Banking on Artificial Intelligence to Bank the Unbanked

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Abstract
Artificial Intelligence (AI) has been in the market since 1956 and it has emerged as an unavoidable and pioneering technology of the business world. AI applications are used in almost all business domains. AI applications are increasingly utilized in the banking and financial services sectors. AI applications bring the financially excluded people into formal financial services sector using their unique features such as speed, security, cost-effectiveness, and customization. This article focuses on role of AI applications in financial inclusion.

INTRODUCTION

Artificial Intelligence (AI) has been one of the disruptive technologies which makes disruptions in each industry. AI is the science and engineering of making intelligent machines (John McCarthy and Marvin Minsky, 1956). Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. AI enables the machines to reason and perform sophisticated mental tasks. AI is getting better and smarter day by day, allowing more and newer industries to adopt the AI for various applications. Banking industry is one of the leading adopters of the technology.

Indian banking sector has radically changed in recent times. Modern banking has gone beyond the traditional brick and mortar banking system and the banks use mobile banking, chatbots for customer service, customised services for the bank customers and AI enabled Robots for self-service in the banking operations to enhance operational efficiencies.

83% of Indian bankers believed that Artificial intelligence could work along with the humans. The global average was 79%. Further, 93% of the Indian bankers confirmed that they were using data to take decisions (Accenture, 2018). Indian Banking sector bank on AI to provide better customer service; to face the competition; to enhance employee productivity and to reduce employee errors. Indian banks increasingly adopt AI in their banking operations. Indian banks use AI in fraud detection, cyber security, customer experience, risk management, regulatory compliance, credit decision making, wealth management, prediction of future outcomes and trends, and customised banking experience.

In 2017, 1.7 billion people unbanked all over the world (The World Bank, 2017) and In India 31% of the population was financially excluded (The World Bank, 2017). Further, 200 million small and medium enterprises in developing countries could not access the financial services. Thus, traditional banking system all over the world including India could not reach and provide financial services to 1.7 billion people due to many supply side constraints such as higher cost of operations, low digitization of the banking processes and inappropriate financial products and services and due to many demand side constraints, such as low income, lack of awareness and financial illiteracy. But the bankers realised the need for leveraging the disruptive technologies to tap the potential market at the bottom of the pyramid. The bankers in India and all over the world use the technologies such as AI and Big data analytics increasingly to promote financial inclusion or to reach out the financially excluded people[9,10]. In short, financial inclusion refers to banking the unbanked. In other words, financial inclusion provides access to formal financial products and services to the poor and downtrodden people at a fair cost.

REVIEW OF LITERATURE

Having access to financial products and services is a prerequisite of the life (The World Bank, 2018). Artificial intelligence and Machine Learning are getting smarter day by day and bring transformation in governance, economy, and society in the developing countries. AI based banking solutions emerged as a game changer in expanding access to finance (Kshetri, 2019). Digital financial services have been launched in more than 80 countries (The World Bank, 2020). As a result, millions of financially excluded people migrated from cash-based transactions to formal financial services where a variety of services like payments, transfers, credit, insurance, securities, and savings are offered to them (The World Bank 2020).

Mobile phones and other digital tools including AI are widely used and the rate at which financial inclusion is rising is commendable (Salampasis and Mention 2018).

Application of AI (particularly algorithms) can help to fight the risks involved in giving access to finance (Chu 2018).

Previous studies indicate that technologies have been used to promote financial inclusion all over the world especially in developing economies. This study intends to examine role of AI powered financial solutions to enhance financial inclusion in India.

RESEARCH METHODOLOGY

This study is principled on desktop research to examine role of Artificial Intelligence in promoting financial inclusion. The study used conceptual and documentary evidences found in the reports, journals and websites to analyze the role of Artificial Intelligence in promoting financial inclusion.

APPLICATION OF ARTIFICIAL INTELLIGENCE IN INDIAN BANKING SYSTEM

Indian bankers adopted artificial intelligence at a significant pace in areas of banking processes and operations, development and selling of financial products and customer engagement. The bankers can save USD 447 Billion from the usage of AI in various levels of banking by the year 2023 (IDRBT, 2020). Levels of banking here denotes Front office, Middle office, and Back the year 2023 (IDRBT, 2020). Front office deals with customer service, customer engagement, and customer identification. Middle office involves in fraud detection, risk management, anti-money laundering, and loan decisioning. Strategy and compliance are handled by back office. Middle office accounts for 52% savings of the cost (IDRBT, 2020).

State Bank of India (SBI) has achieved many milestones by integrating AI, Machine Learning (ML) and data analytics. AI models of SBI include Project Shikhar (Credit card issuance model), digital instant loan via Yono, Yono Krishi app-based lending, branch footfall reduction, and ATM winback.

Punjab National Bank used AI, Machine Learning (ML) and data analytics models to predict credit card default; to detect MUDRA Loan slippages; to analyze National Automated Clearing House (NACH) mandate, and to sell third party products.

HDFC applied AI in business alignment; end to end data workflow, skills, and competency mapping. ICICI bank tried to develop "Zero Credit Touch" (ZCT) strategies using AI and ML wherein credit facilities will be provided for the customers without any additional information from the customers. Citi Bank uses logistic regression models of AI and ML to find high propensity customers to target their products.

Further, The ML models are applied for cash optimization at the ATM level to identify cash demand and optimize the idle cash level in the ATM network. TransUnion CIBIL used AI techniques to determine alternative credit scores. The sources of alternative data are address stability, driver's history, payday loans, Short Message Services, and Social Media.

Indian banks are increasingly using AI in their businesses to provide better customer engagement; to offer suitable financial products and services instantly; to simplify the banking operations, and to prevent payments fraud.

ARTIFICIAL INTELLIGENCE ENABLED BANKING AND FINANCIAL INCLUSION

Artificial intelligence provides a platform to make a new paradigm in the banking sector. AI has the potential to provide banking and financial services to the customers at a better, faster and the cost-effective way. India has been making several initiatives such as Pradhan Mantri Jhan Dan Yojna to promote financial inclusion and India has achieved significantly in promoting financial inclusion. In India, only 29% of households had access to bank and its services in 2010. But, in 2017, access to finance by Indian people has reached to 69%. However, 31% of the people are unbanked.

Traditional banking system could not achieve a 100% financial inclusion due to the inherent limitations. Limitations include distance, high operational expenses, unsuitable products, huge dormant accounts and so on. These limitations are overcome by applying AI in banking and financial services. Technologies are extensively used in the provision of finance in India. Financial technology adoption is more in India. India has emerged as the second largest FinTech hub in the world.

Artificial intelligence has been used in various banking and financial services and thereby AI promotes financial inclusion. Prominent applications of AI in banking and financial services are presented[11].

1. AI enabled chatbots are available in multiple languages for 24x7 basis. The banks use vernacular language chatbots to contact the customers, to solve customers' issues and doubts. This kind of activity encourages all kinds of the customers to reach the banker for their need and problem solving.
2. Artificial intelligence has been used to prevent the frauds in dealing with payments by reinforcement of customer authentication and additional layer of control. This fraud prevention enhances faith and trust on the banking system among the ordinary people and the financially excluded people.
3. Traditional banking system utilise traditional credit scoring methods to determine the creditworthiness of the customers or the loan applicants. As a result, first time loan seekers and the customers having moderate credit scores could not be part of financial system. But the application of artificial intelligence on determination of credit score allows the banks to include even the unbanked in the market, who typically were not capable to show incomes or credit history, being mostly cash intensive users.
4. India has a larger and easily accessible public digital platforms such as Unified Payments Interface (UPI) and Bharat Interface for Money (BHIM), which use AI to promote digital payments and thereby, financial inclusion.
5. The banks and FinTech companies use AI applications to detect risk and risk measurement in their operations.
6. AI makes possible for the excluded people to be able to access financial services using various digital tools such as cell phones or instruments like payment cards.
7. AI applications educate the customers by providing advises for the customers.
8. Although AI is doing a lot in promoting digital financial inclusion, there are several challenges such as data quality, data quantity and responsibility.

CONCLUSION

Access to finance is a vital aspect as it promotes career prospects of an individual and a businessperson. Traditional financial and banking system could not provide access to finance for all. Traditional system could not accommodate the people who do not have credit history and financially excluded people. But the emergence of disruptive technologies like Artificial Intelligence changed the banking paradigm. AI enabled applications can accommodate the people excluded by the traditional banking system. Thus, AI applications in banking and financial services promote financial inclusion.

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