

## **E-BRAIN (ARTIFICIAL INTELLIGENCE): AN EDGE TO INDIAN BANKING SYSTEM**

**Ms. NaziaHasan**\*

**Dr. Satyendra Arya**\*\*

**Mr. AvinashRajkumar**\*\*\*

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### **Abstract**

Banks are automating their processes, migrating their infrastructure and applications to the cloud to create a seamless customer journey. Transformative technology has enabled banks and financial institutions to automate their operations based on advanced data-driven. Banks are adopting E-BRAIN based anti-money-laundering, anti-fraud, compliance, credit-underwriting and smart contracts technology in their operations. These applications have been embraced by the investment banks as regulatory framework is failing to combat conventional way in combating against money laundering. E-BRAIN will focus on cognitive application in functional areas of business along with investment and compliance sectors of financial services industry. Adopting E-BRAIN based anti-money-laundering, anti-fraud, compliance, credit-underwriting and smart contracts technology in their operations.

As the name suggests, E-BRAIN is the ability to copy from something that is natural, in terms of acquiring and applying knowledge and skills. Now this ability of copying is done by a machine or a computer. So, when a machine mimics a human mind by thinking for itself, it is known as E-

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\* **Assistant Professor, Department of Management Studies, TMIMT, Teerthanker Mahaveer University, Moradabad-Uttar Pradesh, India.**

\*\* **Assistant Professor, Department of Management Studies, TMIMT, Teerthanker Mahaveer University, Moradabad-Uttar Pradesh, India.**

\*\*\* **Assistant Professor, Department of Management Studies, TMIMT, Teerthanker Mahaveer University, Moradabad-, Uttar Pradesh, India.**

BRAIN. The computers are designed in such a way that they can perform many activities. Some of these activities are – Learning, Speech recognition, Perception, Planning, Reasoning, Problem solving and also the ability to operate and move objects around. Hence, E-BRAIN focuses attention on creating intelligent machines that operate and react like human beings. In today's modern world, all of us in some way or the other do make use E-BRAIN, be it on our cellular phones or computers. The paper seeks to explore the areas where the E-BRAIN is being used in the Banking Sector and its implication in the Indian banking system.

**Keywords:** E-BRAIN, Business Intelligence (BI), Technology Enabled Service (TES) and Indian Banking System.

### **Introduction**

The introduction of new technology has been changing the attire of banking. The brick and mortar banking is slowly giving place to click of the mouse banking. Technology is aiding globalization and integration of financial markets across the globe. Customer's expectations for new products and alternatives delivery channels have been rising. Banks are under pressure to offer today, what customers would be expecting tomorrow. Thanks to innovations and spread of new technology, banks today offer the customer a choice to conduct his business across the counter, over phone or via a computer. In the world of technology, E-brain or as the hot new buzzword calls it, E-brain is the rising star. E-brain is the go-to technology for almost all the companies around the world. Now, if E-brain is the hot subject on media and people around the world are talking about it, then there must be something about it that we need to know and understand. In this article we will discuss about E-brain and banking, how it is especially used in the banking sector, the application and the scope of e-brain in banking.

### **Review of Literature**

Information technology and Telecommunication play a significant role in the sustainability of any business focusing on amplification, simultaneous causality, and multi-dimensional trust have improved the future research on mobile banking payments (Donner & Tellez, 2008).

DeLone and McLean's model have been adopted to analyze the customer's satisfaction with the usage of mobile applications. System quality and information quality significantly influences the customer's satisfaction and trust (Lee & Chung, 2009).

Business strategies and technology are integrated to revamp the business model based on the core competencies to address the research account executives in offering direct interface from the business units directly (Chester, 1994).

Investments on the technology are very huge in quantum and its effects must be clearly considered before implementations the merits of such applications are intangible in nature and productivity can be valued in connection with economic value of the information technology (Brynjolfsson & Hitt, 2000).

Banks play a significant role in the economic development of any nation that influences in implementation of regulatory policies to monitor economic activities and economic growth which can be possible only with the sophisticated technology enabled solutions (Hariharan.R & Raja Jebasingh, 2016).

Information technology is highly successful when applied in the area of business process re-engineering to ensure the capabilities of their sustainability to compete and create an edge over others (Attaran, 2004).

Central banks can apply innovations to their banking practices and policies to obtain transparency and a framework facilitating the improvement in the efficiency and to curb fraudulent practices (Lagarde, 2018).

Global business calls for solutions offered at global level integrated with artificial intelligence creating a unified framework or policies in the areas like crypto currency, customized hacking at personal level legally, automation of business models etc. (Erdélyi & Goldsmith, 2018).

## **The Role of Banking Industry in India**

Banks play a very important role in the development of financial life of modern society. It is considered as the life blood of today's world economy because it handles cash, credits and other financial transactions. Banks help customers to track their expenditures over savings and motivate them to save money and earn interest for a safe future. This encouragement in turn helps the banks to provide financial assistance to the growth of big industries. Since, the banking industry plays such a major role in the development of world's economy it is very important that each and every financial transaction done through the banks must be properly documented. To do this, the banks primarily use computers, where they have a detailed record in their databases. Some of the various channels that banks use for their operations are through ATM's, mails, telephone banking, online banking and mobile banking. It is mind boggling to know that the entire banking system is so well connected that each and every transaction can be tracked and any exchange of information can be done from any part of the world just by connecting to these networks. This smooth operation of the banking world that is done through computers and networks is possible only because banks use Artificial intelligence or e-brain.

### **Objectives of The Study**

- 1) To study the areas where the E-BRAIN (artificial intelligence) is being used by the banks.
- 2) To study about the application of E-BRAIN (Artificial intelligence) in Banking Sector.

### **Banking Industry Analysis**

A banking industry analysis provides some keen insights into the working and growth of banking sector in India. Let us consider some factors that are involved.

#### **1. Robust Economy**

With liberalization in the 1990s, the Indian economy grew rapidly. Many multinationals have their operations in India. Outsourcing jobs from developed countries has created an additional job market in India. Our GDP percentage has continued to increase. A growing economy would require good banking services and would automatically contribute to the positive future of banking industry.

## **2. Education**

With education being stressed so much, Gen Y is not satisfied with just basic education. Most of them take on higher education, as well as go for specialized courses. Education helps them take on specialized jobs which also pay more. Increasing financial capabilities of individuals creates a demand for good banking services and thus contributes to the growth of banking sector.

## **3. Population**

The increase in working population has meant that more individuals have additional disposable income, resulting in the need for banking services. This is true not only with regard to cities but also with regard to rural population.

## **4. Operational Efficiency**

Technology has drastically improved the operational efficiency of the banking industry. This has made it possible for more individuals to open and operate bank accounts much more easily and has led to the growth of the banking sector in India.

## **5. Digitization**

Digitization has lowered operating costs and increased the profitability of the banks. This in turn has made it possible for banks to offer a higher rate of interest, which attracts customers.

## **E- Brain (Artificial Intelligence) in Banking Sector**

The most essential part of this industry is Artificial Intelligence in banking. It has a profound impact when the machine learning in banking industry can interact with humans by making decisions and in a convincing way encourage customers. The main aim of having Artificial Intelligence in the banking industry is to get insight into the customers preferences, to ensure that the customers are happy with the services provided by the banks and help the customers understand their expectations from the banks.

## **Application of E-Brain (Artificial Intelligence) In Banking**

When applications of Artificial Intelligence are installed in banks, they help in examining the data base effectively and make it easier for the banks to recommend, forecast and execute

tailored financial advice to customers. Through these applications, it is possible to gain quick information on financial strategies, loan rates and the future market progress.

### **1. Automation of Core Banking Methods**

Due to the digitalization and adoption of newer technologies, automation of most of the core banking processes has become the priority for the banking industry. The banks are moving towards faster and swifter solutions to improve back-office as well as front-end processes. This is important for digital transformation in the banking industry as well as to stay relevant in the banking space. Bringing change in their IT structures, banks are able to automate several important tasks that are essential to everyday functioning and improved customer experience. This trend has proven beneficial in bringing down the operation costs and improving efficiency.

### **2. Open Banking**

Open banking systems is the buzzword in the financial and banking industry. This technology focuses on improving customer experience in more than one way. Use of application programming interfaces (APIs) is imperative to define how financial data can be created, shared and accessed securely and efficiently. This technology forces the banks to be competitive with their counterparts. Hence, they are compelled to bring down the cost and implement improved technology for excellent customer care experience. This technology requires banks to be transparent with their online and internal banking information, which must be unbiased and accurate. Additionally, it helps lenders to analyze their borrowers' financial situation and the risks related to it.

### **3. Rise of Mobile Payments**

Among several digital banking trends and technologies, this one is the fastest growing and evolving. Mobile payments are the talk of the town and it is changing the way money is transferred, deposited and received. This technology became popular in Asia even before it was introduced in the west. Now, banks are adopting this technology to enable their customers to transfer money with ease to their friends and family. Besides, it is one of the key elements in the boom of the e-commerce industry. What makes it a secure way of payment when compared to debit or credit cards, is its ability to keep the information encrypted.

#### **4. Collaboration of Banks and Fintech**

The emergence of Fintech has changed the banking space. Banks are now forced to collaborate with these firms in order to stay in the competition. While some banks have already accepted the change, others are still struggling. The ones that have embraced the new trend, has experienced a few benefits like improved customer experience and reduced operation cost. The partnership between the two must emphasize on innovation, security and risk management. This is the only way banks will be able to keep up with consumer expectations in the era of rising technological innovations.

#### **5. Improved Online Lending**

Fintech has created a competition of sorts for the banks. In order to take the lead, banks are forced to improve their lending services. This means that they are compelled to become faster and quicker in approving loan applications from customers. To provide their customers with a good lending experience, banks are either collaborating with fintechs or improving their loaning systems. Not only that, these systems must be secure and protect the customer and their data. For which, the industry is relying upon multi-factor biometrics and block-chain technology.

#### **6. Rise of Blockchain-related technologies**

Block-chain technology is an emerging trend that began with crypto-currencies. It operates on the principles of computer science, data structures, and cryptography. Being the key component of the crypto-currency, it is said to be the future of digital transformation in banking and financial services. The industry is making increasing efforts in the adoption of this technology as it has great potential to eliminate the need of intermediaries for the approval of transactions, improving clearance and settlement systems, creation of a new crypto economy, and making loans and credits a safer space.

#### **7. Chatbots and Robo-advisors**

AI is the future of the banking industry. Through its various capabilities, AI-powered tools are improving customer experience and reducing banks' burden. Providing financial advice at an individual level has been a challenging task for the banks and financial institutions. Therefore,

robo-advisors are expected to play a significant role in providing solutions in wealth management, insurance and banking areas.

## **8. Big Data**

Data is king when it comes to financial and banking services. However, there must be a way to process it faster and more accurately so that it can be used to improve the services for customers, the efficiency of employees, generate error-free solutions, and thus save money and time. Big data analytics can help banks understand their customer behavior and expectations. Large sets of data can help reveal patterns and trends that play an important role in designing services and products for the clients.

## **9. Biometrics**

Security and safety are some of the biggest concerns of the banking industry because they are most vulnerable to cyber attacks and hacking. Several top industries are adopting biometric identity verification systems to ensure the safety of their information and other valuable assets. The banking industry is one of the first ones to adopt this emerging technology that is considered to be the most sophisticated security system to date. With the help of encrypted technology and multi-factor biometrics, it is predicted to make banking space highly secure and protect the database from leaks, attacks, and other unethical practices.

## **10. Wearable**

Wearable technology or accessories are a part of digitalization in banking. These devices are expected to bring about an enormous change in financial and banking services. Smart watches, smart hearing devices and smart glasses are just the beginning. There is more to come with smart clothing, fitness trackers and shoes. These wearable technologies matter to the banking industry because they are expected to primarily revolutionize the retail banking experience. Customer identity, customer behavioral data, and customer expectations are predicted to be its biggest contribution to the digital banking ecosystem.

## **Benefits of E-Brain (AI) in Banking Industry**

Today the banking industry uses E-BRAIN (Artificial Intelligence) in many ways to shape the world of banking life.

### **Customer Satisfaction**

Customer satisfaction is the first and the foremost important factor of any bank around the world. The banks provide personalized and more efficient services to each and every individual customer. Artificial intelligence helps in increasing revenue, faster decision making and having a good customer relationship. Having Artificial intelligence not only ensures that the customers are happy but it also helps the banks to maintain and have a well organized back office.

### **Chatbots**

Bot is the short form of Robot, and so chatbot is an automated chat program that is either run automatically or follows a pre-determined path. Chatbot is a way of using Artificial Intelligence in the form of robotics in banking. This tool is very helpful in the banking industry because people are so caught up in their daily jobs that it becomes very difficult for them to be physically present at the bank. Most often it happens that when people are free, the banks are closed or it is a weekend and during late hours' banks don't work. Money can be required at anytime and at any place and this is where chatbots come handy as they are available 24/7. Chatbots are a smart way of providing efficient customer service. It helps customers know their transaction details and also additional services that they are eligible to receive. Through the use of chatbots, banks are able to understand each customer's requirements and give them the right offers or even reward them.

### **Detecting Fraud**

Banking related fraud is one of the most fearful concerns among people and the banking industry. Especially when a financial fraud occurs, the affected individual finds it very difficult to cope and recover from financial losses. However, the good news is that whenever there is a fraud transaction noticed in a bank statement and if it is immediately brought to the attention of the bank, then the bank authorities immediately step in and take necessary action to handle the incident in a very organized manner. This quick response from the bank has helped the

customers to build their trust with the bank as well as it helps the bank also to retain their loyal customers.

## Conclusion

When the digitization in banking industry becomes mature, we can imagine a scenario somewhat like what we experience with the World Wide Web today. Banks will lose their individual identity because to the customer they will all be interconnected and will provide all their services online. No more physical trips to the bank, no more bank counters, and so on. Instead customers will access all banking services and do all their banking activities over the internet, in the comfort of their homes or offices.

Emerging trends of AI comprises of Lean and Augmented Data Learning, Generative Adversarial Networks, Deep Reinforcement learning, Capsule Networks, and Deep Learning Theory. Chatbots and Artificial Intelligence algorithms are the innovative techniques adopted by banks for better customer service experience.

The future of Indian banking sector in INDIA is bright because we have seen them take on technology, innovate its use, and improve their customer services with digitization. Recent developments in the banking sector give us confidence in the growth of banking sector in India.

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