

## Technology Adoption in Banking Sector – Issues and Challenges

**Mr. Rupeshkumar Babulal Solanki<sup>1</sup>**

**Dr. A Kumar<sup>2</sup>**

### **Abstract:**

*India has embraced technology quickly, particularly in the banking sector. The way banks operate and how their consumers receive banking services has completely changed thanks to technology. Recent years have seen a significant upheaval in the banking sector as connected technologies open up new financial and non-financial options. The proliferation of internet banking services at the beginning of the twenty-first century was fuelled by the swift expansion of internet users around the world. Since the previous ten years, the banking industry has seen significant upheaval. Since most transactions can now be completed from home or work and consumers are no longer obliged to visit a bank branch in order to conduct business, banking cannot be considered in the conventional sense anymore. It has also evolved alongside technology. Due to the development of numerous alternative delivery channels, clients now have a variety of ways to complete financial transactions that are simple, quick, convenient, and time appropriate. For both retail and corporate customers, payments can be settled swiftly and easily, and assistance with financial transactions is available. The obstacles and difficulties with technology adoption in the banking industry are the main topics of this research study. This study is based on secondary information from a variety of websites, publications, and papers that deal with banking and information technology. This study covered every facet of the problems and difficulties banks encounter while providing stakeholders with IT services. This essay examines the challenges and recommendations related to the introduction of technology in Indian banking.*

**Keywords:** *E-Banking, Information Technology, Alternate Delivery Channels, Financial Inclusion, Sustainable Banking, Green Channel Banking.*

### **Introduction**

Both the physical world and the financial world are affected by technology worldwide. The ability to represent our country internationally is made possible by the rapid development and use of technology. It is a blessing and a win-win situation when technology is adopted by financial institutions and any service sector. Technology adoption is helping banks in many ways. The importance of technology is felt strongly in the financial sector since it gives banks a competitive advantage that leads to effective customer service. Though banking has reduced costs for banks and given customers comfort and convenience. Technology adoption and application in the banking industry have enabled financial services to be used at any time and from any location. It is moving us closer to a monetary system without money. Technology has played a crucial role in

<sup>1</sup> Research Scholar- Department of Business Administration, Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat)

<sup>2</sup> Sr. Professor (Emeritus), Department of Business Administration, Maharaja Krishnakumarsinhji Bhavnagar University, Bhavnagar (Gujarat)



making it easier and more affordable to manage large volumes of transactions. Many individuals, corporations, organisations, and businesses are collaborating to better deploy advanced digital banking to better serve their clients around the world. Digital banking is undoubtedly quick, safe, time-saving, and simple to use, but implementing it globally is difficult.

### **Review of Literature:**

Following are the most essential studies and reviews related to this topic.

The most significant papers and reviews on this subject are listed below.

1. Information systems and new developments in infrastructure were noted by Rangarajan (1991) in relation to the banking industry. The committee placed a strong emphasis on the topic of banking infrastructure development, which supports the mobilisation of resources and services in a number of ways.
2. S.B.Verma et al.'s (2007) investigation into the connection between technology and banking also revealed issues facing the banking sector. All of them do banking transactions via electronic methods including ATMs. Therefore, it is crucial for banks today to adapt new variables and use them to further their goals.
3. R.K.Mittal et al. (2008) discussed the fundamentals of banking, technology, and how new trends are significantly influencing the expansion of banks. One of the key components of information technology nowadays is the introduction of new services and banking products. For improved trustworthiness and utilisation of bank stakeholders, every effort would be made.
4. Sreelatha. T. and CH. ChandraShekar (2012) determined that Internet and mobile banking will fundamentally alter the way that banks operate over the next five years. Both might be regarded as significant pillars. We face several challenges with the adoption of IT systems.
5. According to Chitra (2010), while introducing information technology in rural areas, clients should be encouraged to use mobile and digital banking when transacting with banks. The efficient functioning of information technology and its outsourcing are significant challenges for the banking industry. When making an information technology investment in a small bank, careful strategic planning is necessary. Information technology has serious worries about the adoption of digital technology and its outsourcing.

### **Objectives:**

1. To research the connection between the banking industry and the information technology sector.
2. To analyse the challenges and problems faced by banks in technology adoption.
3. To provide some suggestions to overcome the problem of technology adoption.

### **Methodology:**

The research is supported by secondary data. The secondary sources of data for this study include the Reserve Bank of India's circulars, bulletin, daily business newspapers such The Economic Times, Financial Express, and Business Standard, as well as a number of other journals, magazines, and websites.

### **Technology and Banking Sector in India:**

Compared to foreign banking sectors Indian banking sector remains a step behind. The reason behind this is the unawareness regarding technologies and its benefits and also its implementation. If we adopt the advancement in information and communication



technology in financial sector, we can make financial sector more strong and healthy in upcoming few years.

So, with proper advancement of technology and its adoption can make amaze change in banking future. With proper implementation of information technology as reliability, speed and accuracy will achieve the paperless banking target in upcoming eras. Bank has also improved the financial services, Electronic cheque clearing system, NEFT, RTGS, online account openings, online application for loans, ATM, online chequebook application, online locker facility enquiry and many other services like Insurance life and non-life, mutual fund investment and other investment too. So, we can say the financial sector become more and more efficient with development of technology. Financial sector plays a vital role in economic development and an advancement financial sector enable to open many ways for country's growth.

Framing the new strategy for special banking activities using information technology for providing better services to all the stakeholders is the main goal for all the banks. Technology adoption and up gradation is essential key to makeover the banking system for today's financial market.

### **Advantages of Adopting Information Technology:**

Banks are always trying to get good and satisfactory services to their customers. With the efficient use of technologies and well strategies planning can play major chunk in upcoming days. There are many advances as mentioned below:

- Upgraded product and new services can be launched with use of technology.
- Data Warehousing, a useful tool, is a single point of collection data of various customers like demographic details of customers, future needs, customer retention, new customer penetration and many useful data can be getting. By using and implement these data management can be useful to implement proper strategies and make the bank with profitable business with identifying and appropriate direction
- Financial inclusion has played a major role in rural areas. So with the use of technology it is possible to reach at unbanked area. It is really fruitful to reach out unbanked customers which are located in rural areas and villages where banks cannot reach in every villages.
- Bank can also provide good services to the customers without affecting cost. So cost reduction is main advantage from information technology to bank.
- By use of technology banking can be possible anywhere and everywhere to working people who cannot reach at bank during bank business hours. So it can be convenient to time savvy and tech-savvy to the customers. Nowadays banks are move the concept of 'Branch Customer' to 'Bank Customer' and with help of technology nonstop banking start from anywhere and anytime.

### **Challenges for Adopting Technology:**

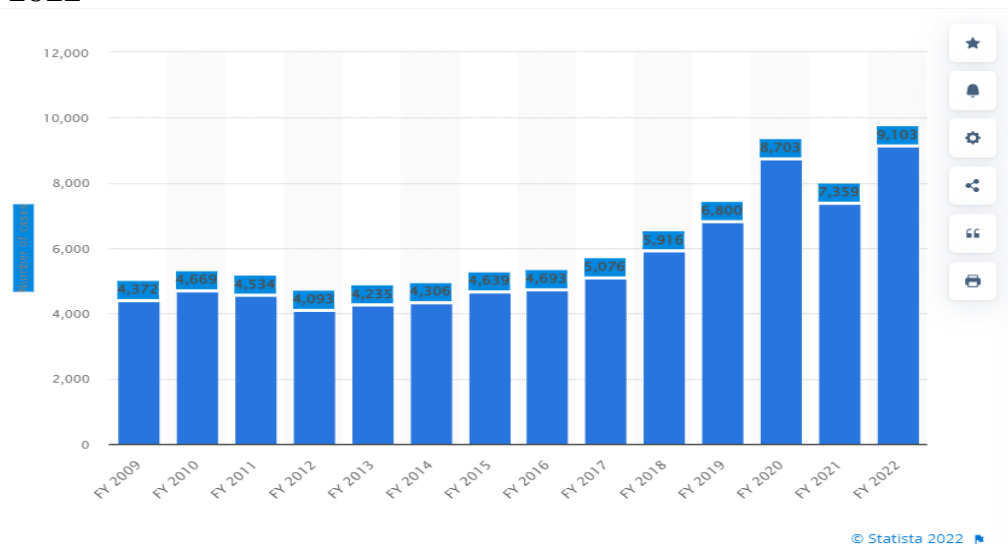
Adoption of the technologies in banking sector has made most of the services very handy. Yet there are some major challenges of security and safety faced by the bank in adopting the technology as:

#### **Cyber Security:**

While implementing technologies in banking sector Cyber security and Fraud detection issues are major one. In fact it is the main challenge because the banking sector is the most targeted area by hackers and fraudsters for number of reasons as it is directly related with finance. Fraud management and Cyber security is the dare need rather a big challenge for the Indian Banking. Financial crimes are increasing day by day. Due

to uncertainties and security worries, a sizable portion of clients, particularly the elderly and pensioners, choose not to use e-banking services. Due of security concerns alone, the majority of bank consumers choose manual services. They believe that using internet banking is hazardous, which makes it possible for fraud to occur. Customers' private information and other data/information that banks have access to are not safe as a result of cybercrimes. The majority of financial data leaks are likely the result of inadequate cyber protection. To protect the sensitive client information, the bank must have a thorough information system security policy. The country has seen a dramatic increase in cybercrime, in part because security measures weren't implemented and personnel weren't given enough training, and in part because malware was spread so easily there. As a result customers are not satisfied with security issues and number of cyber-crimes are increasing as per the data provided by the RBI. So, we can say that cyber security of bank's technological product is the main concern.

**Table-1** Number of bank fraud cases across India between from financial year 2009 to 2022



Source: <https://www.statista.com/statistics/1012729/india-number-of-bank-fraud-cases/>  
It has observed that while the number of fraud cases has shown almost same trend from FY 2009 to FY 2016. After that we have observed there is major number of fraud cases increases from 5916 Cr, FY 2017 to 9103 Cr, FY 2022.

**Table 2:** Number of frauds and amount involved in Indian Banks Reported Date

Year	No. of cases	Total Amount (in Crore)
2018-19	6798	71534
2019-20	8703	185468
2020-21	7363	138422
2021-22 (April-Sep)	4071	36342

Data received for the number of bank fraud cases across India between from financial year 2018 to 2022.

(Source: <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/oRTP2020CF9C9E7D1DE44B1686906D7E3EF36F13.PDF>)  
Securities Incidents handled by Indian Computer Emergency Response Team (CERT-In)

**Table-3** Summary of various types of security handled-year wise

Security Incident	2014		2015		2016	
	No	%	No	%	No	%
Phishing	1122	3	534	1	757	2
Network/Scanning/Probing	3317	7	3673	7	416	1
Virus/Malicious Code	4307	10	9830	20	13371	27
Website Defacements	25037	53	26244	53	31664	63
Website Intrusion & Malware Propagation	7286	16	961	2	1483	3
Others	3610	8	8213	17	2671	5
Totals	44679	100	49455	100	250362	100

Data pertains to the period from 31<sup>st</sup> March 2014 to 31<sup>st</sup> March 2016

Source CERT-In (Annual report)

Thus, India has witnessed a massive surge in cybercrime incidents from 23 in 2004 to 50362 in 2016. As per Government's cyber security arm, Computer Emergency response team-India (CERT-In) 50,362, cyber security incidents in addition 57,262 spam incidents were reported.

#### **Data Integration:**

India has one of the largest populations in the world, and a significant portion of its citizens work in banking. Data from stakeholders are dispersed, so compiling this data in a methodical way is crucial. IT should assist banks in effectively generating and managing information as well as delivering robust and dependable services to their clients at lower costs. Information is made up of data that has been gathered under ethical, trustworthy, and accurate standards. Banks are gathering and storing enormous amounts of data about their clients' transactions. (Pillai, 2019) The information is put through meaningful analysis, use, and database creation with the goal of satisfying a variety of internal and external MIS requirements as well as using this information to increase the volume of profitable business using special customer relationship management techniques.

#### **Customer satisfaction:**

Currently satisfactory services to the customer is the prior need for adopting technology in banking because consumer awareness is a major challenge. In recent time banks are facing a split opinion from customers about the services (online vs. offline) they want to receive. Whether online or offline customer expectations are what initiate transformation. It is not enough for banks to provide online services or physical branches and ATMs. Consumers need to be informed about the various goods by banks. In the future, consumers would switch to using technological products, which would improve bank performance. Therefore, we can conclude that customers want banks to educate them about new technology before they are willing to use it.

#### **Competition with FinTech:**

Today we find a rapid growth of FinTech startups. Traditional banks need to embrace innovation and mobile banking if they want to compete with fintech companies.



Fintech's debut has completely changed the way that banking is done today by putting more effective, affordable, and user-friendly services at the fingertips of customers. To compete and thrive in this challenging environment, traditional banks have to build a new value proposition through Artificial Intelligence and analytics. AI is the future of India to come out from such challenges.

### **Delivery challenges:**

Delivering services to clients is largely hampered by consumer perceptions and preferences. The requirement for consistent, dependable services in banks has increased as a result of the availability of electronic banking via alternative channels 24 hours a day. The expansion of banks' customer bases would be accelerated by the inclusive banking programme. The amount of transactions in electronic payment systems would increase as cash transactions were converted to non-monetary modes and the government worked to electronically distribute all social benefits to the populace. Therefore, these developments are expected to put the scalability and adaptability of CBS in banks to the test—not just in terms of handling transactions, but also in terms of introducing new goods, procedures, and software.

### **Traditional v. Alternate Banking Channels**

With the adoption of technology banking services become quite easy and affordable compared to the traditional banking services. Here is the comparison between these two facilities.

**Table: Alternate Banking Channels**

Sr. No	Traditional Service	Alternative Means	Medium	Services Available
1	Brick mortar Services	Automated Branches	PC and LAN	Instant deposit and withdraw money, getting statement, DD, calculation of interest etc.
2	Branch Banking	Core banking	PC and Internet	Instant Deposit and withdraw money, getting statement, cheque clearance and depositing, stop payment, etc.
3	Manual note counting	Note counting machine	Electronic device	Instant notes and bundle of notes counting
4	Formal cheque	MICR cheque	MICR technology	Instant cheque clearance
5	DD/MM/TT	EFT	Internet and core banking solution (CBS)	Instant fund transfer from one branch to any branch under CBS
6	On counter cash withdraw and Deposit	Debit card	ATM, CDM-Recycler, Kiosk	Withdraw money, balance enquiry, account statement, mobile recharge, donation card to card transfer, utility bill payment.
7	On counter cash withdraw	Debit card	Point of Sale (POS)	Mobile recharge, purchase utility bill payment and withdraw money.
8	Letter of credit	E money	Credit card	Purchasing and utility of bill payment
9	Branch banking	Internet banking	PC and internet	Balance enquiry, account statement, stop payment order, NEFT, RTGS, Purchase utility bill payment
10	Branch banking	Mobile banking	Mobile phone, SMS, 3G, 4G, 5G	Balance enquiry, account statement, stop payment order, NEFT, Purchase utility bill payment, Enquiry for acquiring retail loan

Source: Mirande et.al. 2006 and 2016 (et by El)

Alternative banking services are heavily reliant on modern technology and communication networks. Banks use information and communication technology



(Internet, mobile phones, and other electronic devices like bank KIOSK machines) to provide e-banking services. These services are entirely technology-based. The bank's officers can handle 60,000 clients thanks to technology. A banker can manage 100 clients per day using traditional services, but using technology raised that amount by 8 times per day (based on original research).

### **Current Trends and Development in Technology**

Current trends play major role while applying or adopting technology in the banking sector. As we all know that social media, mobility, artificial intelligence and cloud computing are key factors and current trends to connect customers and making their task easier through technology.

**Social Networking:** Adoption to social media in banking sector is one of the current and easiest trends. Indian Banks have also started to use social media in their regular operations in various forms and stages. Many banks use their face book page, twitter, online chat services and FAQ to provide customers exclusive offers, product details and customer care services. Through face book customer can easily get information and solve their queries but sometimes Banks cannot get genuine feedback and comments from the customer publically. (Chhtrapati et al., 2023) But Banks should focus on such social networking and expand their connectivity with more customer. As it is very clear that the news and updates on social networking sites spread speedily among public. It will surely help banks to integrate products and services in a better way especially among younger generation. Thus, in current time social media plays vital role in the development of technology in banking sector.

**Mobility:** Mobile and Smart phones now a days become quite common and necessary for everyone. People become comfortable with the use of smart phones for banking services also. In smart phone customer can easily download the application of particular bank and can take benefits of all the banking services at a single click. With the facility of mobility card based transactions no longer exists in trends. Various delivery channels are offering customers the convenience of banking from their office or home. All major card operators are upgrading or replacing the PoS terminals which also facilitate NFS based mobile payments and QR code scan. Earlier people used mobiles only to check balance or transaction summary but with the easy availability of smart phones customer need not to visit bank physically. It is rightly said that customers can get all banking services at their fingertips.

### **Artificial Intelligence:**

Another current trend among the people is to use AI for their convenience. Indian banks can also use AI based technology to answer customer query at the front desk. So automatically the problem of shortage of manpower can be reduced and speedy work can be possible in the banks. With AI and natural language processing BOTS can be used to address the customer queries and grievances. No doubt it will take some time to become used to with AI for every type of customer.

**Analytics:** In today's business world, including the banking sector, two crucial buzzwords and modern developments are cloud computing and analytics. Analytics offers remedies to banks that deal with daily commercial and operational issues. Senior bank executives must submit basic reports using descriptive analytics. Big data offers potential for cross-selling and a better understanding of client needs due to the



abundance of computing resources available in the form of cloud, mobile, IoT, and other devices as well as the variety of data from interactions on social media channels. Analytics aids in attracting new clients and retaining valuable ones. Additionally, it offers chances to carry out security analytics, enhance safe application development coding practises, and comprehend the effects of flaws on application security. Big data Analytics is still challenging, and it has some limitations as it is a time-consuming task which requires expensive software, large computational infrastructure and effort.

**Cloud Computing:** Today Cloud computing has successfully brought greater amount of transparency in IT procurement. In banking sector cloud computing is playing significant role. As cloud deployment model describes the nature, purpose and exact category of the cloud environment. There are four cloud deployment models: Private Cloud, Community Cloud, Public Cloud and Hybrid Cloud. Out of these four the most acceptable cloud deployment models of the banks are private cloud and community cloud. Still cloud computing is considered doubtful in the matter of privacy and security. Though NIST, CSA, IDRBT Cloud Security Framework for Indian banks provide guidance on cloud security. No doubt it will take some more time create full proof cloud computing system in India.

### **Suggestions**

While adopting new technologies in banks customer satisfaction, employees' expectation and current trends in market are very necessary to keep in mind. Everyone demands for the ease of experience. No doubt banks will provide the latest technology but what customer needs is easy, fast, transparent and secure services. Other than these customer demands easy access to their money after all it's their own money and banks are just custodian. Here are some suggestions which can be helpful for the more trustworthy and secure environment in banks:

- Develop a truly Omni channel customer experience.
- Adopt and embrace open banking.
- Reducing charges on services
- Promote online transactions.
- Issue smart card (online and offline) and make aware to customer for their promotional offers.
- Login procedure should be made more robust to avoid unauthorised access.
- Due diligence needs to be exercised by the banks and customers.
- Developing a portal to guide customer.
- Proper security measures need to be followed.
- Promote financial literacy through customer education.
- Ensure that computer systems are protected from malware attacks.

### **Conclusion:**

In the Era of science and technology banking sectors also get updated and upgraded. All the banking facilities will become more customer friendly with adaptation of technology in banks. With the adaptation of technology in banking sector the scenario is totally changed towards branch less, paperless, contact less, and card less banking with more technological emphasis. It is very necessary for all Indian banks to adopt new technologies and innovative changes to cope up with the fast changes in the technology, regulation and market space. As there is two sides of a coin similarly technology has its





pros and cons. If one can adopt and use technology smartly then and then it is beneficial to all. As per the guidelines and rules of RBI every citizen need to be aware about each service of banking sector. Customers should be educated on security features. Along with customers awareness Employees should also be trained periodically. Gamification and leveraging social media channels are the tools for improving customer awareness.

### **References:**

- Arundhati Bhattacharya (2015) “*New Paradigm in Business Strateies of Bank*” The Journal of Indian Institute of Banking and Finance July-Sep 2015.
- A.S.Ramasastri (2015) “*New Paradigm in It Security Systems for Banks*” The Journal of Indian Institute of Banking and finance, July-Sep 2015.
- Ashish K.Sartape (2016) “*Information Technology and Banks: Trends, Issues and Challenges*”. IRJMS Vol 2, Issue 12, Dec 2016, ISSN (online): 2454-8499.
- Chhtrapati, D., Trivedi, D., Chaudhari, S. P., Sharma, A., & Bhatt, A. (2023). Global research performance on social media security: a bibliometric visualization analysis. *Information Discovery and Delivery*. <https://doi.org/10.1108/idd-04-2022-0029>
- Chitra (2010) “*IT Emergence : Recent Trends in Banking Industry of India*” [http://www.article base. Com/ informationtechnology-in- banking- industry- of-india- 1981838.html](http://www.articlebase.com/informationtechnology-in-banking-industry-of-india-1981838.html).
- Kumari Nidhi (2016) “*E-Banking in India, challenges and Opportunities*” ICRISMET- 16 ISBN – 978 – 93 – 86171-04-7.
- P.A.Kalyanasunda (2014) “*Role of Technology in Modern Banking*” The Journal of Indian Institute of Banking and finance, July-Sep 2014.
- Pillai, Aneesh V. (2019). Right to Access to Human Reproductive Technologies under Indian Legal Framework: A Bird’s View. *GLS Law Journal* , 1(1), 1-8. Retrieved from <https://glslawjournal.in/index.php/glslawjournal/article/view/2>
- Reports of Rangarajan Committee I and II.
- R.K.Mittal et al (2008) “*Emerging Trends in the Banking Sector*” published by Macmillan India Ltd. Vol.1.
- S.B.Verma et al (2007) “*E-Banking and Development of Banks*” published by Deep and Deep Publications Pvt Ltd.
- T.Sreelatha , CH.ChandraShekar (2012) “*Role of Technology in Indian Banking Sector*” IJMBS –vol 2, Issue 4, ISSN No: 2231-2463 PP 36-40.
- V.N.Sastry (2017) “*Mobile Cloud Computing*” Staff Papers IDRBT- Vol 2/ No 2 / Jan 2017.