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TECHNOLOGY AND INNOVATION MANAGEMENT OF NON-PERFORMING ASSETS (NPA'S)

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Abstract
India's banking industry has been affected by the NPAs to a large extent, and NPAs have become an important measure of bank performance. Non-performing assets refer to those loans or advances that are in a state of judge's debt or arrears whereby the borrowers cannot afford to pay for the loans as required by the loan agreement. NPAs at a very high level are a great danger to the stability and efficiency of banks and, hence, their capacity to extend credit to productive sectors in the economy. This in a way has an impact on the overall development on the economic growth as well as development. The problem of NPAs is more or less acute in public sector banks as the volume of bad loans has grown significantly in recent years.Among the major difficulties in regard to NPAs, the absence of a comprehensive and efficient approach to its solution can be singled out as one of the most important ones. There are differing views on the best approach to tackle this matter; however, possible solution policies have been implemented to act on this matter. The banking sector reforms in India can be traced back to two significant committees among which Verma and Narasimham committees have been functioning as the forerunners. These committees have called for organizational and technological measures for tackling the core fundamental issues, for instance,paradigm shift in risk management systems/implementation and overhaul of the supporting regulation systems.It is important to note that NPAs, in addition to other factors, present a great opportunity for technological strategies and innovations to come to the fore. There are benefits of using fintech and AI in the banking industry; this is because such technologies help to monitor the performance of loans in the banks efficiently. Through the use of big data analytics and early warning indicators, the banking institutions can detect the projects, which are highly likely to turn into NPAs. Also, new developments such as the deployment of blockchain can enhance the lending and borrowing to help minimize cases of contractual breaches. Thus, despite the apparent efficiency of technology in addressing the issues related to NPAs, it is should be noted that a more organized approach should be taken to successfully implement these solutions in order to improve the health of the banking sector.

Keywords: Non-performing assets, NPA, Technology, innovations and performance-based activities.

Introduction

India's banking industry has been affected by the NPAs to a large extent, and NPAs have become an important measure of bank performance. Non-performing assets refer to those loans or advances that are in a state of judge's debt or arrears whereby the borrowers cannot afford to pay for the loans as required by the loan agreement. NPAs at a very high level is a great danger to the stability and efficiency of banks and hence their capacity to extend credit to productive sectors in the economy. This in a way has an impact on the overall development on the economic growth as well as development. The problem of NPAs is more or less acute in public sector banks as the volume of bad loans has grown significantly in recent years.Among the major difficulties in regard to NPAs, the absence of a comprehensive and efficient approach to its solution can be singled out as one of the most important ones. There are differing views on the best approach to tackle this matter; however, possible solution policies have been implemented to act on this matter. The banking sector reforms in India

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It is important to note that NPAs, in addition to other factors, present a great opportunity for technological strategies and innovations to come to the fore. There are benefits of using fintech and AI in the banking industry; this is because such technologies help to monitor the performance of loans in the banks efficiently. Through the use of big data analytics and early warning indicators, the banking institutions can detect the projects, which are highly likely to turn into NPAs. Also, new developments such as the deployment of blockchain can enhance the lending and borrowing to help minimize cases of contractual breaches. Thus, despite the apparent efficiency of technology in addressing the issues related to NPAs, it is should be noted that a more organized approach should be taken to successfully implement these solutions in order to improve the health of the banking sector.

Statement Of The Problem

Therefore, the purpose of this study is to establish how technology and creativity can be applied in non-performing assets management in the banking sectors/financial institutions. Non-performing assets are any loans and advances where the debtor has failed to pay both principal and interest for a certain period. As it has been seen in the unit, the management of NPAs can act as the key to success for the longevity and productivity of financial organizations. The literature therefore provides evidence of how the application of innovation and the incorporation of new technology may present different approaches towards betterment of the NPAs management, problems solving and decrease.

Objectives of the study

- To study the function of innovation and technology in locating, controlling, and resolving non-performing assets.
- To investigate the technical solutions currently in use by financial institutions for managing non-performing assets.
- To assess how well artificial intelligence (AI), machine learning (ML), blockchain, big data, and other technologies can lower non-performing assets (NPAs).

Review of the literature

Predictive models have been shown to improve NPA management in a number of studies..

Patel & Srivastava (2021) revealed that-block chain has the possibility of minimizing NPAs by improving the provisions of transparency and integrity of terms of the loan agreements and repayment plans. The tracking of the assets in real-time in the blockchain may help in quicker identification of loans having high likely-hood of being nonperforming therefore making it easier to recover them.

Mohanty (2021) in the area of debt recovery using RPA identified that the application of RPA in organizations results in extensive desking of administrative endeavors, which results in a shortening of time spent on decisions. This also assists on managing future NPAs not only, but it also resolves current ones, as well as sets up better follow up communications with patients.

Kaur and Garg (2020) mentioned that credit scoring technique using artificial intelligence makes the credit decision more accurate and precise through the use of credit scoring algorithms that may work on the concepts of machine learning. These tools help the banks in taking informed decisions and thereby avoiding defaults and more over identification of NPAs.

Ghosh (2020) explored how binaries can be used to identify debtors in relation to repayment behavior. Customers can be compartmentalized into risk profiles and repayment options for bank loans are made which in a way also reduces on occurrence of NPAs.

Gupta and Soni (2019) outlined how the companies in the fintech sector are employing AI and blockchain to create smart contracts that acceptable and effective reformation of the loan repayment agreement by both the lender and the borrower. With the aid of this innovation it is possible to avoid the transformation of loans into NPAs.

Deshpandey investigated encompassing the credit function at the zonal level with reference especially to the Central Bank of India's Ahmadabad zone because NPA depress both bank and industry profit. The topic of the actual research concerned the non-priority sector. The work also focused on the developments in the non-priority field with focus on the large and the small business. The study provides details about how it conducts performance reviews that will help raise productivity and decrease non performing assets, regional awards for top performers.

Artificial Intelligence (AI) and Machine Learning (ML) in Risk Assessment

Use cases of AI and ML can be observed in the monitoring of loan performance and the assessment of creditworthiness of the borrowers. Calculating the probability of defaulting is done by Machine Learning models analyzing the borrower information, economical data, transactions, among others. These AI-based Risk assessment tools help in the identification of the loan risks and reduces the chances of such loans turning out to be NPAs.

Blockchain Technology: This has also been recommended as a possible method to improve the recovery as well as management of NPA. Since the framework of the block chain technique is decentralised and immutable, these loan transactions are equally secure and transparent and this might reduce fraud and mistakes prevalent in loaning gravely. For that reason, it can facilitate asset recovery procedures to run with more ease by providing an indisputable evidence of ownership of the assets. Introducing Blockchain: Blockchain technology is particularly suitable for loan origination and management due to it's back bone of strong ledger and smart contracts. It can minimize loan default instances since loan implementations as well as payment processes can be handled by smart contracts. Otherwise, there are more benefits you may find important: increase in transparency of the funding process as well as a decrease in fraud rates.

Digital Identity Verification: Technologies of identification of customers help in reducing the rate of false loan applications by facilitating the process of borrower identification. Examining Aadhaar based verification in India is one of the best use cases of the usage of technology in identity verification, and in the enhancing of the lending process.

Mobile Banking and Payment Apps: With smart phone being common and mobile banking application being in use, borrowers are now a day fortunate to repay their loans. The financial pay related with these programs is supplemented by the systematic use of notifications and reminders to minimize chances of missing on payments.

The Utilization Of Artificial Intelligence (Ai) And Machine Learning (Ml)

The prevalent in the monitoring of loan performance and the assessment of borrower creditworthiness. To assess the probability of default, then, machine learning entails using borrower data details, economical data, transactional data, and other available data. The use of these AI solutions helps in identifying risky credits at the earliest before they turn into NPAs.

As for the 'Recovery and Management of NPAs,' Blockchain Technology has also been considered as a possible solution. It is for this reason that block chain is quite secure and transparent in terms of loan transactions since they are decentralized and are more or less immutable. In addition, it simplifies the processes of asset management and recovery, since it ensures that no one can dispute ownership of the assets. This feature makes it potentially

revolutionize both, the loan origination process and contract based management. Smart contracts also help to reduce default risks because they directly perform loan contracts and initiate payments. Also, it also ensures that there will be less corruption regarding the funds collected through the process.

Digital Identity Verification: The Technologies have drastically reduced the risk of making fraudulent loan applications by making the process of verifying, authenticating the borrower easier. One of the real life examples is Aadhaar based verification implemented in India and explains how through the use of technology, identity verification is made easier and more efficient for the lending process.

Mobile Banking and Payment Apps: Thus, due to the availability of smart phones as well as mobile banking applications borrowers are gradually ensuring their loans repayment. Such notifications and reminders included in these applications ensure that no payments are missed regularly.

Challenges And Hurdles

However, there are some considerations that one must embrace since technology has the capability to impede NPAs significantly. But a large chunk of the population in India remains technologically impaired or "unsustainable" – no access to technology or the internet is available to this section of the population. It's crucial in the present day society to bridge this gap so that technology based financing meets every part of society.

The drive of digital inclusion, aimed at providing the owners of small- and mid-sized ambitious companies in tier-3, tier-4, and even further, is being initiated by NBFCs and fintech players for this purpose only. Besides, there is conformity with the government's Digital India policy. Yet, electronic money transfers become more prevalent, and the risk of hackers and thieves increasing their activities rises as well. Therefore, while every effort is being made on the part of the NBFCs, other lenders and some corporate in providing training and guidance to budding entrepreneurs especially the women more still needs to be done here to bolster the trust and ensure that important borrower is protected. They may also require adequate publicity of schemes which they snapped in the country.In other notations, there may be the need for proper marketing of the schemes that they are entitled to.

Financial Literacy Programs: Educating the borrowers on the best financial practices is highly essential when it comes to minimizing the default rates. The lending institutions and the government as well as the non-governmental organizations may offer socially appropriate means to educate the borrowers concerning ethical borrowing.

Risk Mitigation Techniques: There are some recommendations as to what lenders must do to improve their methods of risk management constantly.Continue to develop new ways of mitigating risk. It will also be relevant to use artificial intelligence and big data analysis to identify high-risk personal loans and develop proper strategies to minimize defaults.

Cooperation with Fintech: Nonetheless, it is advised that the traditional financial institutions should engage fintech firms to harness on their technical skills. Partnerships are valuable to start establishing fast, but also medium and long term strategies can be followed by already existing banks which are looking for ways to enhance the efficiency of their digital initiatives.

Constant Monitoring and Adaptation: Thus the methods also must be modified to the current lending environment. NPAs are the assets that are unable to generate the revenue expected and proper management needs swift decision making, feedback and control. It is therefore evident that the only way of reducing the non-performing assets to below acceptable levels, indeed reviving the financial industry, is through leveraging technology as well as innovative strategies. It could probably bring this aim of having a zero Non Performing Assets (NPA) reality in India, as its working on transforming its lending realm with the help of technology.

The present world financial crisis was majorly prompted by non-performing assets (NPAs). Since the liberalisation of Indian financial system, NPA scenario has come into lime light. By giving more emphasis on NPA as a priority sector, the sector gains more progress than the non-priority one.

The poorest performers are the small scale industries, commonly referred to as SSIs in as far as priority sector advancements are concerned. It suggested some industry adopt self-help group practices to help the borrowers get loans and secure the pay back of the bank loans.

NPAs of different nationalised banks reached the end that the gross and net NPAs are on the rise in all the nationalised banks; however, the rate differ, which portray the different efficiency of each nationalised bank in managing NPAs. List of ideas relating to causes of accounts getting out of shape include wilful defaults, improper method of dealing with the processing of loans and due diligence, and control. Resources.

Fintech Solutions for Debt Restructuring

Based on this, there are remarkable solutions provided by fintech companies in terms of debt restructuring and collections. It involves the use of technology in helping the defaulters to reform their loans, get new loans terms, bankruptcy, and repayment plans. These technologies have enabled the institutions to deal with the distressed loans and at the same time offer

Identification and Prediction: Using AI, ML, and Big Data analytics for early identification of potential NPAs.

Block chain: Enhancing Transparency and Accelerating Recovery Processes Real-Time Dashboards for Tracking NPA Levels and Recovery Progress

Automation: Leveraging robotic process automation (RPA) to optimize NPA management processes.

Confidentiality: Protect the privacy of participants by keeping their identities and responses anonymous.

Informed Consent: Participants will be notified about the study's purpose and their right to participate voluntarily.

Data Integrity: Guaranteeing accuracy, reliability, and exclusive use of collected data for research purposes.

LIMITATIONS OF THE STUDY

DATA AVAILABILITY: Limited access to internal financial institution data, especially concerning NPA management, could restrict the study's depth.

Technological Adoption: The pace at which different banks adopt technology in NPA management may vary, limiting the comparability of results.

Geographical Scope: The study may focus on a specific region or country, which may not fully represent global practices in NPA management.

Expected Outcomes

First, it is crucial to identify relevant technologies that are normally used in a NPA management process. Better understanding of the applicability of these technologies in the reduction of NPAs.Suggestions to the financial institutions on the choice of innovative technologies to apply in management of NPAs.Proposed framework for use of technology in management of NPAs.

Conclusion

The purpose of this research is to provide useful recommendations to various stakeholders regarding the parts played by technology and innovation pertaining to NPAs, and ways in which the efficiency of banking industry can be improved in order to reduce the occurrence of NPLs. That is why this issue is relevant not only for the banking but also for the overall economy. The Indian banks have largely depended on interest income derived from loans, which means that the higher number in NPA puts pressure on the banking system profits. As

the facts and figures suggest, the Public Sector banks are found to have a pronounced neutrally of NPAs. Since there were identified some governmental actions to minimize these assets, more measures should be taken to address this problem. Compared to the foreign banks, domestic banks still have a higher level of NPAs as displayed in the following figure. Getting an economy to operate with no NPAs is not possible; therefore, it is high time bank management red up its operations in dealing with this issue.

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