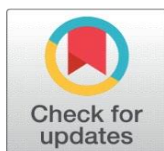
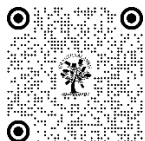


NAVIGATING THE MODERN BANKING LANDSCAPE IN INDIA: TECHNOLOGICAL ADVANCEMENTS AND LEGAL CHALLENGES

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ABSTRACT

The banking system in India is transforming day by day and it is ultimately growing day by day. The banking sector has changed completely from the traditional banking system to modern banking system, and now things have also changed by the intrusion or infiltration of the mainstream i.e with the traditional banking banking process. It is where the bankers provide the services using modern technology or digitization.

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1. INTRODUCTION

Banking is the back-bone of any economy¹. It is so crucial that it provides indispensable financial services related to facilitation in terms of economic growth and development.² A strong banking system can help a nation significantly work its way into prosperity. The navigation of the modern banking landscape in India is a dynamic process that ultimately reveals the state of evolution or development of Indian Economy.

The banking system in India is transforming day by day and it is ultimately growing day by day. The banking sector has changed completely from the traditional banking system to modern banking system, and now things have also changed

¹ S.C. Srivastava, *Role of Banking in the Indian Economy*, 53 *Econ. & Pol. Wkly.* 45 (2018).

² *Id.*

by the intrusion or infiltration of the mainstream i.e with the traditional banking process. It is where the bankers provide the services using modern technology or digitization.

The recent manifesto, which says to convert and shape India into a digitally entitled society and knowledge economy by using the strength of digital tools, hardware, and mechanism, is called the digital economy. Digitisation automates the product and process as a result of which both quality and production increase. Digitisation mechanises both product and process through which standard and productivity increases. The customer can access services provided through the online banking, mobile banking apps and digital wallets like Paytm, GPay and PhonePe. By this the services related to some sort of banking transactions for example bill payment, recharge and money transfer etc can be done easily without undergoing through the masses i.e public.

Modern India's banking landscape can be navigated only when one understands traditional banking practices along with the wave of technological innovations that are reshaping the industry-from digital payment platforms to neo-banks. In the sector, access, security, and incorporation are increasing, along with cybersecurity and NPAs.

The Banking Industry in India has covered a long path to assume its current banking structure. Several transformation has occurred in the banking sector, it include the creation and nationalisation of the banking as well³.

2. EVOLUTION OF THE BANKING SECTOR IN INDIA

Banking system occupies an important role in the development of nation. It is indispensable in modern in a modern society. It plays a pivotal role in the economic development of a country. The development of the banking sector over the years can be divided into three phases:

A. Phase I: The Early Phase which ran between 1770 and 1969.⁴

The foundation of the modern financial system occurred between 1786- 1969. Initially the East India Company founded three presidency banks.

The First Phase (1786- 1969)

The significant advances in India's modern financial system occurred between 1786 and 1986. The financial system began in 1770 with the establishment of the Bank of Hindustan, which lasted until 1830.

1. The Bank of Calcutta (1806)
2. The Bank of Bombay (1840)
3. The Bank of Madras (1843),

All of banks so formed was amalgamated in 1921 and become the Imperial Bank of India, that was later on changed / renamed to State Bank of India or SBI. Further there were other banks that started growing namely Allahabad Bank (1865) established in Allahabad played an important role in Norther India, Punjab National Bank (1911) founded to serve Indian interest and foster Indian Entrepreneurship.

The Reserve Bank of India was set up on the basis of the recommendations of the Hilton Young Commission⁵. It was founded on April 1. 1935 in compliance with RBI Act 1934. Initially it was owned by private sector, and later on, on January 1, 1949 the RBI was nationalised. The RBI aims to run currency and credit systems in the country and also regulate the Banks operating in the nation.

B. Phase II: The Nationalisation Phase from 1969 to 1991

The second phase of the Indian Banking System starts from 1969 to 1991, & it is particularly known as the Banking Nationalisation Phase in the Banking Industry. It made a structural changes in the Banking Sector, and it ultimately brought the Government control on the banking sector and ultimately allowed to be used banking as tool for socio-economic development.

³ Banking Companies (Acquisition and Transfer of undertaking) Act 1980.

⁴ Reserve Bank of India, *History of Banking in India*, available at <https://rbi.org.in/Scripts/HistoryofBanking.aspx>. accessed on 11 December 2023 at 18:39.

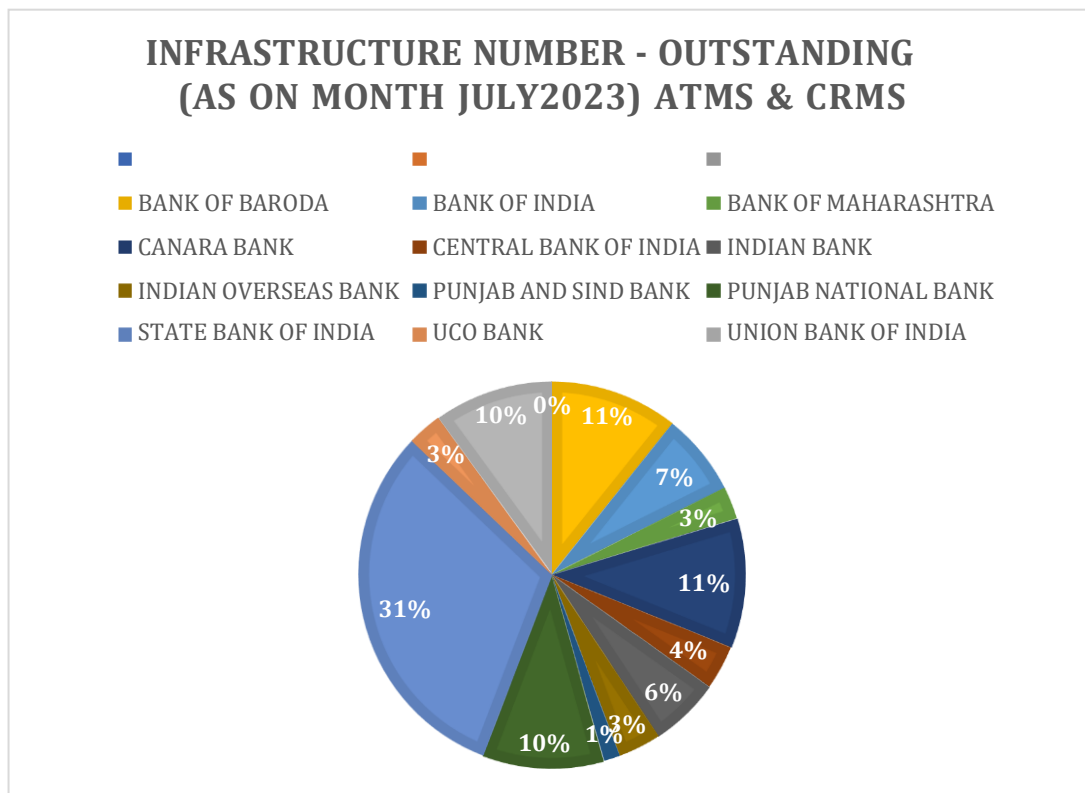
⁵ Brief History. Available at https://www.rbi.org.in/History/Brief_History.html accessed on 11 December 2023 at 18:21.

C. Phase III: The Liberalisation or the Banking Sector Reforms Phase, which begun in 1991 and is still thronging to date. The period that began after 1991, marked a dramatic transformation in India's Banking System. It aimed to modernize the sector, promoting competition and ensuring financial stability. This liberalisation phase was turning point for India's economy, and the banking reforms were made based upon the recommendation of Narasimham Committee. The Government allowed the entry of private sector Banks. It was intended to increase the competition and promote innovation and improve the customer services. Along with entry of private banks, the services of the banks also increased. During that era the technological reforms were made in the banking sector.

Reforms in the Banking Sector due to Technology

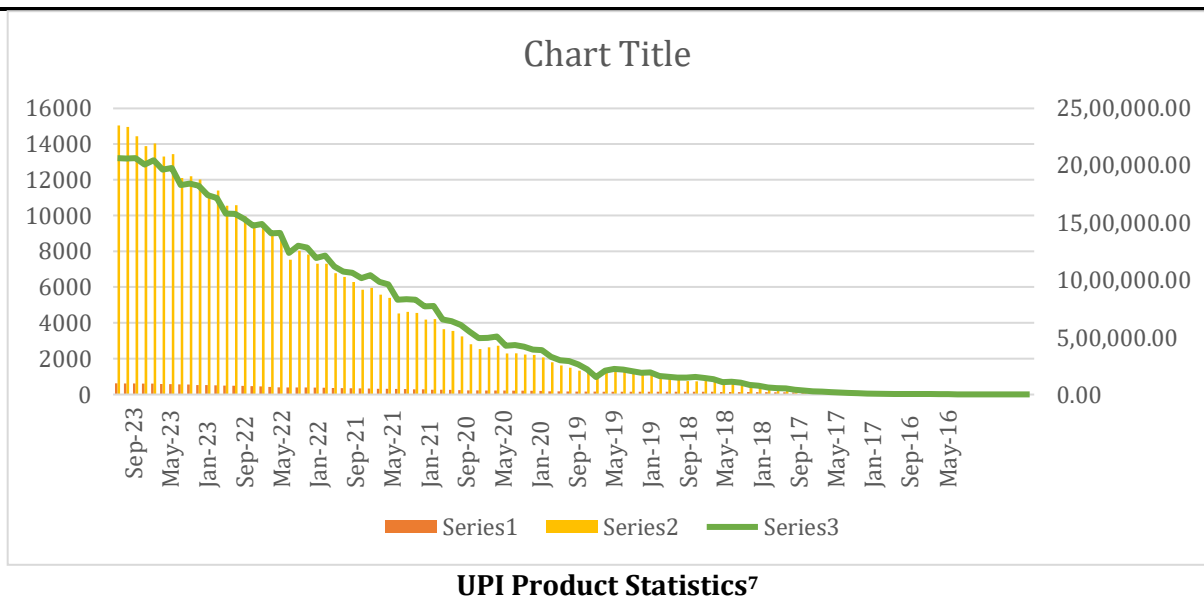
In the 1990s, 2000s and 2100s saw a significant wave of technological advancement in the Indian Banking, revolutionizing operation and customer service. Previously all the banks were not centralised, and it took a lot of time to perform a single transaction, but after the Centralized banking operation particularly known as Core Banking Solution (CBS) allowed the customer to access their accounts from any branch of bank.

This CBS allowed the customer to operate from single place and access all services related to their account. It improved the operational efficiency and customer services. The Automated Teller Machines (ATMs), Debit and Credit Cards, Mobile and Netbanking facility and other Digital Payment System i.e. NEFT and RTGS, IMPS all these mode became the standard mode for the electronic fund transfer. It all made payment more reliable and faster.



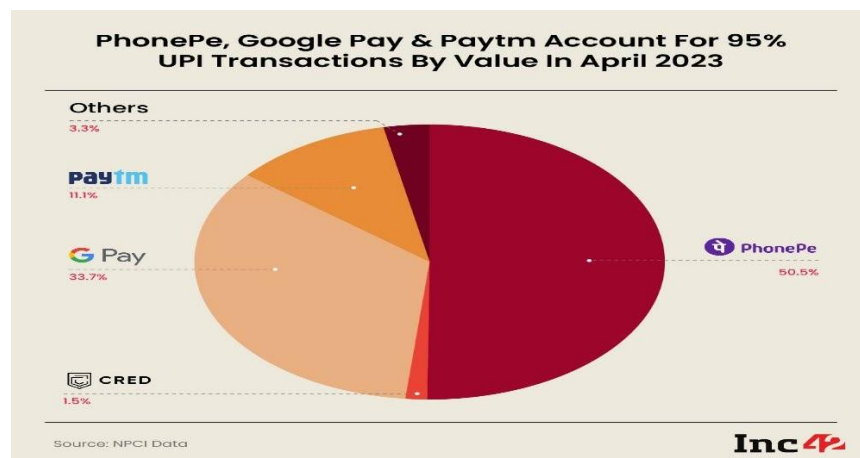
Infrastructure Number - Outstanding (as on month July 2023) ATMs & CRMs⁶

⁶ Reserve Bank of India - Bankwise ATM/POS/Card Statistics (rbi.org.in) Available at <https://www.rbi.org.in/Scripts/ATMView.aspx?atmid=161> accessed on 11 December 2023 at 21:24.



4. MODERN INDIAN BANKING SYSTEM

The modern banking system in India is noticeably different from what it was some years back, thanks to the rapid intervention of technological elements, efforts for financial inclusion, and regulatory reforms.⁸ It, however, still entails a lot of legal and regulatory challenges. The modernization and digitization of the bank by the use of new advanced technology has changed the entire banking system. Since 2017 onwards the UPI has been introduced, the number of UPI transactions has increased gradually.



In comparison, as of March 2023⁹, PhonePe, Google Pay, and Paytm collectively transacted 841.91 Cr worth INR 13.44 Lakh Cr.

5. INTRODUCTION OF TECHNOLOGICAL INTEGRATION SYSTEM IN THE BANKING SYSTEM

⁷ Unified Payments Interface (UPI) Product Statistics | NPCI available at <https://www.npci.org.in/what-we-do/upi/product-statistics> accessed on 09 December 2023 at 21:54.

⁸ Anshul Pandey, *Technological Revolution in Indian Banking Sector*, 7 *Int'l J. Fin. Res.* 1 (2016).

⁹ PhonePe, Google Pay, Paytm Accounted For 97% Of UPI Transactions In April available at <https://inc42.com/buzz/phonepe-google-pay-paytm-accounted-for-97-of-upi-transactions-in-april/> accessed on 09 December 2023 21:24.

Indian Banking Sector consists of public sector banks, private sector banks, foreign banks, regional rural banks, cooperative banks, and payments bank.¹⁰ The digitisation of the banking system has introduced automation and AI to boost efficiency, improve customer experience and reduced operational costs. Axis AHA !! of Axis , Ask EVA!! of HDFC and SIA of SBI all these are the AI tools to provide the service for the banking customer.



Images shown above are the prime example of Automation & AI assistant used by Banks.

¹⁰ Reserve Bank of India, Report on Trend and Progress of Banking in India 2019-20, available at <https://rbi.org.in/Scripts/AnnualPublications.aspx?head=Trend%20and%20Progress%20of%20Banking%20in%20India>. accessed on 09 December 2023 21:24.

6. LEGAL CHALLENGES FACED BY THE INDIAN BANKING INDUSTRY

A. NPAs

• The highest legal challenge is the problem of NPAs. Specifically, Indian public sector banks are at the top in recording bad loans with a huge level of high non-performing assets that negatively affect the profitability and financial stability. Some laws, the Insolvency and Bankruptcy Code (IBC)¹¹, have been implemented to enhance recovery on bad loans, however, prolonging of resolution and judicial backlog remain a constant problem.

B. Regulation Complexity

- **Basel III norms: Capital adequacy**¹²
- **Prevention of Money Laundering Act, 2002 (PMLA)**¹³
- **Foreign Exchange Management Act, 1999 (FEMA)**¹⁴ Most of the regulations are quite cumbersome, and banks have to maintain compliance without losing operational efficiency. The penalties for non-compliance are quite severe, more so the AML laws.

C. Consumer Protection

- The Consumer Protection Act, 2019¹⁵ grants the consumer the right to redress against unfair banking practice. Certain cases are even explicitly mis-sale of financial products, charges, and fees being charged surreptitiously. Then there is the Ombudsman Scheme for Digital Transactions, which seeks to resolve consumer complaints in digital banking expeditiously.

D. Corporate Governance and Accountability

- The Banking Regulation Act, 1949¹⁶ and other regulatory provisions mandate more robust corporate governance framework in banks, but critical failures in the domain of governance particularly in Public Sector Banks have resulted in issues like fraud and mis-management such as large-scale frauds by Punjab National Bank (PNB) and Vijay Mallya have underlined the need for greater oversight.

E. Crypto and Fintech Regulation

- High regulatory uncertainty has been generated by the advent of cryptocurrency and the rise of fintech platforms. While banning cryptocurrencies, RBI cleared the green flag, stating a need for a legal framework. The government put forth their proposed laws, like the Cryptocurrency and Regulation of Official Digital Currency Bill, 2021¹⁷, and it remains confusingly vague to this day.

F. Cross-Border Transactions and International Banking

¹¹	Insolvency and Bankruptcy Code (IBC), 2016
Insolvency and Bankruptcy Code, 2016, No. 31, Acts of Parliament, 2016 (India).	
¹²	Basel III Norms
Reserve Bank of India, Implementation of Basel III Capital Regulations in India, Circular DBOD.No.BP.BC.98/21.06.201/2011-12 (May 2, 2012).	
¹³	The Prevention of Money Laundering Act, 2002 (PMLA)
The Prevention of Money Laundering Act, 2002, No. 15, Acts of Parliament, 2003 (India).	
¹⁴	Foreign Exchange Management Act, 1999 (FEMA)
The Foreign Exchange Management Act, 1999, No. 42, Acts of Parliament, 1999 (India).	
¹⁵	Consumer Protection Act, 2019
The Consumer Protection Act, 2019, No. 35, Acts of Parliament, 2019 (India).	
¹⁶	Banking Regulation Act, 1949
The Banking Regulation Act, 1949, No. 10, Acts of Parliament, 1949 (India).	
¹⁷	Cryptocurrency and Regulation of Official Digital Currency Bill, 2021
The Cryptocurrency and Regulation of Official Digital Currency Bill, 2021, Bill No. XXVII of 2021, Lok Sabha, (India).	

- Cross-border banking raises legal issues in terms of ensuring FEMA and international anti-money laundering compliance. Indian banks will also have to follow global norms, such as KYC, AML, for dealing with international clients or transactions.

G. Data Privacy and Cybersecurity

- Dealership With the emergence of digital banking, such a legal framework around data protection and cyber security has become more significant generally. The proposed Data Protection Bill will influence methods undertaken by the banks in the accumulation, storage, and utilization of customer data. Banks are also subject to cyber-attacks and fraud wherein there is a need for strong cybersecurity measures and compliance with other IT laws like the Information Technology Act, 2000¹⁸.
- Modern banking systems encounter numerous cybersecurity challenges stemming from the growth of digitalization, heightened interconnectivity, and advanced cyber threats. Some of the primary cybersecurity concerns include:

1. Phishing and Social Engineering: **City Union Bank SWIFT Phishing Attack (India, 2018)**--City Union Bank in India was targeted by hackers who attempted to siphon off nearly \$2 million through fraudulent SWIFT transactions. Hackers gained unauthorized access to the bank's international payment system using phishing emails that contained malicious links. Though a large portion of the money was recovered, the attack showcased vulnerabilities in banks' internal processes and how social engineering tactics can lead to significant financial losses.

These cases demonstrate that attackers often rely on manipulation techniques that exploit human trust, urgency, and fear. Impersonating trusted entities or creating fabricated crises are common tactics.

2. Ransomware Attacks

SpiceJet Ransomware Attack (2022) In May 2022, **SpiceJet**, a leading Indian airline, suffered a ransomware attack that disrupted its operations and grounded flights for hours. Passengers experienced major delays, and the airline struggled to restore its systems. SpiceJet did not provide details on the ransom demand but worked with external experts to resolve the issue. The incident raised concerns about the vulnerability of the aviation sector to cyberattacks¹⁹

3. Data Breaches and Identity Theft

Yes Bank Data Breach (2020)²⁰- In 2020, **Yes Bank** experienced a data breach that exposed sensitive information of over 3.5 million customers. The breach was traced to a vulnerability in a third-party service provider's payment gateway. Cybercriminals accessed critical details such as customer names, account numbers, transaction histories, and even partial card numbers. This breach raised concerns about the security practices of banks and the third-party vendors they partner with. The bank quickly responded by improving its cybersecurity protocols and collaborating with regulators to mitigate the damage.

4. Distributed Denial-of-Service (DDoS) Attacks

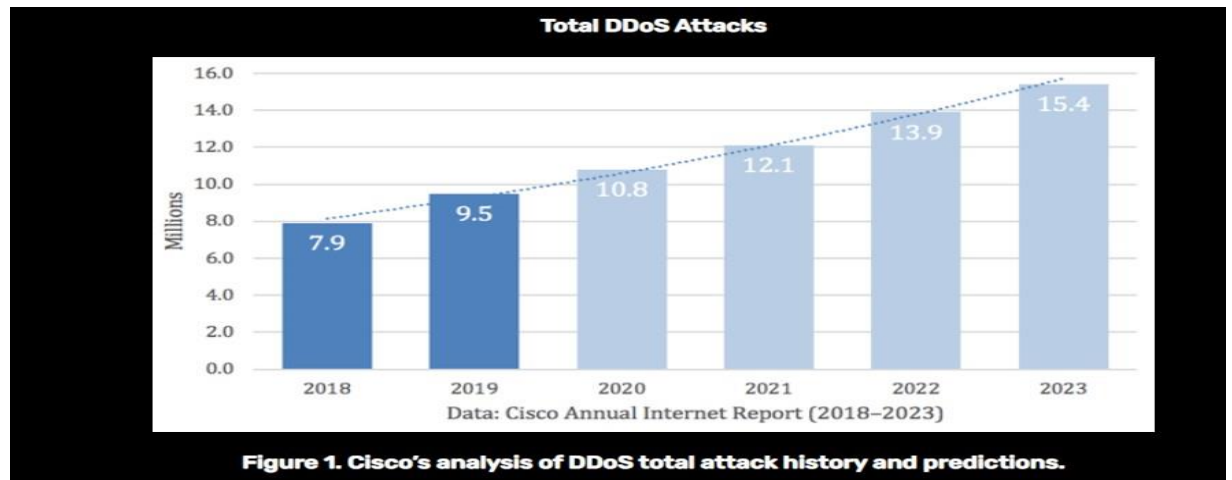
A denial-of-service (DoS) is a form of cyberattack that prevents legitimate users from accessing a computer or network. The first recorded instance of a distributed denial of service assault was in 1996 when a SYN flood—a method that has since become synonymous with DDoS attacks—forced Panix, one of the oldest ISPs, to go offline for many days²¹. Below figure states DDoS attack that is predicted by CISCO.

¹⁸ Information Technology Act, 2000
The Information Technology Act, 2000, No. 21, Acts of Parliament, 2000 (India).

¹⁹ Available at <https://www.livemint.com/companies/news/ransomware-attack-disrupts-spicejet-flights-11653502832379.html> accessed on 08 December 2023 at 13:10.

²⁰ Available at <https://www.livemint.com/Industry/Ope7B0jpjoLkcmwz6QXirN/SBI-Yes-Bank-MasterCard-deny-data-breach-of-own-systems.html> accessed on 08 December 2023 at 13:28.

²¹ Five Most Famous DDoS Attacks and Then Some available at <https://www.a10networks.com/blog/5-most-famous-ddos-attacks/> accessed on 08 December 2023 at 13:10



7. CONCLUSION

Thus, a very complex set of legal issues has to be addressed by a rapidly modernizing Indian banking system. Governance, cybersecurity, consumer protection, regulatory compliance, and NPAs are all crucial factors in the stability of the sector. Moreover, it is imperative that the legal framework adjusts to technological shift, such as fintech or cryptocurrencies. Winning for the banking system will depend on mastering these challenges and finding a delicate balance between innovation and regulation.

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CONFLICT OF INTEREST

The authors declare no conflict of interest between them.