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ADVENT OF ARTIFICIAL INTELLIGENCE IN TRANSFORMING BANKING SERVICES IN INDIA

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Abstract: In recent years, artificial intelligence and analytics have dominated all new inventions and technology. With the advent of Internet and mobile banking platforms, digital transactions gained considerable acceptance, resulting in a progressive decrease in "footfall in branches." Customers of today need a flawless experience across all platforms, and highly customized services are urgently needed. However, communicating with and comprehending the distinct needs of these clients spread across different regions has grown to be a significant obstacle for all Indian banks. The banking industry is now capable of making use of Artificial Intelligence (AI) and seamlessly integrating it with operational requirements thanks to the shifting dynamics of an app-driven environment. The adoption of artificial intelligence will continue to advance, enabling a digital financial infrastructure, as the nation's banking environment continues to expand rapidly.

IndexTerms : Artificial Intelligence, Banking industry, AI in banking, Digital Banking

I. INTRODUCTION

Artificial Intelligence & Analytics have dominated all the new technologies/inventions in the past few years. The introduction of Internet Banking and Mobile Banking platforms paved the way for digital transactions to gain significant traction, which led to the gradual decline of people coming to the banks. Today's customers expect a seamless experience across all platforms, and highly personalized services are the need of the hour. However, interacting and understanding the unique requirements of these customers located in various geographical locations has become a major challenge for all the banks in India. They together solved many of the problems that Banks face in today's digital world. They can pull out good information quickly and easily from Bank's database and convert it into meaningful benefits for themselves and their customers.

Artificial Intelligence : AI is the name that needs no introduction in the current times and is probably one of the most important thing that humanity has ever worked on. It is something more profound than a mobile, computer, wheel, electricity or fire. It has set foot into our lives in all sorts of ways from medicine to transportation to voice interfaces in homes to financial services etc. thus making us more efficient. AI can generate enormous opportunities for people in all the spheres of life.

Analytics : In present day scenario we frequently come across to the phrases “Data is new Oil” or “Data is new Gold” etc. Hence, data and its analysis is very crucial. Data analysts combine information technology with statistics and business. Tons & tons of data which include text in black & white, huge intricate databases, or unprocessed sensor data are extracted, categorized and transformed into a useful and manageable formats. We use various techniques to analyze the new data. A thriving data analytics initiative will help us in understanding:

1. What happened?
2. Why things happened?
3. What may happen in future?
4. What should be done?

AI is expected to spur expansion in the banking industry. Digital platforms are helping banks focus on data utilization, increase efficiency, implement new sales strategies, and provide large-scale, relationship-based, personalized customer interactions. Customized customer responses, safer and more trustworthy product and service recommendations, and building trust through expanded concierge services that are available to clients at critical times are all made possible by AI. Banks also need to create unique digital customer profiles that are based on permission. The problem is that the required data is frequently found in separate silos. Banks can create experiences that cater to the unique needs of their clients while effectively scaling to expansion by breaking down these silos, integrating AI, and fusing it with human interaction.

The banking industry is now capable of making use of Artificial Intelligence (AI) and seamlessly integrating it with operational requirements thanks to the shifting dynamics of an app-driven environment. To reduce the cost of the front office, middle office, and back office operations, banks deploy artificial intelligence. AI is very helpful in providing customer assistance so that customers can choose from a variety of services to improve the quality of services for all clients. AI assists in prior consumer encounters with banking activities for both the betterment of the economy and the banks.

Many industries, including the banking sector, prioritize efficiency and sustainability as their key business concerns. One of the unique advantages of artificial intelligence is that it eliminates human bias from the decision-making process, making it an ideal solution in this regard. The necessity to automate decision-making procedures to reduce the chances of error is becoming more evident as the banking sectors gradually grasp this concept.

AI has the potential to completely change the world's financial system. One-third of financial services companies think AI will boost business revenue by more than 20%, and more than 80% think it will be vital for the future of their company. Fintech banking solutions, gives customers the ability to self-serve, providing them access to operational activities that were earlier accessible only at physical bank branches. Around 72% of financial transactions from public sector banks, according to a 2021 announcement from the Union administration, are now digital. Due to the COVID-19 epidemic, the number of clients almost tripled to 7.6 crores in 2020–2021 from the previous year's 3.4 crore customers who were engaged on digital channels. Indian banking sector is observing the active promotion and implementation of AI by private financial organizations like Axis Bank, ICICI Bank, Kotak Mahindra Bank, HDFC Bank, among others. At the same time, larger nationalized banks like SBI, Central Bank, Canara Bank, and others are also embracing technological advancements and gradually adopting digital banking solutions.

APPLICATION OF A.I. IN INDIAN BANKS

Banking services use AI primarily to automate systems; however, this ecosystem doesn't work in growing economies because it requires human participation and there are infrastructure-related difficulties. Many studies have been conducted so far that shows the worldwide outlook on the adoption and application of AI in the international banking and financial services sectors. It is necessary to research and see whether similar models and approaches are applicable in the Indian banking industry. The adoption of artificial intelligence will continue to advance, enabling a digital financial infrastructure, as the nation's banking environment continues to expand rapidly. Below are some of the Indian banks that are using artificial intelligence and are getting benefitted from it.

BANK	AI APPLICATION
STATE BANK OF INDIA	Payjo, an AI banking platform, has developed SBI Intelligent Assistant (SIA), a smart chatbot that utilizes artificial intelligence to promptly respond to customer queries and provide support with routine banking tasks.
HDFC BANK	With the help of Google Assistant, the bank's chatbot named "Eva" can serve customers and respond to their queries on millions of Android devices that use it. Eva has claimed to have answered more than five million user queries with an accuracy rate of more than 85%.
ICICI BANK	The bank became the first in the nation to use an AI system extensively across several procedures. The study claims that ICICI Bank has extended its RPA project to over 750 software robotics handling approximately 2 million transactions daily, or 20% of the transaction volumes.
AXIS BANK	AXAA is a conversational interactive voice response (IVR) solution that Axis Bank introduced in July 2020. AXAA, a multilingual voice bot, helps clients navigate the IVR and responds to their questions and requests without the need for human assistance in the majority of situations.
KOTAK MAHINDRA BANK	In 2019, the bank released Keya 2.0, a voicebot with increased capabilities. The bilingual voice bot, known as Keya, will supplement the current interactive voice response (IVR) system and is already connected with Kotak's phone banking helpline.
BANK OF BARODA	The bank makes use of cutting-edge devices including the Baroda Brainy robot, an artificial intelligence device, and the Digital Lab, which offers free Wi-Fi. With the help of IBM and Accenture, the Bank of Baroda powered a cutting-edge IT Center of Excellence (ITCoE) and Analytics Center of Excellence (ACoE) in 2018.

DATASETS AND GRAPHS:

The most commonly used AI technologies are: robotic process automation (36 percent) for structured operational tasks; virtual assistants or conversational interfaces (32 percent) for customer service divisions; and machine learning techniques (25 percent) to detect fraud and support underwriting and risk management.

The most used AI technologies	Percentage
Robotic process automation	36
Virtual assistants	32
Machine learning techniques	25

The table and the chart below represent the percentage of people in different age groups that still prefer in person banking services rather than mobile or net banking:

Age Group	Percentage who prefer in person banking services
12-27	4%
28-43	4%
44-59	9%
60-78	16%

AI is enhancing banks' competitiveness via:

- ✓ **Improved customer experience:** By incorporating personalized features, AI enhances banks' understanding of their customers. This, in turn, allows banks to tailor their financial products and services to increase customer engagement and establish long-term relationships with clients.
- ✓ **Forecasting future events and trends:** AI aids banks in spotting fraud, detecting anti-money laundering patterns, and making consumer recommendations. Huge amounts of data can be sorted by AI to find questionable data patterns that can be used to manage fraud.
- ✓ **Cognitive process automation:** It ensures ROI, cuts expenses, and guarantees accurate and speedy service processing at every stage.
- ✓ **Interactive interfaces:** Chatbots analyze the context and emotions of a text conversation to determine how best to respond. With the help of these cognitive machines, banks can increase productivity, save time, and ultimately save millions of bucks in overall costs.
- ✓ **Strategic decision-making:** Systems function like human experts in real-time and offer the best solutions based on the available data at hand. These cognitive mechanisms help in the effective decision-making of bankers.

RECENT TRENDS IN BANKING :

Banks that do not become "AI-first" or make AI integral to their basic strategy and operations, run the risk of being surpassed by the competition and losing their clientele. Four recent trends further enhance this risk:

- Increasing usage of digital banking is raising client expectations. During the initial stages of the COVID-19 pandemic, a significant increase of 20 to 50 percent in the use of online and mobile banking channels was observed worldwide. As customers increasingly engage with digital banking services, their expectations tend to rise, particularly when comparing them to the standards set by leading consumer internet companies that they are already familiar with.
- The adoption of cutting-edge AI technologies is rising significantly. According to the McKinsey Global AI Survey, it was discovered that roughly 60% of organizations have adopted at least one AI capability. The predominant AI technologies utilized include virtual assistants or conversational interfaces for customer service departments (32%), robotic process automation (36%) for enhancing operational efficiency, and machine learning (25%) for identifying fraudulent activities, assisting in underwriting processes, and mitigating risks .
- The digital ecosystems are transforming the process of how customers discover, evaluate, and purchase products and services. These ecosystems provide access to a broad range of services via a single point of entry. For instance, nonbanking companies are disrupting traditional ways for people to learn about banking products and services by integrating financial services and products into their customer interactions and providing engaging experiences. Banks will therefore need to reconsider their approach to being a member of digital ecosystems and employ AI to fully utilize the data that is now accessible from these new sources

CHALLENGES IN THE ADOPTION OF AI

Although the advantages are obvious, banks and financial services also face some difficulties in implementing AI.

- ➢ **Infrastructure and Debt:** New requirements for data, infrastructure, and technology are frequently necessary to construct and scale new models when integrating AI into an organization's processes. In addition to being more expensive when replacing huge legacy systems,developing and running.AI applications frequently requires a high level of computing power, which may result in prohibitive up-front expenses .
- ➢ **Mitigation of added risks and regulations:** Teams working to meet necessary client and internal workflows may find it difficult to integrate new technologies in the heavily regulated financial services sector. The management of new possible vulnerabilities and the development of Explainable AI (XAI) internal policies may be particularly challenging for risk and compliance teams. AI deployment may have unforeseen repercussions, such as denying customers access to financial products or violating their privacy if the appropriate governance isn't in place. This could lead to financial institutions slowing down or rejecting innovative AI technologies.

- **Lack of skilled Talent:** One of the main obstacles to the rapid deployment and application of AI is a talent shortage. In the field of AI, which is still developing, there is a dearth of skilled workers. Many businesses are already concentrating on strategically forming internal teams to develop in-house AI capabilities to address this challenge.
- **Lack of Stewardship:** Senior executives may struggle to fully embrace AI due to the significant costs of new infrastructure, management, and human capital in a field of technology that are continually growing. If the leaders of an organization lose sight of their vision for AI, it will be extremely challenging to develop a comprehensive strategy for effectively utilizing these capabilities throughout a large, global business.

CONCLUSION: Artificial intelligence (AI) is causing a major shift in the banking sector that is driving the world of finance to evolve more quickly than ever. AI has been used in banking in a variety of contexts, including core banking, operational effectiveness, customer service, and analytics. In the Indian banking sector, chatbots and robotics are frequently utilized applications, while machine learning algorithms are also used in areas like KYC, financial transfers, fraud detection, etc. The importance of AI in achieving new levels of digitized customer relationship development is progressing. It is anticipated that Indian banks would progressively use advanced technologies like machine learning, blockchain, and analytics to provide high-end tech-enabled banking services and combat obstacles like cyber threats, conventional banking techniques, insufficient training, etc. Collaboration with FinTech firms may also contribute to the efficient and cost-effective implementation of digital banking.

Banks will be able to give individualized services and optimally combine human and machine capabilities with AI to reduce costs and increase operational efficiency. All of these advantages are no longer a distant goal for banks to achieve. Leaders in the banking industry have already acted responsibly to reap these benefits by implementing AI. As artificial intelligence progress, there will be significant changes in both the front and back office operations of financial institutions. The advancement of AI will require substantial alterations in the overall structure of the global financial market and will also lead to modifications in established regulations.

REFERENCES :

1. A. Suresh and N. J. Rani, “Role of Artificial Intelligence (AI) in the Indian Banking Scenario,” Journal of IT and Economic Development, vol. 11, no. 2, pp. 1–11, Oct. 2020.
1. E. Team, “AI is enabling digital transformation across the financial services industry,” Finextra Research, 27-Jul-2021. [Online]. Available: https://www.finextra.com/blogposting/20672/ai-is-enabling-digital-transformation-across-the-financial-services-industry. [Accessed: 14-Jan-2023].
2. P. Nataraj, “How are Indian Banks adopting digitization and ai?,” Analytics India Magazine, 11-Apr-2022. [Online]. Available: https://analyticsindiamag.com/how-are-indian-banks-adopting-digitisation-and-ai/. [Accessed: 15-Jan-2023].
3. M. Rahman, T. H. Ming, T. A. Baigh, and M. Sarker, “Adoption of artificial intelligence in banking services: An empirical analysis,” International Journal of Emerging Markets, 2021.
4. V. Kumar. ‘Banking of Tomorrow: Top Indian Banks Using Artificial Intelligence’, Analytics Insight. 2021 [Online]. Available: https://www.analyticsinsight.net/banking-of-tomorrow-top-indian-banks-using-artificial-intelligence/ [Accessed: 12-Jan-2023].
5. ETBFSI. “India’s banking sector leading in implementation of AI: Survey.” ETBFSI.com. Available: https://bfsi.economictimes.indiatimes.com/news/banking/indias-banking-sector-leading-in-implementation-of-ai-survey/89945758 [Accessed: 12-Jan-2023].
6. A. Khurshid. “Why banks need artificial Intelligence.” Wipro. Available: https://www.wipro.com/business-process/why-banks-need-artificial-intelligence/ [Accessed: 13-Jan-2023].