Saarth
E-Journal of Research

ISSN NO: 2395-339X

Artificial Intelligence in Indian banking Sector

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Abstract:

Artificial Intelligence is nothing but it is the ability of machines to think on their own and perform a task without the help of human beings. There are variety of state of the art technologies available in the arena of AI viz Machine Learning, interactive voice response (IVR),NLP (Natural Language Processing), Deep Learning, Speech Recognition, Image Analysis amongst others for the purpose collecting, cleansing and analyzing and disseminating massive amounts of data. Artificial Intelligence (AI) is fast evolving as the go-to technology for industries across the world to personalize experience for individuals. The technology itself is getting recuperating and smarter day by day, allowing more and newer industries to adopt the AI for various applications. Banking sector is becoming one among the primary adopters of AI and a bit like other segments; banks are exploring and implementing the technology in various ways. Several Indian banks have begun deploying artificial intelligence in order to enhance efficiency and predict customer behavior. AI includes seeking operational efficiency that means to detect and predict human behavior and lowering operational costs. This also signals further progress with the digital transformation of the Indian Banking Sector.The research, explains the role of AI in Indian banking sector and how it is useful to customers, employees and banking growth in Indian perspective. Also point out challenges of Implementation of Artificial Intelligence in India and how to provide instant solutions on banking queries.

Key words: AI (Artificial Intelligence) ML (Machine Learning), Chat Bots

Introduction: The Indian banking system consists of 12 public sector banks, 22 private sector banks, 44 foreign banks, 56 regional rural banks, 1,485 urban cooperative banks and 96,000 rural cooperative banks in addition to cooperative credit institutions. Total number of ATMs in India as of August 2020, increased to 209,110 and is expected to reach

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E-Journal of Research
ISSN NO: 2395-339X

407,000 by 2021. India's retail credit market holds huge size of world markets and is the fourth largest within the emerging countries. RBI has always played a crucial role in bringing dynamic changes and reforms in Indian banking sector. The fact is that, India can boast one of the best digital payment systems at the international level. At present AI technologies have helped to make the processes better. The banks are instituting an innovation centre which is built to explore emerging technologies such as robotic process automation. It can assist making internal banking processes more efficient. Artificial Intelligence (AI) has been around for decades, ever since John McCarthy defined it as the science and engineering of making intelligent machines. But it is only lately that AI technology has undergone rapid evolution and consequently sparked significant interest among enterprises in virtually every industry. Today, there is widespread agreement that AI is one of the hottest trends for 2019. However, there is less agreement on what AI actually means. This is because AI is not one, but a group of related technologies, which includes among others, big data analytics, machine learning, deep learning, predictive/prescriptive analytics, virtual agents, and avatars (which understand natural language). The fact is that, everything from robotic process automation to actual robotics falls under that umbrella which complicates the understanding of AI. Banking has become increasingly captivated with information systems and therefore the use of latest technology has also become increasingly significant. The banks got to use AI based technological applications to supply customized services and products to its customers also monitoring the transactions. Adoption of artificial intelligence in Indian banking sector's, has seen a steep increase. In the past year, global investment in AI applications touched $5.1 billion, up from $4.0 billion in 2015. While large commercial and investment banks globally are incorporating AI and block chain for both back-office and customer facing purposes, in India, widespread adoption of these technologies has not yet come to fruition. Though the deployment of AI technologies is still nascent in the banking sector, the competitive advantage that the technologies bring has been recognized by banks with some developing innovation centers. The adoption of AI in the banking and finance sector is a part of the larger digital wave occurring within the sector. The use and deployment of AI in consumer banking, financial products and back-end operations is varied and across different stages of operations.

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Though it is not always clear from publicly available information the exact type of AI technology that is being used, some technologies that we did find in our research include: Natural Language Processing, Natural Language Generation, Machine Learning (such as Neural networks/deep learning), and Computer Vision.

Review of Literature:

Meryem DuygunFethi (2010) presented a comprehensive study review of 196 studies which employ operational research (O.R.) and artificial intelligence (A.I.) techniques in the assessment of bank performance. **Raj &Portia (2011)** analyzed that artificial intelligence is one of the various techniques to be used for detecting credit card fraud explosions. **Dipasha Sharma, Anil K. Sharma, Mukesh K.Barua (2013)** discussed on a comprehensive literature survey focusing on the efficiency and productivity of the banking sector using parametric and non□parametric frontier techniques. **Praveen Kumar Donepudi(2017)** described the work of different researchers and discussed, how machine learning techniques can be helpful in the banking sector to deal with the risks especially the credit scoring process. **Latimore (2018)** suggested that, banking artificial intelligence is technology which makes inferences and decisions that are used to require direct human involvement. **Maskey(2018)** founder of fuse machine, wrote a post on how artificial intelligence is helping financial institutions. The article mentioned that artificial intelligence is helping financial institutions to grow and it has been estimated that AI would save more than $1 trillion to banking industry by 2030. **Vedapradha and Hariharan (2018)** suggested that innovative techniques like chat bots and artificial intelligence have been adopted by banking industry for improving customer satisfaction. An article by **Kul Bhushan (July2018)** stressed on the rising importance of AI technologies in day to day banking activities. Article also highlighted the opportunities that bank can enjoy due to adoption of AI technologies. **Khyati Kochhar, Harsh Purohit, Ravisha Chutani (2019**) worked on "The Rise of Artificial Intelligence in Banking Sector." The methodology of the research involved usage of primary and secondary data. The study was descriptive in nature and it was conducted on artificial intelligence with special reference to banking sector focusing Indian banks and foreign banks. According to **Dr.C.Vijai**. **(2019)** AI is fast evolving as the go-to

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technology for companies across the world to personalize experience for individuals. The technology itself is getting better and smarter day by day, allowing more and newer industries to adopt the AI for various applications. Banking sector is becoming one of the first adopters of AI. And just like other segments, banks are exploring and implementing the technology in various ways. AI includes smarter chat-bots for customer service, personalizing services for individuals, and even placing an AI robot for self-service at banks. **Sindhu J, Renee Namratha (2019**) worked on the Implementation of Artificial intelligence (AI) in chosen Indian commercial banks with reference to Cost Benefit analysis. The design of their research focused on top 5 leading commercial banks in India. The result also suggested that elderly people consider the ease of use and more knowledge about the usage of services as the important factor in adoption of AI technology in banks. Therefore, bank should focus more on these aspects to satisfy the elderly consumers. **Dr. Shivraj Singh, Dr. Lokesh Agarwal (2019**) worked on "Pros and Cons of Artificial Intelligence in Banking Sector of India." The research, explained what was the role of AI in banking sector and how useful for customers, employees and banking growth in Indian perspective. An article by **Ashok Pandey (August 2019)** mentioned the effects of digital transformation in banking sector. Article appreciated the use of AI in banking that would enable banks to deliver a seamless experience. **Anli Suresh, N. Jannifer Rani (2020)** their study identified the new trends of AI technology in the banking sector like customer support, past interactions, anti-money laundering pattern, voice assisted banking, underwriting, management decision making and reducing frauds. **Dr.Anil B Malali, Dr.S.Gopalakrishnan (2020)** worked on "Application of Artificial Intelligence and Its Powered Technologies in the Indian Banking and Financial Industry: An Overview." In this paper they examined the dynamics of AI ecosystems in the banking and financial industry and how it is fast becoming a most important disrupter by looking at some of the critical unsolved problems in this area of business.

Objectives of the study:

1. To study, the usefulness of the artificial intelligence is being used by the banks.
2. To study, the systematic approaches and application of Artificial intelligence in Indian banking sector.

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E-Journal of Research
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3. To study, the opportunities and challenges of the use of AI in the banks of India.

Data Collection: The Data is collected from secondary sources only. Opportunities Fraud Detection: Anomaly detection can be used to increase the accuracy of credit card fraud detection and anti-money laundering.

Customer Support and Helpdesk: Humanoid Chabot interfaces can be used to increase efficiency and reduce cost for customer interactions. Risk Management: Tailored products can be offered to clients by looking at historical data, doing risk analysis, and eliminating human errors from hand-crafted models.

Digitization and automation in back-office processing: Capturing documents data using OCR and then using machine learning/AI to generate insights from the text data can greatly weigh down back-office processing times.

Wealth management for masses: Personalised portfolios can be managed by Bot Advisors for clients by taking under consideration the lifestyle, appetite for risk, expected returns on investment, etc.

ATMs: Image/face recognition using real-time camera images and advanced AI techniques like deep learning should be used at ATMs to detect and prevent frauds/crimes.

Not without challenges

A wide implementation of a high-end technology like AI in India isn't attending to be without challenges. According to Accenture's Rishi Aurora, "A key challenge is the availability of the right data". Data is the lifeblood of AI, and any influence arising from unverified information is a serious concern for businesses. For instance, the risks that could arise from KYC compliance AI systems, if the information sources are incorrect or consider the efficacy of a fraud detection. Structured mechanisms for collecting, validating, standardising, correlating, archiving and distributing AI relevant data is crucial hence it should be handled carefully.

Conclusion:

A digital boom is certainly taking place across all segments of industry especially banking, especially after demonetisation. The traditional banking has evolved and hence more and more banks are adopting new technologies like AI, Cloud and block chain to chop

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down their operating expenses and improve efficiency. Though it is still in its nascent stage, banks are still at cup of an artificial intelligence revolution. Improvement and development within the AI industry will increase productivity at a reduced cost. Managers across industries will have to raise their ante on skill set up gradation. There is no doubt that recent push towards digitalization is rapidly influencing the traditional banking models. However, it has also exposed the institutions to increase cyber security threats and vulnerabilities. The banks are increasingly observing at emerging technologies like block chain and analytics in creating an active defense mechanism against cybercrimes. The research clearly suggests that banks also use artificial intelligence mainly for petty purposes like automatic cheque book re-order facility. Banks also uses artificial intelligence for Employees performance evaluation, Credit evaluation and portfolio analysis.

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