking for</li> <li>- State the terms of the loan without the customer having to visit the FAQs</li> <li>- Pre-populate customer details fetched from the lender's own or 3rd party database</li> <li>- Ask minimal questions to the customer as per the product form</li> <li>- Assist customer to upload the documents through channel of choice (chatbot / email)</li> </ul> An ideal chatbot can be integrated to any channel of communication (website, mobile-app, Alexa, Facebook, etc.)	AI + NLP
Assisted form fill-up through call center conversations	If the customer prefers call as a medium of communication to fill the application form, after speech to text conversion of the call, text analytics is required to extract the relevant details and populate the application form	Text analytics

Exhibit 2 – Illustrative solution for intelligent data collection

For calculating the credit scores, apart from the customer submitted data, relevant data needs to be imported from the lender's internal data (if the customer is existing) and external data (from credit bureau). Using the unique customer identifier, on a real-time basis data on the credit activity of the customer in the market is fetched from the credit bureaus that the lender has access to. To gain a holistic understanding of the customer's potential and intention to pay back the credit availed, it is important to understand the credit score in the market based on all other credits he had availed.

## 2. Decision management (Decision Engine):

It is a component that uses all the variables imported from various data sources to drive credit decisions. The following sub-components are important ingredients to build a flexible and robust system.

- a) **Rule manager:** This is the central key component of the decision engine which enables the credit officers to create rules through visual and self-explanatory web interfaces. This component grants the users the flexibility of decision making. This can be natural language based (rules represented by natural language, hiding the complex coding at the back end) or decision technology based (powerful decision engines embed the business logics into various executable decision tools such as: decision trees, scorecards, decision tables, decision flows and rule-sets).
- b) **Validation platform:** A validation and verification platform is an important component in the decision-making system which ensures that the rules framed in the above layer are valid from a data availability perspective, not duplicated or contradictory to any other rule and the set of rules don't miss out on any section of customer or product.
- c) **Testing and debugging:** Decision engines should have the capability of testing the rules implemented in the system quickly and effectively through

a formal test environment. Technology companies today are providing a testing framework along with the suite of decision management components.

- d) **Simulation platform:** A key component which goes into making a powerful decision engine is the ability of the business users to analyze and experience the impact of the change or implementation of a rule before the actual deployment.
- e) **Decision repository:** A robust enterprise repository in which it can store all the decision logics or rules that are implemented for specific customer types or products.

Automated decision engines lead to a significant increase in the number of straight-through-processing (STP) cases. Complex cases of credit decision, which cannot be automated would be routed to the credit analysts for their decisions of approval or rejection.

## 3. Continuous improvement loop:

In case of non-STP applications, over a considerable period of time, an AI- based solution can understand the pattern of manual decisions (acceptance / rejection) for a particular segment of customers against a specific product. The pattern, thus analyzed, is prompted to the credit officers and business analysts for implementing as a rule-set in the decision engine. While the decision of whether the rule should be implemented or not is a strategic call but such a system can certainly enhance the STP cases over time and improve the efficiency of the credit decision system.

## Value Propositions of FinTechs

*There are many FinTechs solutions available today around the below themes in the context of credit decisioning.*

- **Use of alternate data.** Using data that is traditionally not used in calculating the credit score - such as rent payment, educational institution and degree, FinTechs' solutions supplement

traditional data used to make credit decisions or to detect potential fraud. There are also other FinTechs that are creating new kind of data themselves, in addition to using the alternative sources of data.

- **Use of AI/ML and risk analytics platforms.**

There are companies that are creating a more complete and comprehensive picture of the borrowers using big data generated from sources such as social media platforms, spending records and data from mobile phone apps. Using multiple advanced algorithms, these companies look to identify behavioral patterns that, for example, provide a sense of probability of default, even if a borrower's existing credit isn't good enough.

FinTechs are providing risk analytics-based advanced solutions that analyze personal data to detect underlying financial behavior of people who service loans well and identify data points for those with little or poor credit histories.

Apart from creating new ways to evaluate borrowers, FinTechs use big data and analytics, AI/ML techniques to fasten the loan process while also ensuring compliance to regulatory requirements.

- **Simple and intuitive implementation of decision rules/strategies.**

There are many FinTech solutions available today, which provide simple and intuitive interface-based ways to create, test and deploy credit decisioning strategies. Lenders, who may not be comfortable with programming, can now use business-like terms to create decision rules and publish the rule sets very easily as decision strategies.

- **Automation.** With solutions available to automate areas such as data capture and/or improve data quality, the straight-through-processing is achievable, which allows risk team to focus effectively and accurately on measuring and controlling risks.

Following are few examples of FinTechs that offer various innovative and niche solutions

Fintech	Value Offered
First Access (www.firstaccess.co)	Creates risk scores in real-time mode using various types of data from sources such as mobile phones, utility contract etc. and provides credit recommendations
LenddoEFL (www.include1billion.com)	Leveraging the latest in AI and ML technologies and using the behavioral data and data from digital sources, it serves the underbanked sections of population and small business segments. It uses an online psychometric tool that assess personality traits - that predict default - based on answers from the management/owners. The company has served more than 7 million applicants and loans worth more than \$2 billion
Fundbox (www.fundbox.com)	Uses big data analytics to help businesses access loans and lines of credit quickly
Tala (www.Tala.co)	Uses big data in its FinTechs to financially serve the customers in Kenya, Tanzania, Philippines, Mexico and India, who are considered traditionally under-banked
Braviant Holdings (www.braviantholdings.com)	Uses big data and innovative analytics to offer lending solutions for people who are traditionally under-banked. The company uses automated verification processes and real-time underwriting to assess fraud risk and credit eligibility decisions quickly
CreditVidya (www.creditvidya.com)	Provides lenders with AI and big data technology to help them underwrite first time borrowers profitably
Axe Corporate Lending and axe Retail Lending (www.axefinance.com)	Powerful web-based ratings delivery platform to measure, monitor, and manage the varied dimensions of credit risk for consistent and informed decision making which supports the entire credit application process

Exhibit 3 – Examples of innovative FinTech offerings in the credit-decisioning space

## Examples of Successful FI-FinTech Partnership in the Credit Decisioning Area

Good number of success stories exist vis-à-vis FI-FinTech partnership in the credit decisioning area

Theme	Partners	Solution	Benefits
Use of alternate data	MicroBank and Entrepreneurial Finance Lab (EFL)	MicroBank partnered with EFL in Spain to assess the credit worthiness of thin-file (with little or no credit history) customers. EFL uses psychometric questionnaires for customers which helps them understand character traits such as attitude, control, entrepreneur potential, social behavior, etc. This data is then fed to risk assessment models to build a credit score	<ul style="list-style-type: none"> <li>Approval rate of credit requests increased to 70-80% from 10-20% achieved with traditional models</li> <li>Ability to extend credit to underserved section of the market leading to greater financial inclusion</li> </ul>
Use of AI/ ML and risk analytics platform using big data	Fullerton India and CreditVidya	Fullerton has partnered with CreditVidya to leverage the latter's AI/ML capability to fast-track the loan disbursement process to prospective borrowers. The system ingests a variety of data (demographic, transactional and behavioral) and feeds them to an AI based system and generates a real time Stability Score for customers	<ul style="list-style-type: none"> <li>More accurate Credit Assessment than traditional models</li> <li>Increase in predictability of defaults and CLTV</li> <li>Can self-develop over time based on performance of customers</li> </ul>
Simple and intuitive implementation of decision rules/strategies	Moneyboat and FICO	Moneyboat has partnered with FICO to enhance the credit decision process with the help of a more flexible and sophisticated risk management system, FICO Decision Modeler. It's a platform which ensures that the rules for decisioning can be interactively built, effectively managed, easily modifiable, natural language based, offering more readability and flexibility, and seamlessly implement the business strategies	<ul style="list-style-type: none"> <li>A centralized decision-making system</li> <li>Empowers the credit officers, with no coding skills to easily implement business rules</li> <li>Test results on the go to proactively understand impact</li> </ul>
Automation	Ujjivan and Artoo	Ujjivan, in an effort to extend credit to underserved MSMEs in India, had partnered with Artoo to digitize the lending process. Field agents capture over 800 data points using phones/tablets and send the information directly to Ujjivan's underwriting team for analysis. A loan decision workflow tool developed by Artoo helps in faster decision making. Also, digitized sales information helps the company track agent and portfolio performance	<ul style="list-style-type: none"> <li>Loan processing time has decreased by 40%</li> <li>Number of loans processed by an agent has increased by 50%</li> <li>SME customer base of Ujjivan has increased by 230% in 3-4 yrs</li> </ul>

Exhibit 4 – Examples of successful FI-FinTech partnership for improving credit decision processes

## Conclusion

With the value propositions mentioned above and equipped with latest and cutting-edge technologies, FinTechs are proving to be of great value addition, both in terms of profitability as well as customer experience in the credit lending space. FIs need to take proactive measures to counter this competition to maintain their market share and healthy margin. With availability of multiple online and mobile channels, it is imperative for FIs to ensure customer satisfaction and provide a seamless experience across these channels.

To adapt to the fast-changing digital landscape in financial services, FIs are better off collaborating with the FinTechs and leveraging the unique value both can offer. On one hand traditional FIs bring to the table their robust business model that is underpinned by customer trust. On the other hand, nimble FinTechs bring in their tech savviness and innovative solutions that are powered by new-age technologies.

Today, FIs looking to digitize or automate their credit decisioning processes have multiple FinTechs solutions to choose from. While FinTechs themselves can pose a threat to FIs with their niche skillset and innovative solutions, if FIs strategize and collaborate well with FinTechs, they can remain relevant in today's customer-driven environment, and may even gain competitive edge.



## About the Author



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Mukund has close to two decades of experience in IT and consulting space in the banking and financial services domain. Working with many top-tier FIs across the globe, he has performed various roles with many of them in defining and implementing high-end solutions to critical business problems.

In his recent experiences in credit risk and operational risk areas, he has been helping Infosys customers with consulting in implementing industry-leading products using agile delivery model and distributed teams.

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Pratik has over 6 years of experience ranging from driving projects for operation effectiveness to designing solutions in the Risk and Compliance space for FIs. He possesses rich domain knowledge in Anti Money Laundering, Fraud Management and Anti Bribery and Corruption. He has completed ICA Advanced Certificate in Anti Money Laundering and AML KYC certification by IIBF.

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