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Digitizing Loan Process for Business and Auto Loan

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ABSTRACT : The aim of this paper is to provide a smooth and efficient and a seamless experience for the customer as well as the backend Officers for credit evaluation and sanctioning of the loan. The project also involves a quantitative and qualitative comparison between the product developed and present system with the reduction of time in loan Processing which as observed in the case of SME loan Reduces from 2 to 3 weeks to 7 days and in the case of Auto Loan the difference observed is time reduced from 7 days to an average of 2.6 days and thereby reducing the various costs involved. The Digitization of this process can improve the profitability of the business by reducing the various operative costs involved. The product also allows for easy modifications of the process due to its low code system and can be used in real-time scenarios and also serves as an Unique Selling Point(USP) for the organization.

I. INTRODUCTION

Digitization and Financial Technology have made huge strides in the past few years and this has helped capital providers and users directly while also enabling low-cost fundraising and easier disbursement of capital, collection and account settlement. FinTech also provides for mass customization as well as heterogeneity of financial services while also allowing for easier management and risk reduction by offering incentives(Rate of Interest) based on a complete analysis of applicant and previous transaction and performance track record. During and post the pandemic digitization is not just relevant from the retail side but also the institutional perspective due to the reduced labour force present physically at the office.

The emergence of new tools has made it easier each passing year for the digitization of financial services and it has allowed for low contact or no contact delivery of the financial services with reduced risk as compared to the previous years with the involvement of incentives, which in this case is low rate of interest based on detailed analysis of the applicant and a through study of the previous performance and transactional data.

Business loans mainly help provide financial aid to the business, for it to run smoothly with its day to day activities. Now that there are many businesses coming up with different aims and ideas, the need for a business loan also increases. There are different types of business loans that they can apply to. There is term loan, working capital loan, overdraft etc.,

Unsecured overdrafts are a type of funding, which is offered without the applicant having to provide any collateral to the bank or NBFC. These unsecured business overdrafts are offered on the basis of an applicant's financial documents, credit score, income, etc. Unsecured business loan for startup is availed for starting a new business or managing business flow without submitting any collateral or security with the bank. Since there is no collateral required, the risk factor remains high for the bank or NBFC. Banks and NBFCs provide these loans with flexible interest rates, with nominal processing fees helping their applicants save on lending costs. Business overdrafts come with convenient repayment methods. Overdrafts are usually given for a short period of time and can be availed again based on the scores and the business itself.

II. LITERATURE REVIEW

The Authors in 'An Overview of Digital Financial Services in India: Concept, Initiatives and Advantages' here mentions the various Digital Financial services that have come up in the past few years due to the Digital economy. Major DFS in the country are Cards, Unstructured Supplementary Service Data Aadhaar Enabled Payment System, Unified Payments Interface, E-Wallet. The author here also talks about the various digital financial services and the need for the country to shift in this direction.[1]



The authors Ravikumar.T, Murugan.N, Suhashini.J here talk about how FinTech has taken over the Financial Segments in the past few years. FinTech is a facilitator for effective banking services and not a replacement. It serves as a relatively less volatile asset class for retail and institutional investors. The major Contributors of digital lending Usage of internet, Technological advancements and big data, Digital ecosystem and Innovative Models.[2]

The authors Dean Karlan, Jake Kendall, Rebecca Man, Rohini Pande, Tavneet Suri, Jonathan Zinman in 'RESEARCH AND IMPACTS OF DIGITAL FINANCIAL SERVICES' talks about the security concerns and other that needs to be addressed when it comes to digital lending and other financial services. Few of the questions that the Fintech solutions needed to address are . How to support the delivery of advanced savings products and How to scale safe digital credit and how also to connect finance to end goals.[3]

The paper 'Loan Origination Automation for High-Risk and High-Volume Loans' highlights the importance of the adoption of automation technologies and artificial intelligence to improve the operational efficiency of lenders as well as enhance customer experience. In addition, it deals with the future scope of the lending sector and how further improvements can be achieved.[4]

Sebastian Stoliński, Wojciech Bieniecki In this paper the analysis of OCR usability for automatic data entering is presented. The analysis is based on practical experiments, tests, and productive use of the OCR systems. The survey showed that the recognition of both barcodes and printed text is reliable and significantly accelerates data processing. On the contrary, the handwritten text appeared difficult to recognize by OCR systems.[5]

III. METHODOLOGY FOR PRODUCT DESIGN IN DIGITIZATION

A well-defined development process is beneficial for the subsequent reasons:

Quality assurance: A development process that specifies the phases a development project will meet up with together with the checkpoints along the way. When these phases and checkpoints are appropriately chosen, following the event process is a way of assuring the standard of a resulting product.

Coordination: A well-articulated development process is sort of a plan that establishes the roles of every player on the event team[10]. This plan informs each member of the team when and where their contributions are needed and with whom they'll have to exchange information and materials.

Planning: A development process includes a group of milestones comparable to the completion of a phase. The timing of those milestones dictates the schedule of the complete development project.

Management: A development process may be a benchmark for assessing the performance of an ongoing development effort. By comparing the particular events to the established process, a manager can identify possible problem areas.

Improvement: Careful documentation and ongoing review of an organization's development process and its results help identify opportunities for improvement.

A. Brief Methodology

The process of digitizing the process is split into three phases: planning phase, the concept phase and the development phase.

Step 1: The Planning Phase (Plan) In this step, extensive market research is carried out, the strategy and scope are determined through research, observation and analysis of the customer requirements and the target consumer group. The needs and tasks performed by the key user groups are identified through the analysis of the data obtained from quantitative and qualitative research methods. A design plan is created after comparing and analyzing the market research result.

2: The Concept Phase (Design) In the design phase the structure and skeleton is created. Wireframes demonstrating user journeys are created according to the target group, user interface and user experience are captured in these wireframes.

Step 3: The Development Phase (Develop) The development phase consists of implementing the wireframes and research done so far on the low code lending platform- Lend.in, various elements are configured and integrated on the platform to create a great user experience.



Fig.1 Brief Methodology

IV. DEVELOPING A DIGITAL PLATFORM FOR UNSECURED OVERDRAFT MSME LOAN ORIGINATION AND CREDIT DECISIONING SYSTEM

MSME stands for Micro Small and Medium Enterprise. MSME was introduced in India on 9th May 2007 in the Micro Small and Medium Enterprise Development Act 2006. The enterprises involved in preservation, production or processing of goods and commodities come under this Act. MSME's play a crucial role in increasing the country's GDP, aids in economic growth of the country and generates employment for the people. MSME's approximately contribute one-third of the country's GDP.

In India MSME's play an important role in the Socio-Economic development of the country as most of these enterprises are established in the Rural areas. MSME's are classified based on two factors:

1. Investment in Plant or Machinery
2. Annual Turnover of the Enterprise

These two factors are taken into consideration and an aggregate score is obtained to classify the company as either Micro, Small or Medium Enterprise.

The classification is as follows:

- Micro Enterprises: If the Investment in the machinery and plant should not exceed 1 crore and the turnover of the enterprise should not exceed 5 crores. If these criteria are met then the enterprise comes under Micro Category.
- Small Enterprises: If the Investment in the Machinery and plant is more than 1 crore and less than 10 crores that is between 1 and 10 crores and the turnover of the company is more than 5 crore and less than 50 crores that is between 5 crores and 50 crores then the enterprise comes under Small Enterprises Category.
- Medium Enterprises: If the Investment in the Machinery and plant is more than 1 crore and less than 10 crores that is between 10 and 50 crores and the turnover of the company is more than 50 crore and less than 250 crores that is between 50 crores and 250 crores then the enterprise comes under Medium Enterprises Category.

The current Unsecured Overdraft SME loan is designed for micro and small enterprises only. The process is applicable for Unsecured Overdraft Loan for both low and medium ticket for Product Manufacturing Industry. Upon Digitization the loan process for Unsecured Overdraft MSME Loan becomes far more simpler. Both Loan origination System (LOS) and Loan Management System (LMS) combined allows the user to keep a track of every transaction of overdraft and it allows the post sanctioning part of the process more organized.

A. Business Requirements

This paper is focused on digitizing the lending process for Unsecured Overdraft MSME loan, which helps in bringing operational efficiency in Unsecured Overdraft MSME loan process. After defining the problems with the lending space, and discussing the objectives which are to be achieved, the project scope is illustrated. The Business requirements are then listed out in detail for an Unsecured Overdraft MSME loan Platform.



Business requirements are defined in detail in the Business requirement document(BRD), which contains the functional and nonfunctional requirements for the problem statement and the solution for which we are proposing , the project description , project scope , the assumptions being made and a high level business flow.

B. Project Scope

The following areas are in scope for this project:

- Lead Journey for end customer in LOS module built using Lend.in
- Loan Origination System for the loans being applied for Unsecured Overdraft MSME loan within India
- Loan Ticket Size between 10000 and 50000000
- The Credit Policy is required for credit decisioning of the loan product
- Dynamic and Digitized loan product
- Use of third party integrations for assessments and checks
- Lead journey includes fraudcheck, credit assessment, and applicant verification.
- Back Office portal in Loan origination system module for Credit Analyst, Operations prepared using Lend.in
- Product creation on Loan Management System and unboxing of Loan Management System
- Option to book loan on Loan Management System

C. Target Groups

Target group is a group of consumers or users, firms or organizations that are likely to buy a company's products and services because the products or services offered are more relevant to the target groups and they are likely to want and need the company's offerings . Hence it makes sense for the company to determine its target market and group well in advance and design the product or service according to the target market. Marketing to these potential buyers is the most effective way to make it an efficient approach . Identification of end user and designing the product according to end user needs is the best strategy one can use. This aids in solving the market problems and making the product more user friendly.

In case of Unsecured overdraft MSME loan the target group or target market specifications is:

- Micro , Small Enterprises with a need for unsecured overdraft loan
- MSME's in the product manufacturing sector with small and medium ticket size requirements.
- MSME's who are applying for a loan amount of Rs 10000 till Rs 50000000
- Enterprises with a Business age of minimum 3 years
- A minimum turnover of 20 lakhs
- Enterprises with a profit span of at least 2 years
- An enterprise without any prior criminal record
- Applicant with a Minimum 18 years at the time of loan application Maximum 70 years at the end of loan tenure

V. DEVELOPING A DIGITAL PLATFORM FOR NON ASSISTED AUTO LOAN ORIGINATION AND CREDIT DECISIONING SYSTEM

A. Executive Summary

The Purpose of this Document is to describe the entire applying process of Non-Assisted Personal Auto Loan Journey using a web application.

Loan Scheme	Loan Scheme	
Personal Auto Loan	High ticket Size	Non-Assisted Journey, Connected To Portals
	Low Ticket Size	Non-Assisted Journey, Connected To Portals

Table 1 Auto Loan Summary

Key Features of the Solution

- Reduces TAT time from lead Generation to Loan Disbursement
- Automated KYC checks, background verification checks and fraud checks
- Online agreement signing and post sanctioning documentation
- Automated disbursements

B. Introduction

The Auto Loan Market is a growing Market and has a share of 8% in terms of value and is expected to reach 60 Billion USD by the end of FY2026.

Key Target Audience:

- Manufacturers, distributors, and end-users
- Market research and consulting firms
- Government bodies such as regulating authorities and policymakers.
- Organizations, forums, and alliances related to car loans.

Shortcomings of the Current Scenario and the need for the Product

- Dependence on needing the applicant to be physically present
- The time taken to process a loan in the existing process is very high
- Applicants do not know the real time status of their loan applications

C. Understanding the process

Customer Onboarding Process

1. The Customer will start the process by logging into the XYZ website and can start/login to the process by entering his/her Mobile Number and entering the OTP receiver on the mentioned phone Number.
2. Once the Customer enters the OTP they can start the process by entering their basic information as requested which includes PAN for verification of Income and Aadhar details for KYC verification and Extraction of Permanent Address of the Applicant through a third Party Source.
3. The Customer is then expected to enter the type of vehicle they require to avail the loan for and fill in the other required details along with it and a basic eligibility check will be done against the mentioned wrt to age and income.
4. In Case there is a mis-match in the data the same will be communicated to the applicant.
5. Post the Kyc Verification the applicant is expected to mention the required Personal and Financial Details of the applicant. Post these data collection the Credit Check of the applicant would be done and further process would be decided based on the credit score of the applicant.
6. Any Credit score below 500 would be considered as a red Flag and the process would be terminated. For the score between 500 and 700 the applicant would be asked to have a co-applicant for the applied loan and for a score above 700 the applicant would not be mandated to have an Co-Applicant.
7. Post Credit Evaluation the loan and disbursement details of the applicant would be captured and parallelly the fraud check would be done against the applicant.
8. A Detailed Credit evaluation of the applicant done against the following parameters.

Sl. No	Parameters	Weightage
1	Age Of Applicant	5
2	Work Experience	5
3	No Of Dependents	5
4	Type of Residence	5
5	Type of Vehicle	5
6	Type of employment	5
	Type of Organisation(salaried)	
7	Type of Occupation(Self Employed)	5
8	Monthly Income	10
9	FOIR	5
10	Avg Monthly Savings	5
11	Cibil Score	10
12	Total DPD Payment	5
13	No of Existing Loans	5
14	Current Loan Balance	5
15	No of Queries in last 6 Months	5
16	Loan Tenure	10
17	Eligibility Check Result	5
		100%

Fig 2 Credit Parameters

9. Post the Credit Evaluation a Rate of Interest is Generated for the applicant on the basis of the output of the credit score.
10. Once the Credit score is generated the customer is requested to upload all the required documents for the processing of the loan application.
11. The Case is then moved to the portals for the credit evaluation and checks that are needed to be done by the back end officers.
12. The applicant has come to the end of the customer extensive journey and a waiting screen will be displayed until further actions are triggered by the back end users.

Post Sanction Journey

1. After the Application is sanctioned by the credit officer and operations the customer is then reverted back to the onboarding journey where the sanction the letter is displayed to the applicant.

2. Post this the repayment details are collected from the applicant and E-mandate is done against this and once the verification is successful a case is booked against the customer on LMS and effective disbursement of the loan amount takes place.

VI. RESULTS AND DISCUSSION

The SME Loan and Auto Loan Process was developed and simulated to test the efficiency of the process and if there are any potential bottlenecks or shortcomings in the process. This was done by thoroughly observing the data charts and heatmaps of every aspect in the process and finding its statistics over a high number of iterations for a better understanding of the process.[23]

1. SME Loan

Over 50 iterations of the SME Loan process was done to check the time and cost of running this digitized process . It was seen that the cycle time taken was a minimum of 8.5 hours and a maximum of 1.4 weeks and an average of 1 week . This data was obtained for process instance cycle times including off timetable hours. Similarly data excluding off timetable hours is given . An average cost of 50 USD was spent on running the application .

Scenario Statistics

	Minimum	Maximum	Average
Process instance cycle times including off timetable hours	8.5 hours	1.4 weeks	1 week
Process instance cycle times excluding off timetable hours	8.5 hours	1.4 weeks	1 week
Process instance costs	0 USD	50 USD	24.5 USD

Fig 3 overall statistics of SME loan process



Fig 4 Process cycle time including and excluding off-timetable hours

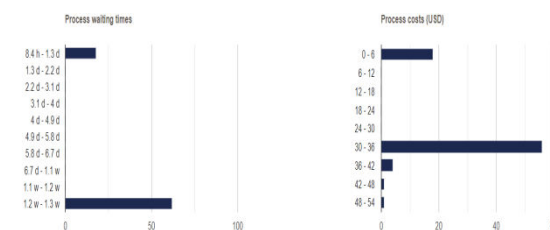


Fig 5 Process waiting time and process costs in USD

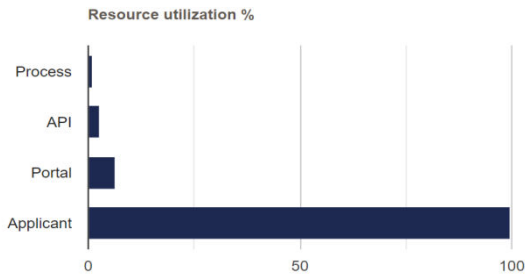


Fig 6 Resources Utilization of various Users in the process

2. Auto Loan

The same set of simulations are then done on the Auto loan process to understand the shortcomings and bottlenecks if any and these can then be evaluated and redesign and restructure of the process can be done accordingly.

Below are the simulation results for 400 iterations of the Loan Application of the auto loan process considering the same assumptions as made for the SME loan Process. It was seen that the cycle time taken was a minimum of 8.7 hours and a maximum of 4 days and an average of 2.6 days. This data was obtained for process instance cycle times including off timetable hours and was observed that the minimum was 5 USD and a maximum of 30 USD. The average was found to be around 13.7 USD. Similarly data excluding off timetable hours is given.

Scenario Statistics			
	Minimum	Maximum	Average
Process instance cycle times including off-timetable hours	8.7 hours	4 days	2.6 days
Process instance cycle times excluding off-timetable hours	8.7 hours	4 days	2.6 days
Process instance costs	5 USD	30 USD	13.7 USD

Fig 7 Process Statistics of Auto Loan

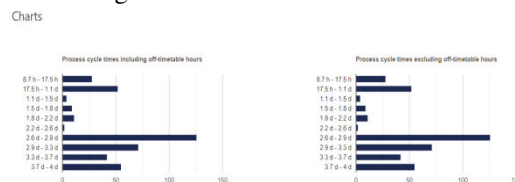


Fig 8 Process cycle time including and excluding off-timetable hours

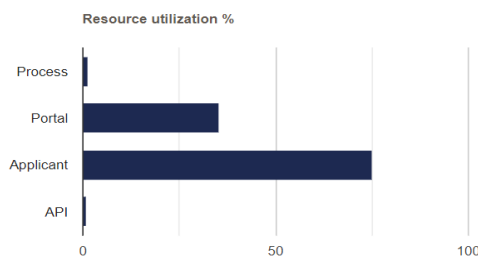


Fig 9 Resources Utilization of various Users in the process

VII. CONCLUSION AND FUTURE SCOPE

Financial Technology has taken major strides in the country and it is rapidly diversifying at both macro and micro levels, from providing online accounting software to creating specialized digital platforms connecting buyers and sellers in specific industries. As discussed in the report by digitizing a customized Loan Origination process and a portal platform a would eliminate the various investment involved in the offline process. Furthermore In the future Artificial Intelligence and Machine Learning for better and easier Risk assessment and credit Decision policies which would



further help in digitizing the process and reduce the turn-around Time for the process and the final goal of this product can be completely Automating the entire journey.

Further Developments can be made with respect to the product by moving into other areas of domain like education or medicine where similar products can be developed and can be helped in the digitalization of the process.

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