

Banking 4.0: Recent Trends of Digitalization in the Present World

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Abstract- Customer preferences and expectations have changed as a result of the banking industry's use of digital technology. The primary goal of the study is to understand how digitization have affected e-banking services. The relationship between the bank and its customers has typically been one-to-one. Curiously, the Indian government has been taking numerous actions to introduce technological developments in the country's banking industry. The consumer response has been extremely positive to the introduction of debit cards, credit cards, NEFT, RTGS, Jan Dhan Yojana, White label ATMs, Mobile banking, Internet banking, and many other significant initiatives to improve banking in India. These varied digital products assist the businesses (service providers) in enhancing their company performance and maintaining market competitiveness. In order to boost their profitability, strengthen their financial position, and enhance performance, they also help to increase market share. They all point out that despite the recent ten years of significant technical improvement in Department of Financial Services (DFS), the element influencing the firm's performance and profitability in academic literature has not received the appropriate attention. A growing number of people are using and accessing the financial services offered by banks thanks to developing new technologies like app banking and mobile wallets.

Keywords- Banking, Innovations, Digitalization, Financial services

I. INTRODUCTION

1. "Digitalization Isn't about What Happens to you, It's About How You Respond to What Happens to You" —Jay Samit

Banks all across the world are moving toward digitization, which is the current term in the banking industry. Banks of all sizes and in all regions are investing heavily in digital initiatives to maintain a competitive edge and provide the best service possible to their clients. Data analytics and intelligence brought about by digitalization enable banks to reach out to customers. Following the

nationalization of 6 large scheduled banks in April 1980 and 14 big scheduled banks in July 1969, the Indian banking sector had a period of financial development. The future of Indian Bank is exciting but also transformational in the 1990s. India's banking sector may rank third globally by 2025 and now the fifth-largest in the world in 2020. Indian banks employed technology-based solutions to improve customer experience, increase revenue production, streamline cost structures, and control organizational risk. However, there has been a significant shift in the competence and applicability of technology across the many financial industries.

Many formerly convenient items and services have now become absolutely necessary as a result of the pandemic. Banking, which previously mostly entailed customers visiting brick and mortar locations, increasingly draws interest and requests online. To put things in perspective, during the pandemic (2020), the total amount of digital transactions was somewhere around \$5.2 trillion.

We are currently at the beginning of what we refer to as Banking 4.0 in the development of the Banking, Financial Services and Insurance (BFSI) sector. Banking 4.0 sees the emergence of these cutting-edge and in-demand technologies in its operations and infrastructure, much like the industry 4.0 buzzword, which is marked by the arrival and influence of emerging technologies like Artificial Intelligence (AI), Machine Learning (ML), data science, cloud computing, cyber security, and more.

II. EVOLUTION OF BANKING

The evolution of banking follows like Banking 1.0, Banking 2.0, Banking 3.0 and Banking 4.0.

Banking 1.0: The traditional banking concept which included physical locations and branches and entailed clients engaging in very analogue transactions. Historically, the branch served as the main access point for traditional banking began in the 12th century with the Medici dynasty.

Banking 2.0: With the early adoption of the internet, Banking 2.0 moved away from the need for a teller or a clerk and into the world of self-service banking. The introduction of self-service banking, which were characterized by early attempts to offer access outside of bank operating hours. Started with ATMs and picked up speed in 1995 with the advent of the commercial internet.

Banking 3.0: This age uses digital technology and devices, such as mobile devices and applications, to give a completely new variety of banking experiences, adding a layer to self-service banking. In addition, personalized banking is now available. The Smartphone's introduction in 2007 and the

subsequent transition to mobile payments, peer-to-peer networks, and challenger banks built on top of mobile, which are channel agnostic, revolutionized banking when and when the one needed it.

Banking 4.0: This phase would be entirely digital, mobile-first, and low-overhead. The book by Brett King is even titled "Banking Everywhere, Never At A Bank for the uninitiated". Customers will therefore no longer encounter generic goods that adhere to a one-size-fits-all philosophy, but rather more individualized services and offerings made to satisfy their unique needs and expectations. Banking that is embedded everywhere and given instantly through the technological layer characterized by frictionless engagement, real-time, contextual experiences, and a sophisticated, AI-based advising layer. Omni-channel largely digital with no need for physical distribution.

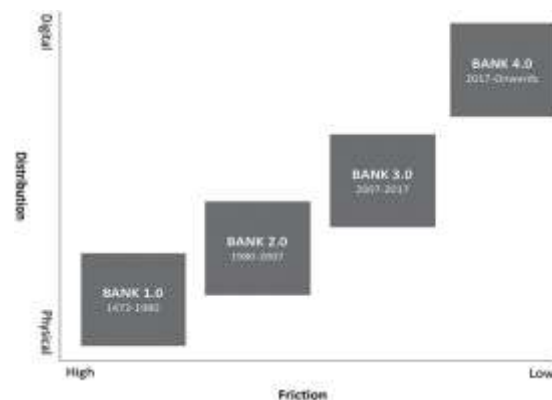


Figure 1: Evolution of Banking

Considering the most individualized credit system that provides you with buy-now-pay-later options depending on your credit score, transaction and purchase history, payscale, and other factors. Alternatively, possibilities for insurance premiums based on the driving history and record. This also entails a more proactive strategy for addressing real-world issues and prompt conflict resolution through growing employment of AI, ML, and data science. The phrase "digital first" won't just be used in policy documents anymore; it will also apply to actions and implementations. This means that the BFSI will see more applications of AI to improve administrative procedures, systems, and workflows in addition to optimizing consumer experiences.

Where do Humans Stand in Banking 4.0?

Although it might initially seem that humans have no place in this environment, the opposite is actually true. People were terrified that their employments were in jeopardy as first-generation computers replaced typewriters. When spreadsheets came, a same scenario transpired. The main argument here is that new technologies have increased the number of specialized job types rather than eliminating them. People have been compelled to change and learn new abilities as a result, which has turned out to be profitable and advantageous in the long term.



Figure 2: Digitalization of Banking

The ecosystem for Banking 4.0 would require specialists with knowledge and experience in

- Building and deploying AI, ML (Artificial intelligence/ Machine Learning models) and automation processes
- Designing banking services for the cloud and at scale are all necessary steps toward creating a secure environment for customers.
- Using Blockchain technology can be used to secure and protect data through decentralized identity and other privacy mechanisms.
- Data science to discover vital operational and customer insights
- Creating a cybersafe environment for clients by implementing strict cyber security procedures

Additionally, human capital is necessary for organizations to introduce a digital-first culture,

scale existing (and legacy) systems for efficient operations, and easily move to advanced systems. Without enough human assistance, accomplishing all of this will be a mammoth undertaking. Globally over the past thoughts we are currently experiencing periods of massive change, which makes it important to consider where the skills and competencies of our workforce should stand within this development.

III. RECENT TRENDS IN BANKING 4.0

1. E-Cheques, or Electronic Payment Services

We frequently hear the terms "e-government," "e-mail," "e-commerce," "e-tail," etc. today. In a similar vein, a new technology is being developed in the US to enable the introduction of electronic checks, which will eventually replace traditional paper checks. India has already revised the Negotiable Instruments Act to incorporate truncated checks and electronic checks as a precursor to the adoption of e-cheques.

2. Real Time Gross Settlement (RTGS)

Real Time Gross Settlement (RTGS) is a system that allows banks to electronically tell one bank to transfer money to another bank's account in real time. It was first introduced in India in March 2004. The RBI maintains and runs the RTGS system, which offers a way for banks to move money quickly and efficiently, facilitating their financial operations. As the name implies, money is transferred between banks in "Real Time." As a result, funds can be transferred to the beneficiary immediately, and the beneficiary's bank must credit the beneficiary's account within two hours.

3. Electronic Funds Transfer (EFT)

A person can go to their bank and make a cash payment or offer instructions/authorization for money to be sent straight from his own account to the bank account of the recipient or beneficiary via the Electronic Funds Transfer (EFT) system. To ensure that the funds are transferred correctly and quickly to the beneficiaries' accounts, complete information such as the recipient's name, bank account number, account type (savings or current account), bank name, city, branch name, etc. should

be provided to the bank at the time of requesting such transfers. EFT is a service offered by RBI.

4. Electronic Clearing Service (ECS)

In particular, when each payment is repetitive and of a relatively small value, the Electronic Clearing Service is a retail payment system that can be used to make bulk payments/receipts of a similar sort. Instead of being used for private cash transfers, this facility is designed for businesses and government agencies to send/receive massive amounts of payments.

5. Automated Teller Machine (ATM)

Automatic Teller Machine is the most popular device in India, which enables the customers to withdraw their money 24 hours a day 7 days a week. It is a device that allows customer who has an ATM card to perform routine banking transactions without interacting with a human teller. In addition to cash withdrawal, ATMs can be used for payment of utility bills, funds transfer between accounts, deposit of cheques and cash into accounts, balance enquiry etc.

6. Point of Sale Terminal

A magnetically encoded plastic transaction card that identifies the customer to the computer and a point-of-sale terminal that is connected online to computerized customer information files at a bank are both known as POS systems. During a transaction, the computer debits the customer's account and credits the retailer's account with the purchase amount.

7. Telebanking

The customer can conduct all of their non-cash related banking through telephone thanks to telebanking. Automatic Voice Recorder is utilised with this device for simpler inquiries and transactions. Mandated phone terminals are used for complex inquiries and transactions.

8. Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) is the electronic interchange between trading partners of legal documents such as purchase orders, invoices, shipping notifications, receiving advices, etc. in a

standardized, computer-processed, and widely recognized format. Electronic financial information and payments can also be transmitted through EDI.

IV. NEW INNOVATIONS IN BANKING

4.0

As banks recognize the need for digital technologies like mobile, analytics, and telepresence to satisfy consumers' rapidly changing demands, there have been new ways for innovation in the financial sector in recent years. Here are a few recent developments in the banking industry:

1. Biometrics Technology

A person can be uniquely recognized using biometrics by assessing one or more distinctive biological attributes. In addition to fingerprints, biometric authentication also uses hand, DNA, retina, ear, and face traits. PIN codes and passwords may no longer be required thanks to biometric technologies. The BBC reports that voice and touch recognition security services are being introduced by Hongkong and Shanghai Banking Corporation (HSBC) in the UK. In 2014, Barclays increased security as well by introducing finger scanning for authentication of significant transactions.

2. Facial Recognition Technology

A Facial recognition technology is a new computer programme that can recognize or confirm a person from a digital image or a video frame from a video source. However, there are many different methods of verification that banks and payment companies need take into account. E-commerce company Alibaba thinks that payments might be performed while grinning. The first company to use facial recognition technology is HSBC.

3. In-Car Applications

Caixa Bank, a Spanish financial institution, has developed the first mobile banking application that can be used while driving and has voice control. The Linea Abierta BASIC technology that powers the CaixaBank app. By speaking into their Android device, drivers may check their balances, make transfers, find local branches, and find ATMs.

4. Smart Watches

Whether it's a Samsung Gear or an Android Wear smart watch, banking transactions may be completed on them. Not just large private banks and international financial institutions have created apps for smart watches that work with all popular mobile operating systems, such as Scotia Bank and Deutsche Bank. However, certain private Indian banks, like ICICI, AXIS, and HDFC, have released smart watch apps.

Table 1: Smart watch apps installed by Indian Banks

Name of the bank	Name of the smart watch app
SBI Bank	SBI wear
HDFC Bank	Watch Banking
ICICI Bank	iWear

5. Google Glass Technology

Banco Sabadell of Spain was one of the first financial institutions to develop a retail Google app that let customers find the closest ATM, check their account balances, and use video conferencing for technical support. Caixa Bank, a Spanish financial institution, has already created a Google Glass application. The voice recognition system is used to obtain information such as distance and phone number of the closest branch, as well as superimpose directions to that branch onto the Glass screen.

6. Robotics

Bank of Tokyo-Mitsubishi UFJ introduced a customer service humanoid robot at its flagship Tokyo location as a first step toward hiring nonhuman Staff. The robots can analyse consumer behaviour and facial expressions while also providing basic customer care responses in 19 different languages. Robotics software has been adopted by ICICI Bank, the largest private lender in the nation. More than 200 software robots currently carry out more than ten lakh transactions for the bank each day, accounting for 10% of all transactions.

7. Augmented Reality (AR) Apps

Using various technologies, augmented reality (AR) is a technique of enriching and improving your vision of the real world. It is the real-time blending of digital data and the environment of the user. The launch of an augmented reality app for mobile devices was announced by Australian Bank. This technology was also implemented by the Commonwealth Bank of Australia and St. George Bank Australia.

8. Beacon Technology

Bluetooth beacons deployed in banks to combine physical and mobile channels, establish a new style of contact and effective communication, and give consumers a satisfying and personalized experience. One of the first banks to use all of these technologies is Barclays.

9. Oculus Rift

Combining cutting-edge display technology with an accurate, low-latency constellation tracking system, Rift creates a presence-like experience. At its Digital Labs in San Francisco, the US bank has been exploring the usage of Oculus Rift virtual reality headsets, giving clients the option to "virtually" attend a branch and chat to a teller in person.

10. Crypto Currencies

A crypto currency is a type of currency used for the exchange of digital data. It functions similarly to regular currencies. A crypto currency is a form of digital money produced using encryption methods. The most well-known is bitcoin. According to recent pronouncements from its governor, the South African central bank is accepting of crypto currencies and block chain. The banks that are creating crypto currency accounts include Deutsche Bank, BNY Mellon, Banco Santander, and UBS, according to a recent media report.

11. Artificial Intelligence (AI)

Artificial Intelligence is a branch of computer science that focuses on building intelligent machines that function and behave like people. Computers are capable of carrying out tasks like speech recognition and AI problem solving.

Learning and Planning and the largest Swiss bank, UBS, have a business arrangement with software provider Sqream, which analyses massive amounts of data about a client's behaviour to provide them with individualized, precise information.

V. CONCLUSION

Here in this paper, selected a few of the most recent emerging trends above. I now want to draw attention to the prospects that new trends present for the expansion and improvement of the banking industry.

- Digitalization provides innovation and convenience, working, obtaining new employment, and progress in the economy.
- It aids in increasing system transparency and the direction of money flow in the Tax evasion is a problem that is less economic parallel industry.
- With all these advantages readily available, it also necessary for people to possess fundamental financial knowledge and an emphasis on the significance of the ability to manage money.
- Through which people can learn about various financial products and services, protect their money from crises like inflation and depression, and invest it for a brighter future.
- Digitalization can also be crucial to achieving this goal because it can reach more individuals.

It can be concluded that in order to effectively harness new technology, it is important to have both access to it and the knowledge necessary to use it effectively and reap its benefits.

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