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BANKS BANKING ON AI

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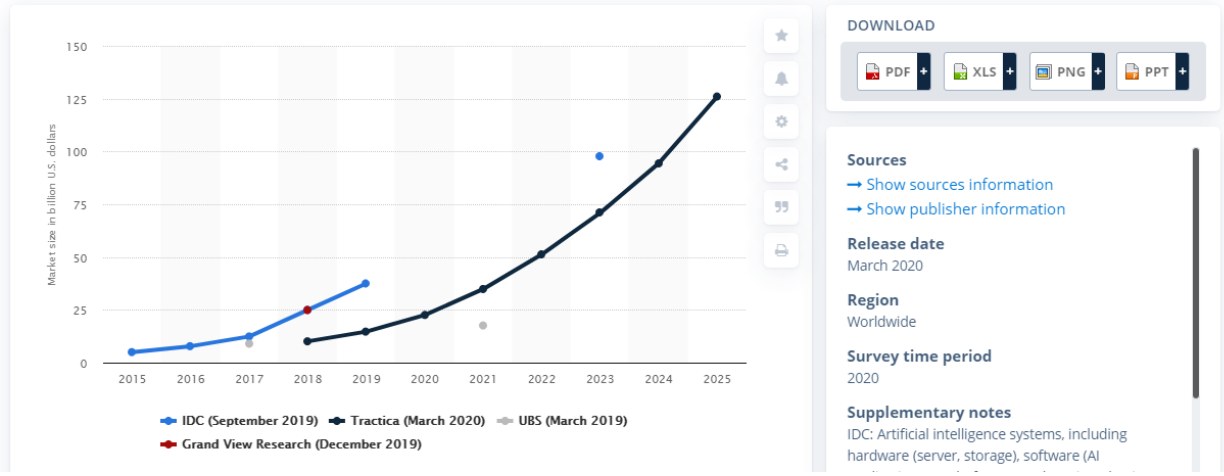
INTRODUCTION:

Artificial Intelligence or "*AI*" as it is called is the branch of computing which is empowering electronic gadgets to perform tasks that normally requires human intelligence such as visual perception, speech recognition, decision-making, translation between languages etc. Artificial Intelligence has been around for decades ever since John McCarthy has coined the term in 1956 and defined it as "the science and engineering of making intelligent machines". But it is only lately that AI technology has undergone rapid evolution and raised significant interest among various stakeholders including the banking sector.

The scope for artificial intelligence is believed to be effectively limitless, and this field of computing is proving extremely promising. It is projected that worldwide revenue from the AI market would reach as high as 97.9 billion U.S. dollars by 2023. Software and information technology companies are investing heavily in artificial intelligence. AI-focused startups have been gaining momentum and interest from investors, with the funding of AI-startup companies nearly increasing by fivefold from 2015 to 2018.

Market size and revenue comparison for artificial intelligence worldwide from 2015 to 2025
(in billion U.S. dollars)



(Image and Data source : Statistica .com)

Artificial Intelligence: A Potential Game Changer.

Today, the emerging technology of AI is used mostly by large enterprises through machine learning and predictive analytics.

Here's a look at the current state of AI and what lies ahead:

1. On a global scale thirty-seven percent of organizations have implemented AI in some form which is almost 270% increase over the last four years. By 2021, it is expected that 80% of emerging technologies will have AI foundations. (Source: Gartner)
2. AI embedded in analytics and similar marketing software will be freeing up more than a third of data analysts in marketing organizations by 2022, thus enabling them to focus their time on business priorities. (Source: Gartner)
3. Technology and financial service companies are currently absorbing 60% of AI talent. (Source: Ventures)
4. Sixty-three percent of people prefer to message a chat bot vs. talk with a human when communicating with a business. (Source: G2 Crowd)
5. Thirty-six percent on consumers own a smart speaker today, and 54% of owners say their speakers are accurate in their understanding of the spoken word. The rise in ownership is mainly due to some major strides that have been made in natural language processing, a component of AI in which a computer program can understand human language as it is spoken. (Source: Adobe)
6. AI-powered recommender algorithms (e.g., Amazon's "Customers who bought this item also bought" and Netflix's recommended programming) are something consumers are becoming quite accustomed to and it's good for business, too. The AI based recommendation system that Netflix uses, for example, saves the company about $1 billion each year. 75% of what users watch on Netflix are supposed to come from those recommendations. (Source: Netflix)

7. The wearable artificial intelligence market will reach $180 billion by 2025. (Source: Global Market Insights)
8. Facial recognition powered by AI, is forecasted to increase its annual revenue growth rate by over 20% in 2021. The expected growth is due to the improvement in accuracy in facial recognition technology. (Source: Vision Gain)
9. By 2025, as many as 95 percent of all customer interactions will be through channels supported by artificial intelligence (AI) technology. (Source: Microsoft)

Against this backdrop, let us look at the present status of AI adoption in banking sector in India and the future it beholds.

AI: Heralding a Change in the way we Bank:

Digital disruption is redefining industries and changing the way businesses function. Customers are evolving as they access their bank accounts on their smart phones instantly and pay bills with a tab on their wearable gadget. Tech-savvy customers have embraced advanced technologies in their day-to-day lives and expect banks to deliver seamless experiences. Fintech startups are now gaining greater prominence and technology giants such as Facebook, Amazon presenting in-direct challenges to the traditional banking systems, competition in this sector is going to get stiff. In the Indian context, with non-traditional players like PayTM and Reliance making in-roads, the banking landscape might undergo a complete transformation. Further, with the rise of technology-oriented payments banks like Airtel Payments Bank, Paytm Payments Bank, etc; entry of neo banks and neo banking platforms and also rise of NBFCs has also made it seamingly impossible for banks to survive with the traditional mode on. In such a scenario of high customer expectations and disruptions posed by Fintechs, AI has come handy to banking industry. Banks are now finding solace in new-age technologies such as artificial intelligence, Machine Learning, blockchain and more. To meet the rising expectations, banks are now expanding their industry landscape to retail, IT and telecom to enable services like mobile banking, e-banking and real-time money transfers. These advancements have enabled customers to avail most of the banking services at their fingertips anytime, anywhere. Harnessing

cognitive technology with Artificial Intelligence (AI) brings the advantage of digitization to banks and helps them meet the competition posed by FinTech players. AI in a sense is pushing banking system to thrive than to just survive.

Surge of AI in Banking:

Various organizations including banking are completely redefining and reassessing how they operate, establish innovative products and services, and impact customer experience interventions. In this age of innovations, banks are finding themselves competing with upstart fintech firms which are leveraging advanced technologies that augment or even replace human workers with sophisticated algorithms. To maintain the competitive edge, banking corporations will need to embrace AI and weave it into their business strategy. Banks today are simultaneously struggling to reduce costs, meet margins, and exceed customer expectations through personal experience. To enable all this, embracing AI is particularly important. The widespread use of mobile technology, data availability and the explosion of implementations of open-source software would provide artificial intelligence huge playing field in the banking sector. The changing dynamics of an app-driven technology is enabling the banking sector to leverage AI and integrate it tightly with the business imperatives. AI's potential can be looked at through multiple prisms in this sector, particularly its implications and applications across the operating landscape of banking:

- Customer Service: .

  Automated AI-powered customer service is gaining strong traction since it is helpful in creating a better, personalised user experience. It is helping in digitally transforming a mass service into an individualised and customised one which is based on a customer's unique individual behaviour, preferences, and requirements. Artificial intelligence is being successfully employed to provide a convenient and informed customer experience at any point along the customer journey. AI makes use of natural-data to dive deeper into every customer's behavior and their purchase patterns to perform Predictive analysis for driving better engagement at the right

place and time. AI can track data such as a customer's spending and purchase history over a period of time to help the bank send and recommend relevant information regarding budgeting and saving. AI can also be utilized in online applications to enable self-service recommendations, which are favored by millennials. By offering consumers an individualised service, the bank is able to increase customer satisfaction and retention, creating mutual value for the customer and the bank.

- Customer Engagement: .

  Long term customer engagement is necessary in any business enterprise to keep it in productive mode. Optimal customer engagement is achieved when a business remembers and treats their customer with attention, respect and consideration throughout their journey. In order to provide a sustainable high-level of customer engagement, banks are using AI technologies to gain full visibility of a customer's history and trying to understand their personal banking habits and needs. Banks nowadays are using an integrated enterprise system that consolidates customer data from all sources, from apps and APIs to third parties, which can then use AI to provide real-time recommendations to increase loyalty, retention, and value. This combination of AI and omnichannel decisioning can add value to the overall customer experience. It can provide relationship managers with certain inputs and they will be able to analyse a customer's banking experience on existing channels. This will allows banks to determine how effectively their current processes operate and whether there are any bottlenecks in the process for instance. AI-embedded features also enable services, offers, and insights in line with the user's behaviour and requirements. The cognitive machine based on artificial intelligence is trained to advise and communicate by analysing users' data. The AI aggregates and categorizes customer account activity and provides an integrated view of a customer's financial history. Analytics are then integrated into AI to highlight exceptions and important events in the customer's history.

- Voice Assisted Banking & Chatbots: .

  When a human point of contact isn't always available, AI-driven virtual assistants or

chatbots are able to respond to customers' simple banking needs. AI-powered banking bots are being increasingly used on the customer service front. Digital personal assistants and chatbots have transformed customer experience and communication. They are powerful enablers in performing routine daily tasks and providing a personalised experience for customers. Physical presence and branch visits are slowly fading away as technology is empowering customers to use banking services with voice commands and touch screens with the comfort of doing transactions from home. The natural language technology based on artificial intelligence can process queries to answer questions, find information, and connect users with various banking services. This reduces human error, systemizing the efficiency.

- **Fraud and risk management:**

  Online fraud is an area of immediate concern for banks as they digitise at scale. Risk management at internet cannot be managed manually or by using legacy information systems. Most banks are now looking to deploy machine or deep learning and predictive analytics to examine transactions in real-time. Machine learning and artificial intelligence can play a crucial role in the bank's middle office. The primary uses of AI here include mitigating fraud by scanning and analysing various transactions for suspicious patterns in real-time, assessing clients for creditworthiness and enabling risk analysts with right analysis for curbing risk. AI has the ability to identify fraudulent activity in the real time behavior i.e. while it is happening, as well as identify what the next pattern of suspicious behavior will be by using location services.

- **Credit Assessment:** .

  Lending is a critical business for banks. AI can be used in several ways in the credit decision making process to make it more agile and efficient. One of the initial aspects in the lending decision is the validation of creditworthiness of individuals or businesses seeking loans. In fact, banks are nowadays looking at creditworthiness validation as one of their everyday applications of AI.

In case of corporate customer business, the path to a credit decision is much more complicated. At its core, lending decision making can be seen as a big data problem. Supplementary documents such as tax assessments, balance sheets or extracts from commercial registers must always be included in the analysis, in addition to the account data – a time-consuming process. AI applications are now enabled to extract and contextualize the relevant information from the respective documents, for instance, through optical character recognition and subsequent text analysis.

Additionally, the quantum of a loan is based on the value of the collateral and taking future inflation into consideration. The applicability of AI is that it can analyse all of these data sources together to generate a coherent decision. By employing AI systems that automate the underwriting process, the organizations avail more granular information to empower their decisions. From legitimizing a new customer who applies for credit, to choosing a suitable credit product or optimizing the credit check – the scope of artificial intelligence in the credit assessment is wide.

- Trading and Securities : .

  Robotic Process Automation (RPA) plays a key role in security settlement through reconciliation and validation of information in the back office with trades enabled in the front office. Artificial intelligence facilitates the overall process of trading, confirmation and settlement. Banks are also leveraging AI technology for reconciliations for over-the-counter derivatives, forex transactions, target balancing and notional pooling in cash and liquidity management and other such areas.

- **Meeting regulatory requirements:** .

  In the banking sector, supervisory organizations create and oversee the compliance rules that banks need to follow. These regulations are important for banks to carefully abide by. Non-compliance is resulting in large fines and in some cases can potentially result in even loss of banking licenses. AI-based software is helping banks and financial institutions to improve the accuracy in identifying the regulations that apply to them. AI based software are beneficial in augmenting the skills of

compliance officers to scale their operations in searching through digital documents and government websites. Banks could beneficially use AI software to automatically scour through the web and identify only the most relevant ones. AI technology can be used to ensure that regulatory requirements are met and that data is kept with monitoring done on a real-time basis. This can ensure that the regulations are followed in the spirit.

According to joint research conducted by the National Business Research Institute and Narrative Science, about 32% of financial service providers are already using AI technologies involving predictive analytics, voice recognition and others. Of many Indian banks, following 2 banks have gained media attention for their AI initiatives over the last few years:

State Bank of India (SBI): SBI the largest public-sector bank with 420 million customers has embarked on using AI by launching "Code for Bank", an AI based solution developed by Chapdex, for focusing on technologies such as predictive analytics, fintech/ block chain, digital payments, IoT, AI, machine learning, BOTS and robotic process automation. On the front desk, it uses SIA, an AI-powered chatbot developed by Payjo, a startup based in Silicon Valley and Bengaluru. SIA addresses customer enquiries instantly and helps them with everyday banking tasks just like a bank representative.

ICICI Bank: India's second-largest private sector bank ICICI has deployed software robotics in business processes across various functions of the company. These are created mostly in-house using features of AI Technology such as facial and voice recognition, natural language processing, machine learning and bots among others.

HDFC Bank: HDFC Bank in partnership with Bengaluru-based 'Senseforth', AI Research has developed an AI-based chatbot, "Eva" (Electronic Virtual Assistant). Eva like other AI based Chatbots can assimilate knowledge from thousands of sources and provide simple answers in micro seconds. Eva would be updated further to handle real banking transactions as well. HDFC is also experimenting with in-store robotic applications and has already launched a prototype robot IRA ("Intelligent Robotic Assistant").

YES Bank: Yes Bank in association with Gupshup, a bot platform, has developed 'YES mPower' – a banking chatbot for its loan product. At consumer banking front Yes Bank has partnered with Microsoft to strengthen its first of its kind, artificial intelligence-enabled chatbot, YES ROBOT, with advanced NLP engine and other cognitive services which are capable of understanding and resolving the evolving banking needs of customers.

Bank of Baroda (BoB): BoB have a chatbot named "ADI" (Assisted Digital Interaction) on their website, which is maintained by the IBM solution. Another use case of AI in BoB is in trade documents. They are introducing an engine capable of learning the regulations from the repository and examining the document to figure out various clauses and discrepancies and thus will ensure accuracy and will reduce the turnaround time. BoB has set up of hi-tech digital branch equipped with advanced gadgets based on artificial intelligence and Digital Lab with free Wi-Fi services.

Andhra Bank: Andhra bank have inducted a chatbot-ABHi which uses Artificial Intelligence and Natural Language Processing algorithm to comprehend the customer query and fetch the relevant information from possible database. Floatbot, a bengaluru-based AI startup, launched this AI Chatbot integrated with Core Banking Servers of Andhra Bank, to digitally engage and automate customer support for its 5 Cr customers. Floatbot is also working to develop a chatbot for 20K+ internal employees of Andhra Bank to automate onboarding and training.

Axis Bank: Private sector lender Axis Bank has launched 'Aha', a virtual assistant designed to help customers with their queries via artificial intelligence and machine learning algorithms. The chatbot has been launched in partnership with Singapore based tech firm, Active.A. Axis chatbot Aha can perform different actions ranging from fund transfer, bill payments, recharges etc. Aha is also capable of handling card limits, block credit and debit cards.

Canara Bank: The bank has launched two robots in their bank premises to handle the customer queries. The name of these robots is Mitra and CANDI. Mitra is developed by Invento Robotics, Bangaluru and CANDI is developed by Softbank, Japan. Apart from

performing the tasks of query handling the bot is capable to perform as a security guard. The bot has a HD camera and remains vigilant through the night.

Punjab National Bank: In 2018, the Punjab National Bank announced its plan to implement AI in account reconciliation as well as using analytics to improve its audit systems. The move came in after the infamous debilitating fraud of approximately INR 20K Cr, carried out by the pair of Nirav Modi and Mehul Choksi in February 2018, which almost paralysed the bank's operation for a short time.

IndusInd Bank: While most of the banks have used text based chatbots for enabling daily transactions, IndusInd bank has launched Alexa Skill, 'IndusAssist', using which bank account holders can conduct financial and non-financial banking transactions with Alexa, Amazon's virtual assistant using voice service.

City Union Bank: It launched the banking robot, Lakshmi which can interact on more than 125 subjects with customers. Apart from answering generic questions, the robot is also programmed to connect with the core banking solution to answer queries around interest rates on loans, checking the account balance and more.

AI Adoption by Banks: Underlying Challenges.

AI adoption in banking is simultaneously facing certain challenges in the process. Justice Srikrishna Committee while submitting its report has opined that a big challenge in regulating emerging technologies such as AI is that they may operate outside the framework of traditional privacy principles. RBI is thus expected to play a proactive and more dynamic role in framing regulations to balance the business interest of banks and at the same time ensure customer privacy and information protection. Also, with India yet to finalise its data protection and data privacy policy, the banks in India will have to build AI systems with privacy regulations in mind.

Other challenges being faced by banks in AI Adoption are:

- Availability of credible and quality data.
- Diversity of language set in Indian setup.

- Skilled engineers not readily available.
- Unavailability of employees with right data science skills.
- Internal ownership of testing emerging technologies is not defined.
- Long implementation timelines.
- Reliance on legacy platforms along with limitations in the budgeting process.

To overcome the above challenges for introducing and building an AI-enabled ecosystem banks need to follow incremental adoption methods by making use of the leveraging technologies. The essential part here is to make sure that this transition allows them to overcome the change management/behavioural issues.

CONCLUSION:

The changing dynamics of an app-driven world is making the banking sector to leverage AI and integrate it with the business imperatives. Banking and artificial intelligence are at a vantage position and are ready to unleash the next wave of digital disruption. AI-based decision-making can in future course help banks expedite workflow, reduce the volume of customer calls coming into the call centre, thus improving customer service. A user-friendly AI ecosystem is expected to create value for the banking industry. In such dynamic and competitive scenario, the ones to quickly innovate with technology, deploy AI and Robotics, have a robust cyber security program and are able to offer highly customized services and product offering based on customer's expectation will lead the pack.

(Disclaimer: "views and opinions expressed in the article are of the author and not of the Bank'')

References:

1. https://www.worldretailbankingreport.com/
2. https://narrativescience.com/Offers/The-Rise-of-AI-in-Financial-Services.
3. www.wikipedia.com
4. www.Stastica.com
5. https://www.goodworklabs.com/artificial-intelligence-in-banking-industry.