

# THE EVOLUTION OF DIGITAL BANKING: TRANSFORMING THE FINANCIAL LANDSCAPE

Geetanjali\*

*Assistant professor of Commerce  
C. H. L. Govt. College, Chhara (Jhajhar), Haryana, India*

*Email ID: geetanjalisrcc@gmail.com*

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## Abstract

*No matter the country, the banking and financial sector is always going to be an extremely important part of any economy. The banking and financial sector's capacity for effective operation and overall health are of critical importance to the development of the economy as a whole. The financial sector is one of the many that has seen the gradual emergence of digital technology as an essential component throughout the course of time. In recent years, banks and other financial institutions have shown a growing interest in adopting digital banking as an essential component of their day-to-day operations. This transition has sparked a revolution in their digital banking infrastructure, with large investments being made in workforce innovation, data utilisation, sophisticated analytics, and other key aspects of the business.*

## Paper Identification



*\*Corresponding Author*

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## Introduction:

The importance of money in day-to-day living cannot be overstated. Coins, paper cash, credit cards, the universal payment interface (UPI), and now block chains are all part of the progression

of money. The client finds the newer trends of transactions simple and comfortable owing to the increased flexibility of time, and this is contributing to the quick growth of these trends. The banking sector saw a number of different technical improvements as a direct result of the implementation of technology into the system. Some instances of the transition away from conventional banking systems and towards technology banking systems include internet banking, mobile banking, and the creation of organisations that specialise in fintech.

In this article, we are going to discuss “the most current developments that are used in the banking and financial sector in order to make the industry more efficient. These developments are what we refer to as trends.”

### **Digitization**

Because of the fast advancement of technology, digital services have become an essential component of banking operations. This is because financial institutions are required to adapt quickly to new developments and implement innovations that make services more user-friendly. The 1980s saw the beginning of the first stage of digitization in India, which occurred when fundamental tasks like customer service and accounting were performed with the use of information technology. In time, fundamental banking systems were also implemented to help enhance the overall experience for customers. The most significant change took place in the 1990s, when liberalisation opened up the market in India to the rest of the globe. The introduction of new private as well as multinational financial institutions fueled rapid technical advancements within the banking industry. Customers are now able to make use of banking services from almost any location because to innovations such as internet banking, immediate payment service (IMPS), real time gross settlement (RTGS), and telebanking.

### **Mobile banking**

“Mobile banking is a service that banks provide their customers to make it easier for them to conduct financial transactions using mobile devices such as smartphones, tablets, and other similar devices”. Mobile banking enables users to conduct financial transactions whenever and wherever they want. Mobile banking provides a higher level of protection than online banking does. “Mobile banking can only be done from a single device (a smartphone or tablet) that has a SIM card and whose phone number is already associated with the bank account.” This number must be entered into the mobile banking app. In order to commit fraud using internet banking, a hacker needs to install logging software on their computer in order to steal the user name and password of the target. On the other hand, in order to commit fraud using mobile banking, the fraudster needs to steal the target's mobile phone along with the registered sim card. This makes

it more difficult for the fraudster to commit the crime. Because of this, banking through mobile device is more secure than banking online. The ability of financial institutions to provide mobile banking services on any kind of mobile device is a significant obstacle for the industry.

Using mobile banking, customers have access to a variety of services, including access to their statements, the opening and monitoring of fixed deposits, the transfer of cash, and a variety of other financial services.



Figure 1. Mobile banking Services concept

### **Blockchain**

Even though it is still in its infancy, blockchain technology offers a great deal of potential as a useful instrument. When it comes to the provision of digital services, maintaining data security is of the utmost importance. Even if there have been advances in technology, fraudulent acts are still prevalent in the digital realm. Enter blockchain, the technology that will solve all of these problems. “Blockchain, also known as distributed ledger technology (DLT), is a technology that was developed via a combination of computer science, data structures, and encryption.” It offers an unchangeable and transparent history of digital assets.

Imagine a Google Doc as a useful comparison to better understand the complexities of blockchain technology. When we create a document and then share it with other people, the document is not copied or transferred; rather, it is disseminated. This decentralisation results in the formation of a chain of distribution, which in turn provides all users with simultaneous access to the material. Nobody is prevented from making modifications because they are required to wait on other people, and the history of the document may be seen at any moment. Because of this openness, the process for making changes is more open and easily accessible. Blockchain is an innovative and possibly beneficial technology that removes the possibility of fraud entirely.

The blockchain system is built on three essential building blocks: the blocks, the nodes, and the miners. Blockchain technology has the ability to revolutionise many different sectors while also reducing the dangers connected with fraud due to the fact that it is decentralised and secure.



Figure 2 Basic Block Chain Technology

**Blocks** - Each and every chain is made up of several blocks, and these blocks are comprised of three Basic components which are following:

- ❖ The information included into the block.
- ❖ “A full number that has 32 bits and is known as a nonce. The nonce is produced at random during the process of creating a block, which also results in the production of a block header hash”.
- ❖ The hash is an integer with 256 bits that is coupled with the nonce. That is, it must be of an exceedingly to low value.

The cryptographic hash of the first block that is added to a chain is produced by a nonce at the time of its creation. Unless it is mined, “the data included in the block is deemed signed and will remain permanently attached to the nonce and the hash.”

**Miners** – “Mining is the method through which new blocks are added to the chain. Miners are responsible for this. Since each block in a blockchain has its own nonce and hash that are completely unique to that block, as well as a reference to the hash of the block that came before it in the chain, mining a block is not a simple task, particularly on big networks.”

Miners make use of specialised software in order to discover a solution to the exceedingly difficult mathematical issue of finding a nonce that may produce a valid hash. Because there are

only 32 bits in the nonce and 256 bits in the hash, there are about four billion different potential combinations of nonce and hash that need to be mined before the correct one can be identified. “When this occurs, miners are considered to have discovered the golden nonce, and their block is added to the chain of blocks that have already been mined”. When you make a modification to an earlier block in the chain, it is necessary to re-mine not just the block that contains the modification, but also all of the blocks that follow it. Because of this, it is incredibly difficult to manipulate technology based on the blockchain. You may think of it as “safety in maths” due to the fact that discovering golden nonces demands a significant amount of time and processing resources. When a block is mined successfully, all of the nodes in the network will agree to the new state of affairs, and the miner will get monetary compensation for their efforts.

**Nodes** - When it comes to grasping blockchain technology, having a solid grasp of decentralisation is very necessary. There is not a single machine or organisation that can legitimately claim ownership of the blockchain. Instead, it functions as a distributed ledger that is made available to all of the nodes that are linked. These nodes may be any electrical equipment that is capable of keeping copies of the blockchain and guaranteeing that the network is operating effectively and efficiently. Every node keeps its own separate copy of the blockchain, and in order for a freshly mined block to be trusted, changed, or confirmed, it has to be approved by the network as a whole using an algorithm. Because blockchains are inherently transparent, it is possible to easily analyse and monitor each transaction that is recorded on the distributed ledger. Each participant is given a one-of-a-kind identification number that is a combination of letters and digits, and this number may be used to keep tabs on the member's various financial dealings.

Users are more likely to trust one another and the blockchain as a whole when it has both publicly available information and a mechanism that double-checks and triple-checks transactions. Blockchains, in their most fundamental form, may be seen as the scalability of trust enabled by technological means.

### **Unified Payment Interface (UPI)**

UPI, or the Unified Payments Interface, has emerged as a game-changing trend in recent years, revolutionising the method by which we make payments and receive money. Transactions may be completed in a matter of seconds with the help of this interface. Access to the Unified Payments Interface (UPI) is provided by significant nationalised and private banks in addition to widely used apps like Google Pay, Phone Pe, Paytm, and BHIM (Government of India), which together make it possible to make prompt payments even in the absence of actual cash. The UPI

system enables users to access various bank accounts via a single mobile application, regardless of the bank that is participating in the system. This unification makes it easier to perform a variety of banking operations, including streamlined financial transfers and payments to merchants. In addition to this, it provides the versatility of "peer-to-peer" collection requests, which enables users to plan their payments and customise them in accordance with their own preferences. The NPCI carried out a trial launch with 21 of its member banks in order to kick off the process of UPI implementation. On April 11, 2016, the pilot programme was launched in Mumbai under the direction of Dr. Raghuram G. Rajan, who is the Governor of the Reserve Bank of India. Following this, banking institutions started submitting their mobile apps that were equipped with UPI to the Google Play Store on August 25, 2016, and the process is still ongoing.

#### Uniqueness of UPI:

Instantaneous money transfers are possible 24/7 throughout the year when using a mobile device, regardless of the time of day or night. Access to several bank accounts may be gained via a single mobile application. Single-Click Two-Factor Authentication is compliant with regulatory requirements while also delivering the practical benefit of frictionless one-click payment processing. By making use of a client's virtual address, the pull and push method contributes an additional layer of security to the system. Because of this, there is no longer a need to input sensitive information such as credit card details, account numbers, IFSC codes, or QR codes. The use of a single application or in-app purchases makes it possible for merchants to receive payments. In addition to that, users may submit complaints in a direct manner using the mobile app.

#### Affiliates of UPI:

“Payer PSPs, Payee PSPs, Remitter Banks, Beneficiary Banks, the National Payments Clearing Institute (NPCI), Bank Account Holders, and Merchants”

#### Advantages of UPI for the many actors in the ecosystem:

Banks – “Authentication with a single click using two different factors, Universal Application for business and financial transactions, Using the infrastructure that is already in place, More Secure, Cutting-Edge, and Pioneering, Payment base Single/ Unique Identifier, Enable frictionless merchant transactions”.

Merchants - “Effortless collection of funds from individual clients using unique IDs, There is no possibility of the customer's virtual address being stored, as there is with Cards. Customers who do not own credit or debit cards should be tapped. suited for both electronic commerce and mobile commerce transactions, The issue with the collecting of COD has been fixed”.

Customers - Availability at any time of day or night, Integrated Application for Access to Multiple Bank Accounts, Utilisation of the more secure Virtual ID; there is no exchange of credentials; Authentication with a single click, etc.

### **Artificial Intelligence (AI) Robots**

A significant amount of time has passed since the idea of "artificial intelligence" was first conceived. "It was first presented in 1955 as an area of computer science, and it focused on the idea of building intelligent machines" capable of mimicking human cognitive capacities like learning and problem-solving. The term "artificial intelligence" was coined in the 1980s to describe this concept. The phrase "intelligent machines" was first used in the same year as the invention of intelligent machines. It is anticipated that the transformational influence that the internet has had over the course of the previous several decades will be surpassed by the effect that artificial intelligence will have across a variety of business sectors. The world's governments and corporations are spending the billions of dollars to fund the research and the pilot programmes with the goal of using artificial intelligence to solve real-world situations that cannot be satisfactorily handled by the technologies that are now available. Banks are able to process vast amounts of data at rapid speeds with the assistance of artificial intelligence, which enables them to acquire useful insights. The delivery of high-quality services to a larger consumer base is made possible with the use of biometric fraud detection systems, artificial intelligence bots, and electronic payment systems. The word "artificial intelligence" refers to a broad variety of computing techniques, some of which are as follows: machine learning; natural language processing; expert systems; vision; speech; planning; robotics; and others. Because artificial intelligence (AI) has the ability to improve the effectiveness and efficiency of operational processes, the COVID-19 pandemic has expedited the adoption of AI throughout enterprises. Additionally, the role of artificial intelligence will be more significant as businesses work to automate processes and extract more insightful data from datasets affected by COVID-19. It is also possible to harness it to improve the experience of stakeholders.

The following are some significant uses of AI:

- ❖ Customer service/engagement (Chatbot)

"Chatbots provide a very high return on investment (ROI) in terms of cost savings, which is one of the reasons why they are one of the most widely employed applications of AI across all sectors." Chatbots are able to efficiently handle the majority of the activities that are often accessible, such as checking balances, viewing mini statements, making cash transfers, and so

on. This serves to relieve some of the strain placed on other channels, such as customer service call centres, online banking, and so on.

#### ❖ Robo Advice

Within the realm of financial services, one of the most contentious debates is the use of automated guidance. The goal of a Robo-advisor is to get an understanding of a client's financial health by analysing the data that the client provides, in addition to the client's financial history. The Robo-advisor will be able to make suitable investment recommendations in a certain product class, even getting as detailed as recommending a particular product or stock, based on the results of this study and the objectives that the client has established for themselves.

#### ❖ General Purpose / Predictive Analytics

“General-purpose semantic and natural language applications as well as extensively applicable predictive analytics are examples of one of the most prevalent use cases for artificial intelligence.” Artificial intelligence has the ability to recognise certain patterns and correlations hidden within the data those older technologies were unable to recognise. These patterns might imply unmet sales prospects, potential to cross-sell products, or even measures based on operational data, all of which could have a direct influence on the company's income.

#### ❖ Cybersecurity

The use of artificial intelligence (AI) has the potential to significantly increase the effectiveness of existing cybersecurity infrastructure. AI has the ability to proactively predict and block assaults because it can draw on data from previously experienced security risks and analyse apparently unconnected patterns and signs. It is able to perform an efficient monitoring of internal risks and breaches, offering suggestions for corrective measures to be taken in order to avoid the theft or abuse of data. In addition, AI has the potential to play a significant part in the prevention of potential external dangers from materialising.

#### ❖ Credit Scoring / Direct Lending

Analysing data from a broad variety of conventional and non-traditional data sources is one of the most important roles that AI plays in the process of assisting alternative lenders estimate the creditworthiness of customers. Even for those people or companies with a low credit history, this makes it easier for lenders to design new methods for lending that are supported by a comprehensive credit rating model.



## **Fintech Companies**

Fintech, often known as financial technology, is unquestionably a factor that is driving significant change in the industry. As a result of the shifting landscapes in the Indian financial industry, a substantial number of new enterprises have developed as important components of this ecosystem. Fintech firms are those that focus on the development of technological solutions that assist businesses in managing the financial elements of their operations. These solutions may take the form of new software, apps, procedures, and business models. During the last ten years, there has been a dramatic growth in the amount of money invested in financial technology businesses, which has resulted in the sector's transformation into a worldwide industry worth multiple billions of dollars. In the year 2021, financial institutions sped up the process of transforming traditional banking into digital banking by spending their money and resources in areas such as data and advanced analytics, innovation, and envisioning a new workforce. In light of the epidemic, financial institutions and fintech companies have been hard at work revising their business models and approaches in order to improve the quality of service they provide to consumers while reducing the amount of money spent on doing so. The regional banking obstacles that existed between urban and rural locations throughout the nation are being resolved as a result of these actions.

“Hyper personalisation, new core banking platforms, open banking, banking-as-a-service (BaaS), and embedded finance” are the trends that have the highest probability of being embraced by banking and fintech firms in the near future.

## **Digital-only Banks**

Banks that are exclusively digital conduct their business only via the use of digital platforms that may be accessed through digital devices such as mobile phones, computers, and tablets. Digital-only banks follow a strategy that eliminates the need for paper transactions and physical branches, and they are expected to replace the conventional banking system in the near future. These financial institutions provide a banking facility that is both high-speed and low-cost for customers. These online banking services are the best option for keeping up with today's fast-paced environment.

## **Conclusion:**

Because of our ever-increasing reliance on mobile devices and the internet, the banking industry will inevitably have to become digital in order to meet the ever-rising standards set by the rest of the world. The need of people for the ordinary, day-to-day financial transactions will become less necessary as a result of digitalization. It provides a higher level of convenience, which in

turn enables enterprises to operate independently regarding their schedules. Using the many different alternatives that are accessible via digital banking, one is able to automate the process of paying bills for utilities and making payments on insurance policy premiums. Using digital banking has made it easier to make payments for services like Ola and Uber, as well as recharge mobile phones. The process of purchasing train tickets has also been revolutionised by the digital payment system. Because it utilises digital technology, banking may now be done at any time and from any location. The convenience that comes from having access to a wide range of features inside digital banking makes life simpler for customers. The efficiency of today's cybersecurity systems may be significantly improved by the use of artificial intelligence (AI), which has this capability. It is able to proactively forecast and stop assaults since AI has the potential to analyse data from previous security issues and find patterns and signs that may at first glance seem to have no connection to one another. Because AI is so effective at monitoring internal threats and breaches, it is able to make helpful suggestions for remedial steps, which in turn helps to avoid the theft or abuse of data. Furthermore, there is reason to believe that AI possesses the ability to successfully forestall the materialisation of possible external dangers.

#### References:

1. Anil Lamba, "Uses Of Different Cyber Security Service To Prevent Attack On Smart Home Infrastructure", International Journal for Technological Research in Engineering, Volume 1, Issue 11, pp.5809-5813, 2014
2. Raghavendra Nayak "A Conceptual Study on Digitalization of Banking - Issues and Challenges in Rural India", International Journal of management, IT and Engineering, 2018.
3. K. Suma Vally and K. Hema Divya "A Study on Digital Payments in India with Perspective of Consumer's Adoption", International Journal of Pure and Applied Mathematics, 2018.
4. Anthony Rahul Golden S. "An Overview of Digitalization in Indian Banking Sector", Indo - Iranian Journal of Scientific Research (IIJSR), October -December, 2017.
5. Santiago Carbo -Valverde "The Impact on Digitalization on Banking and Financial Stability", Journal of Financial Management, Markets and Institutions, 2017.
6. Ling, T., Chai, S., & Poon, Y. (2019). Exploring factors influencing consumers' intention to adopt digital banking in China. *Journal of Internet Banking and Commerce*, 24(2), 1-21.
7. Karjaluoto, H., Jayawardhena, C., Leppäniemi, M., & Pihlström, M. (2018). Understanding the adoption of mobile banking services: A consumer-centric approach. *Journal of Financial Services Marketing*, 23(2), 95-107.

8. Sathye, M. (2019). Adoption of internet banking by Australian consumers: An empirical investigation. *International Journal of Bank Marketing*, 37(1), 170-185.
9. Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2017). Social media in marketing: A review and analysis of the existing literature. *Telematics and Informatics*, 34(7), 1177-1190.
10. Choi, S. Y., Stahl, F., & Whinston, A. B. (2017). The effect of perceived privacy risks on users' adoption of location-based services. *Decision Support Systems*, 96, 77-88.
11. BCG. (2020). The Future of Digital Banking: What Customers Want. Retrieved from <https://www.bcg.com/publications/2020/future-digital-banking>
12. Deloitte. (2020). Global Digital Banking Consumer Survey: Enhancing Customer Experience through Open Banking. Retrieved from <https://www2.deloitte.com/global/en/pages/financial-services/articles/global-digital-banking-consumer-survey.html>
13. McKinsey & Company. (2021). Banking on the Future: Winning in Digital Ecosystems. Retrieved from <https://www.mckinsey.com/industries/financial-services/our-insights/banking-on-the-future-winning-in-digital-ecosystems>
14. Accenture. (2021). Banking Technology Vision 2021: Leadership in the Digital Ecosystem. Retrieved from <https://www.accenture.com/acnmedia/PDF-139/Accenture-Banking-Technology-Vision-2021.pdf>
15. PwC. (2020). Global Digital Banking Consumer Survey 2020: Covid-19 Edition. Retrieved from <https://www.pwc.com/gx/en/industries/financial-services/banking-capital-markets/digital-banking-consumer-survey.html>

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