



## Technological innovations in banking sector in India

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### Abstract

The service sectors constitute a large part of the Indian economy both in terms of employment potential and its contribution to national Income. Banking is the one of the most popular and dominant service sector in India. Today the banking sector plays a crucial role in the economic development of our Nation. Use of technological innovations in expanding banking is one of the focus areas of banks. The banks are using information technology for not only to improve their own internal processes but also to increase facilities and services to their customers. Efficient use of technology has facilitated accurate and timely management of the increased transaction volume of banks of that comes with larger customers' base.

Entry of ATMs has completely changed the profile of front office in the bank branches. Customers no longer need to visit branches for their day to day banking transactions like cash deposits, withdrawals, Cheque collection, balance enquiry etc. Technology is one key factor which will significantly influence the functioning of the banks in the years to come. Today, we have ATMs, Debit/Credit Cards, Mobile Banking, electronic fund transfers, etc. Technology not only helps to serve the customer in a better way at the same time it will reduce the operating costs and improve security breaches, improve customer satisfaction, and enhance regulatory activities.

Those banks which adopt latest technology like Artificial intelligence, Block chain, Cyber security, Immersive technologies, Neo banking, Cloud banking will survive in the technology driven world. But implementation of technology solutions requires huge capital and at the same time the adopted technology will become obsolete very quickly. So, banks need to formulate strategies to address the issues pertaining to technology and its obsolescence.

**Keywords:** Technology, ATM, debit & credit card, artificial intelligence, block chain, cyber security, cloud banking

### Introduction

The service sectors constitute a large part of the Indian economy both in terms of employment eventuality and its contribution to public Income. Banking sector is one of the most popular and dominant service sector in India. Presently the banking sector plays a crucial part in the profitable development of our Nation. The profitable reforms initiated by the government of India roughly about two decade agone have changed the geography of several sectors of the Indian Economy. The Indian Banking Sector is no exception. This sector is also going through major changes as a consequence of profitable reforms, revolution in ICT, changes in the fiscal markets at domestic and global markets etc. Use of technology in expanding banking is one of the focus areas of banks. The banks are using information technology for not only to ameliorate their own internal processes but also to increase facilities and services to their customers. Effective use of technology has greased accurate and timely operation of the increased transaction volume of banks of that comes with larger customers' base.

Entry of ATMs has fully changed the profile of frontal office in the bank branches. Customers no longer need to visit branches for their day to day banking deals like cash deposits, recessions, Cheque collection, balance enquiry etc. One area where the banking system can reduce the investment costs in technology operations is by sharing of facilities. We're formerly seeing banks coming together to share ATM Networks. Mobile banking and internet banking have opened new avenues in Convenience Banking Mobile/ Internet banking not only give utmost accessible to the customers but at the same time reduces the transaction costs. Despite of risk being in this model of banking, these

banking models going to dominate the banking deals of the individual banks in the days to come. Mobile banking and internet banking have opened new avenues in Convenience Banking Mobile/ Internet banking not only gives utmost accessible to the customers but at the same time reduces the transaction costs.

Payment and settlement system is the backbone of any fiscal market place. The present payment and settlement system similar as centralized funds transfer system (CFTS), structured Financial Messaging System (SFMS), Real time Gross settlement system (RTGS) are meeting the prospects of all. Still, revolutionary changes will takes place in this area to meet the prospects of the customers and to meet the transnational norms.

### 2. Objectives of the Study

The main object of this paper is to analyze Technological innovations in banking and the specific objectives are:

1. To Explain Technological Innovations in Banking Sector
2. To Explain Modern Services of banks through Internet Banking and its Challenges faced in India
3. To Explain Recent Technological Tools in Banking Sector:

**3. Methodology:** For meeting the set objectives, relevant data are collected from the published documents website and reports of the public and private sector banks.

### Innovations in Banking Sector

Information technology has given rise to new inventions in the product designing and their delivery in the banking and

finance industries. Technology offers a chance for banks to make new systems that address a wide range of client needs including numerous that may not be imaginable moment. Fiscal invention associated with technological change completely changed the banking philosophy and that's farther tuned by the competition in the banking industry. Challenging business atmosphere within the banking system produce further invention in the fields of product, process and market. Today, we've electronic payment system along with currency notes. fiscal sector is moving towards a scenario, where it can have new instruments along with liquidity and safety. The following are the some of the inventions in banking sector

### 1. ATM (Automated Teller Machine)

ATMs are designed to perform banking conditioning like accepting deposits, withdrawal of money transfer of money etc. without any mortal interaction. The ATM card is a plastic card, which is magnetically enciphered. It can be easy read by the machine.

#### Advantages of ATMs

- ATM provides 24 hours service
- It gives convenience to bank's customers
- It reduces the workload of bank's staff
- It provide service without any error
- It is very beneficial for travelers
- It may give customers new currency notes
- It provides privacy in banking deals

### 2. Mobilebanking

Mobile banking also known as M- Banking. It's a term used for performing balance checks, account deals, payments, credit operations and other banking deals through a mobile device similar as mobile phone. The foremost mobile banking services were offered through SMS a service which is called SMS Banking. Hence mobile banking is an innovative result designed for ultramodern and energetic people who value their time. Mobile Banking can give colorful services to customer similar as

#### a. Information Relating to Bank Account

Cautions on Account activity, Monitoring of term deposits, Access to loan statements, Access to card statement, Mini statement and checking of account history, Insurance plan operation, Balance checking in the account, Recent deals

#### b. Information relating to Payments, deposits, withdrawals and Transfers

Mobile recharging, marketable Payment processing, Bill payment processing, Peer to peer payments, Withdrawal at banking agent, Deposit at banking agent

#### c. Information relating to investments

Portfolio operation services, Real time stock quotes, substantiated cautions and announcements on security prices

#### d. Information Relating to the Support

Check of cheque books and card request, Status of conditions for credit, including mortgage approval and insurance content, ATM Location

### Challenges for a Mobile Banking Solution

- **Handset Operability:** It's a big challenge for banks to give mobile banking results on large number of

different mobile phone devices. Some mobile phone bias support Java ME and others support SIM operation Toolkit. There's challenge of interoperability between mobile banking operations due to perceived lack of common technology norms for mobile banking

- **Security:** Security of fiscal deals are the most complicated challenges that bear to be handled concertedly by mobile operation inventors, mobile network service providers and IT department of banks

**3. Real Time Gross Settlement (RTGS):** Real Time Gross Settlement system, introduced in India since March 2004, is a system through which electronics instructions can be given by banks to transfer money from their account to the account of another bank. The RTGS system is maintained and operated by the RBI and provides a means of effective and hastily funds transfer among banks easing their financial operations. As the name suggests, funds transfer between banks takes place on a 'Real Time' base. Therefore, money can reach the beneficiary presently and the beneficiary's bank has the responsibility to credit the beneficiary's account within two hours.

### 4. Electronic Funds Transfer (EFT)

Electronic Funds Transfer (EFT) is a system whereby anyone who wants to make payment to another person/company etc. can approach his bank and make cash payment or give instructions authorization to transfer funds directly from his own account to the bank account of the receiver/ beneficiary. Complete details analogous as the receiver's name, bank account number, account type( savings or current account), bank name, megacity, branch name etc. should be furnished to the bank at the time of requesting for analogous transfers so that the amount reaches the beneficiaries' account correctly and hastily. RBI is the service provider of EFT.

**5. Point of Sale Terminal:** Point of Sale Terminal Point of Sale Terminal is a computer outstation that is linked online to the motorized customer information lines in a bank and magnetically encoded plastic transaction card that identifies the customer to the computer. During a transaction, the client's account is debited and the retailer's account is credited by the computer for the amount of purchase.

### 6. Telephone Banking

Telephone Banking It's a bank service handed by financial institutions allowing its customers to conduct banking deals over the telephone. Institutions which give banking services simply over telephone are called Phone Banks. They use special technology to modernize the customer by furnishing bank and account combined information over a telephone. Benefits of Telephone Banking List of bottommost deals Electronic bill payments finances transfer between customer accounts Account balance information Loan and account operations Buy and redemption of investments

#### Benefits of Telephone Banking

- List of latest transactions
- Electronic bill payments
- Funds transfer between customer accounts
- Account balance information
- Loan and account applications
- Purchase and redemption of investments

## 7. Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI) Electronic Data Interchange is the electronic exchange of business documents like purchase order, invoices, dispatching notices, receiving 411 etc. in a standard, computer reused, extensively accepted format between trading partners. EDI can also be used to transmit financial information and payments in electronic form. Benefits of Electronic Data Interchanges are Cost effectiveness, increased speed, advanced delicacy, more logistics operation and increased productivity, advanced delivery of goods and services, Migration from paper to electronic deals

### Internet banking and its services

New generation private sector banks videlicet ICICI bank, HDFC bank, Axis Bank, etc. were pioneers in introducing internet banking in India. They had the advantage of technology platform and did not have heritage systems. Still, with the technology transformation of public sector banks in the recent times, multitudinous banks have started offering the internet banking facility to their customers. The number of banks offering internet banking in India, has increased exponentially during the last 8 times. Advancements in technology used by banks, especially centralized core banking result and the growth of internet operation is propelling the growth of internet banking. This is supplemented by the wide range of services possible through internet banking, anywhere- anytime at the click of the mouse, at client's convenience

Benefits of Internet Banking Easy online operation for all accounts, including particular loans and mortgages, Attract new customers. Increase client fidelity. Reduce the transaction costs of offering several banking services and diminishes the need for longer numbers of precious slipup and mortar branches and staff. Increase convenience for customers, since they can conduct multitudinous banking transaction 24 hours a day. Increase customer dedication. Meliorate client access.

### Modern Services offered by Bank through Internet Banking

#### ▪ Corporate Internet Banking

Online money transfer, trade finance money, Fund management, Fund management, global access with unmatched benefits through banks commercial internet banking.

#### ▪ Depository Service

Banks depository service provides the facility of having shares and securities in demat form and executes deals of sale and purchase hassle free electronically to the customers through internet banking.

#### ▪ Centralized banking solutions:

CBS, an inter-branch networking and data- participating platform helps the customers to operate their account from any megacity in India having CBS networked branches, changing the status of client from client of the branch to client of the bank

#### ▪ Online Tax Payment

Banks give the facility of online payment of service duty, excise duty, DGFT, custom duty and all charges under MCA 21 through internet banking

## Foreign Exchange

Foreign Exchange Banks have several branches authorized for handling foreign exchange business.

**E-Money India;** internet banking helps the customer in transferring money to their loved ones in India through PNBse- Money India service

#### ▪ Online Air Ticket Booking

Banks give online trading facilities to customers having account with bank and trading account with approved brokers.

#### ▪ Online Trading

Online Trading Banks give online trading facilities to customers having account with bank and trading account with approved brokers.

#### ▪ Customer Care Facility

Customer Care Facility Banks present 24 hours client care facility for all customers' quarries and problems.

#### ▪ Online Insta Remit

Online Insta Remit- RTGS Service Instant remittance by client himself now made possible, from one bank to another bank at different centers on the same day with the help of Online Real Time Gross Settlement (RTGS) National Electronic Fund Transfer (NEFT) at modest charges.

## Challenges faced In India

- The original cost of implementation being high, benefits can be visible only when we've a critical client base and volume of transactions. Cost of transaction will reduce only when client shifts to alternate delivery channels from the branch banking. The cost savings in the branch banking front will be by redeployment of resources.
- Banks aren't networked and numerous of the banks still have legacy system, where furnishing internet banking solutions isn't cost effective and effective.
- A majority of customers aren't computer expertise
- Vacuity of Internet Band width and connectivity isn't invariant.
- Non vacuity of safe computing facilities across the country
- Client confidence in internet banking needs to be erected.
- Ensuring security including privacy and intimately of client information is a challenge.

## Recent Technological Tools in Banking Sector:

Banking sector use the following technology tools for the benefit of the customers and reduce the operating cost of banking sector.

- **Artificial Intelligence:** Artificial Intelligence AI enables banks to give high- quality banking services to their customers and save operating costs. AI- powered tools, similar as virtual assistants and chat bots, automate client service relations. also, they give customers with account information and resolve account- related queries. AI- grounded biometrics descry fraud and ameliorate security, as well as enhance AML operations and KYC checks

- **Block chain:** Block chain provides tamper- evidence records of all fiscal deals and improves transactional translucency and security. They also exclude the need for interposers and enable peer- to- peer (P2P) payments. Further, it improves trade effectiveness through transaction automation as well as streamlines homemade and paper- grounded operations. This greatly enhances the speed and effectiveness of deals, especially cross-border payments. Also, it makes fiscal services more accessible while lowering transaction fees.
  - **Cyber security:** The banking industry handles massive quantities of sensitive client and transactional data. Banks uses anti-hacking software to cover networks from unauthorized access. These features help banks in perfecting trouble discovery and response. This makes its IT infrastructure a popular target for cybercriminals. To attack this, startups give security protocols and data compliance management acclimatized for banking systems. Cyber security solutions enable banks to guard sensitive data. Data encryption tools further extend this, reducing the risks of data leaks.
  - **Neo banking:** Neo banking enables a digital-only presence for banks, minimizing capital and operating charges. It offers a flawless and intertwined banking experience to customers through cloud computing, open API, and more. Neo banks having lower fees and they bear lower capital and functional charges compared to traditional banks.
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### Conclusion

Technology is one key factor which will significantly influence the functioning of the banks in the years to come. Today, we have ATMs, Debit/Credit Cards, Mobile Banking, Electronic Fund Transfers etc. Technology not only helps to serve the customer in a better way at the same time it will reduce the operating costs. Those banks which adopt latest technology like Artificial intelligence, Block chain, Cyber security, Immersive technologies, Neo banking, Cloud banking will survive in the technology driven world. But implementation of technology solutions requires huge capital and at the same time the adopted technology will become obsolete very quickly. So, banks need to formulate strategies to address the issues pertaining to technology and its obsolescence

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