

# The Rise of Mobile Banking and Its Impact on Traditional Banking Services

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## ARTICLE INFO

## ABSTRACT

The beginning and proliferation of mobile banking technology has transformed the landscape of banking services across the globe. The world of Banking & Finance is spearheading into the era where financial transactions are majorly conducted through the mobile/hand-held devices at figure tips, round the clock. This paper covers the rise of mobile banking and its profound impact on traditional banking services in Indian Context.

The study delves into the key drivers behind the surge in adoption of mobile banking transactions in India, examining technological advancements, changing consumer behaviour patterns, sequence of events occurred at economic level and its impact at a scale along with the evolving regulatory environment. The rise of mobile banking has redefined the way customers interact with financial institutions such as banks & other financial service provider.

Mobile applications enable users to perform various banking activity such as account management, fund transfers, bill payments, and investment management. This paradigm shift in the adoption of the online banking services has led to a fundamental transformation in customer expectations, prompting banks to reassess and adapt with the increasing consumer needs through their service offerings.

This shift to mobile banking also raises concerns about financial frauds, cybersecurity and data privacy, demanding a robust Fraud Risk Managements (FRM) systems as a measure to protect sensitive financial information and curve down the frauds.

The present study investigates, the implications for financial institutions in terms of cost structures, as the digitalization of banking services necessitates investments in technology infrastructure and cybersecurity. Traditional banks are compelled to strike a balance between maintaining physical branches for certain customer segments and investing in cutting-edge technology to stay competitive in the mobile banking landscape.

The study highlights, the rise of mobile banking signifies a shift in the financial services industry, where the convergence of technology, consumer preferences, regulatory dynamics and Covid-19 reshapes the banking landscape in the country.

**Keywords-** Mobile Banking, Banking Regulatory Dynamics and Customer Preferences

## I. INTRODUCTION

Banking is a crucial element of modern economies, delivering a variety of financial services to individuals, businesses, and governments. Banks play a vital role in the financial system by accepting deposits, offering loans, and facilitating payments. Over time, banking has transformed with technological advancements, giving

rise to digital and mobile banking. Additionally, banks support economic growth by providing loans to businesses and individuals. The industry is heavily regulated to ensure stability and customer protection.

- **Traditional banking**, the conventional model accessible through physical branches, has been around for centuries, offering services like deposits, loans, credit cards, and payments. It has played a pivotal role in economic development by providing credit to individuals and businesses. Despite its importance, traditional banking faces challenges from digital banking and fintech startups, prompting adaptation and innovation.

- **Digital/Mobile banking**, delivered through online and mobile platforms, has disrupted the industry, altered how customers access, and engaged with services. It provides convenient and flexible options, including accounts, bill payments, fund transfers, loans, and investments. Digital banking fosters personalized services, enhancing customer experiences and loyalty. The shift to digital banking has led to industry-wide changes, introducing new players and altering regulations. Understanding this impact is crucial for individuals, businesses, and policymakers in navigating the evolving landscape of banking services<sup>1</sup>.

## TWELVE EVENTS THAT HAD A NOTABLE IMPACT ON INDIAN BANKING

Indian Banking has changed drastically since the Economic Reforms of 1991. The major trust for banking reforms came from the recommendations of two committees which was headed by former Governor of RBI Mr. M. Narasimham. It was famously called as Narsimham Committee I on the Financial System, 1991 and the Narsimham Committee -II of Banking Sector Reforms, 1998 – formed the bedrock of reforms in the Indian financial and banking sectors<sup>a</sup>. In spite of progress there are certain issues caused irritation to Banking sector in first decade & half post reforms namely<sup>b</sup>.

- Securities Scam of 1991-92
- Many NBFCs and their Performance
- Neglect of rural and Semi-urban areas and the small borrowers by the banks.
- Issues pertaining to the Interest rates.

Post 2010 and in particularly after the 2007-08 Global Financial Crisis, Indian Banking sector changed considerably and there are about 12 events, both in India and globally, have had a substantial impact on the surge of digital banking and digital payments in India: These Events are listed as follows,

1. **Penetration of Internet** - The introduction of the Internet revolutionized global communication and information access, connecting people worldwide and transforming various aspects of modern life, including commerce, education, and social interaction. This technological breakthrough, emerging in the early 1990s, has become an indispensable part of contemporary society. Post 2010, Internet accessibility increased manifolds, thanks to the SMART- Mobile Phones availability.

2. **Introduction of Core Banking System** - The introduction of Core Banking System streamlined banking operations, consolidating customer information and transactions into a centralized platform. This innovation, implemented to enhance efficiency and customer service, marked a pivotal shift in the banking industry's technological landscape.

3. **Introduction of NPCI** - The introduction of the National Payments Corporation of India (NPCI) revolutionized the country's payment ecosystem, facilitating seamless and secure electronic transactions. Established in 2008, NPCI has played a key role in advancing digital financial services and promoting financial inclusion across India.

4. **Introduction of Aadhaar** - The introduction of Aadhaar, India's unique identification system, has been a groundbreaking initiative, providing a biometrically linked identity to over a billion residents. Rolled out in 2009, Aadhaar has significantly impacted various sectors, including finance, governance, and social services, fostering efficiency and inclusivity.

5. **Introduction of Jan Dhan Accounts** - The introduction of Jan Dhan Accounts in India aimed at financial inclusion, providing millions of citizens with access to basic banking services. Launched in 2014, this initiative played a crucial role in bringing marginalized populations into the formal banking system, fostering economic empowerment.

6. **Introduction of Make in India Initiative** - The Make in India initiative, launched in 2014, strives to boost domestic manufacturing, attract foreign investment, and promote economic growth by encouraging the production of goods within the country. This ambitious program aims to transform India into a global manufacturing hub, fostering innovation and job creation.

**7. Launch of Jio Telecom** - The Launch of Jio Telecom in India disrupted the telecommunications industry, offering affordable data and voice services, transforming the digital landscape, and accelerating widespread internet access. It is started functioning in 2016, Jio's innovative approach reshaped connectivity trends and fuelled a digital revolution across the country.

**8. Introduction of Unified Payment Interface (UPI)** - The introduction UPI revolutionized digital transactions in India, providing a seamless and instant platform for interbank fund transfers. Launched in 2016, UPI has become a cornerstone in the country's move towards a cashless economy, simplifying peer-to-peer and merchant transactions.

**9. Demonetization in India** - Demonetization in India, implemented in November 2016, by the Government aimed to curb black money, and promote a cashless economy. The sudden invalidation of high-denomination currency notes sparked mixed reactions nationwide. While supporters lauded the move's intent to combat corruption, critics pointed to its disruptive impact on daily life and the economy. The initiative led to increased digital transactions but also posed challenges, particularly for the informal sector. Despite its polarizing effects, demonetization remains a significant chapter in India's economic and political landscape. Demonetization forced people to adopt to digital payments to an extent and people starting using cards, UPI, etc. as a payment option.

**10. Mega consolidation of the PSU Banks** – In an effort to streamline the PSU Banks, Dena Bank and Vijaya Bank were merged with Bank of Baroda, Oriental Bank of Commerce and United Bank of India merged with Punjab National Bank; Syndicate Bank was merged with Canara Bank; Andhra Bank and Corporation Bank were merged with Union Bank of India; and Allahabad Bank was merged with Indian Bank.<sup>e</sup>

**11. COVID-19 Pandemic** - The COVID-19 pandemic, originating in late 2019, has had a profound global impact, leading to widespread health crises, economic disruptions, and unprecedented changes in daily life. Governments, communities, and individuals worldwide have navigated the challenges of the pandemic, emphasizing the importance of public health measures, vaccination efforts, and resilience in the face of a rapidly evolving crisis. Contactless payments saw its peak and UPI benefitted out of it. Those merchants who never used digital payments started accepting digital payments. This was a major forceful shift to a lot of non-tech-savvy citizens in India.

**12. Geopolitical Issues** - The geopolitical issues surrounding SWIFT in Russia have emerged amid tensions, with discussions on the potential exclusion of Russian banks from the SWIFT network as a means of imposing economic sanctions. This move has significant implications for Russia's financial system, marking a geopolitical tool in response to geopolitical events and conflicts. This fact highlights the Weaponization of Payment Systems<sup>d</sup> and Trade. A lot of countries post this event started to look out to bring in more resilience in the ecosystem as far as the payment systems are concerned.

## II. RESEARCH METHODOLOGY

The current study is explanatory in nature and based on secondary data such as articles, journals, books, websites and research papers. The study has endeavoured to incorporate many practical and real-life examples learned from the banking sector. The important objective of the study is to evaluate the Impact of Digital Banking (Use of UPI in banking Transactions) on Traditional Banking Services.

It is important to note that as of November 2023, there are 516 banks are live on UPI with 11,235.29 million Transactions of Value Rs. 17,39,740.61 million, as against November 2016 when there were only 30 banks handling about 2,90,000 Transactions worth Rs. 100.46 Million.<sup>e</sup>

With Indian Payment scenario is well dotted with UPI, it is important to evaluate the UPI for cross border transactions (Banking Circle-Blog)<sup>2</sup>. According to the Migration Portal.com<sup>3</sup>, presently remittances have been the largest source of external flow of capital to low-and middle-income countries. In the Year 2023, India emerged as leader for remittances inflows among with USD 125 billion followed by Mexico USD 67 billion, China USD 50 billion, the Philippines USD 40 billion, and Egypt USD 24 billion. Cross-border UPI transactions have the potential to significantly reduce the costs associated with international money transfers which would result into more INR trade in the global market. In recent Development the Reserve Bank of India said that it has proposed to permit all inbound travellers to India to use UPI for their merchant payments while they are in the country. (Economic Times)<sup>4</sup>. It is worth to take a note of the fact that the current contribution of the Indian Currency-INR is around 1.7% as per the Triennial Central Bank Survey (BIS 2022)<sup>5</sup>. This percentage would be higher in future, if there are more UPI transactions with more International Linkages. This would not only reduce the costs associated with payment & transactions but also helpful in Indian efforts of making INR an international currency. It is estimated that the Indian GDP from current level of USD 3.75 Trillion would be touching USD 30 Trillion by 2047 (Subrahmanyam,2023)<sup>6</sup>, the UPI would be acting as a backbone of the Indian Payment System which would be facilitated with 120 crore smart phones by 2047. This would

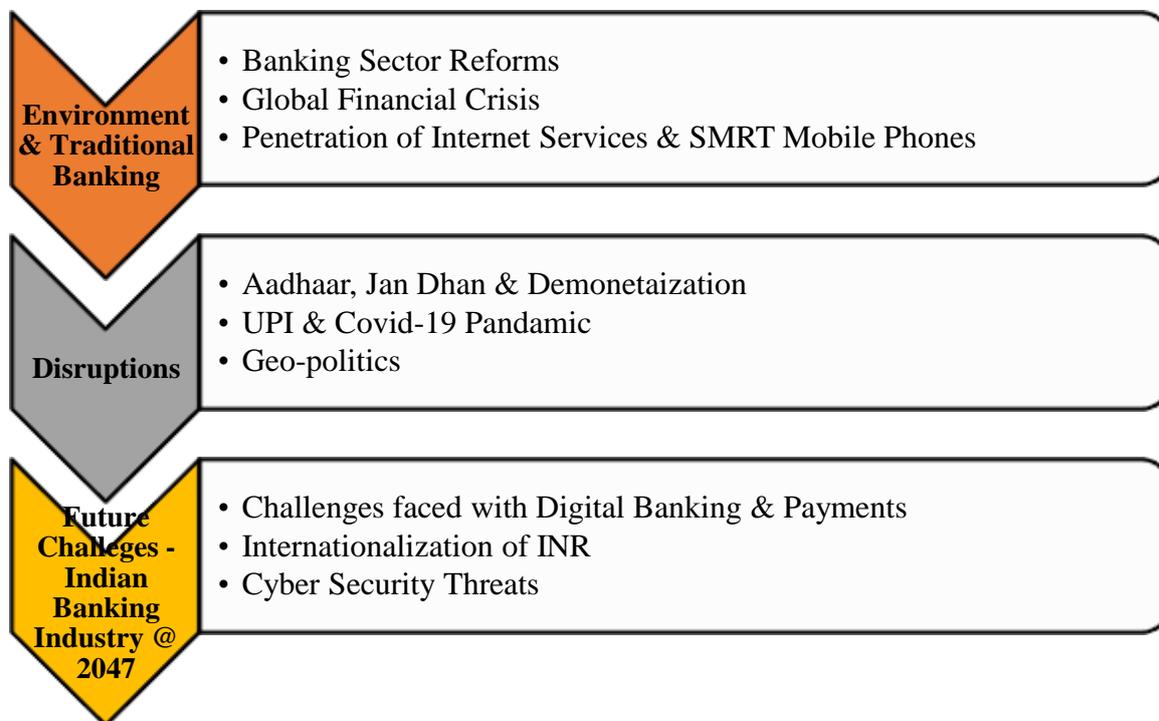
significantly transform the traditional banking and pave a way for mobile banking to sustain the high –tech economy of the future.

Back Anthony (2023) in his blog highlighted the age wise American Customers preferences of payment systems<sup>7</sup>-

**Table No. 1: Age wise Customer Preferences of American Payment System**

| Age Group            | Preferred Payment Method  |
|----------------------|---|
| 9-25 (Gen Z)         | Debit cards, cash, credit cards                                 |
| 26-41 (Millennials)  | Debit cards, credit cards, cash, mobile wallets, bank transfers |
| 42-56 (Gen X)        | Credit cards, debit cards, bank transfers, checks               |
| 57-75 (Baby Boomers) | Checks, credit cards, debit cards                               |

The current study explores the theme of mobile banking and its impact on the Traditional Banking from the Indian perspective. One of the Major limitations of this explanatory study is that it is based upon the secondary data and hence some of the conclusions may not be generalized considering the dynamic nature of business & economic environment. Considering the data and selected literature surveyed a following Theoretical Construct emerged.



**Figure No. 1: Theoretical Framework of the study**

The review of literature explains certain gaps that the Indian customer and their preferences of the payment mechanism is not properly evaluated. It is also not clear that what really cause the UPI transactions to increase considerably considering the twelve mentioned events. The Currently study explores this gap and consider Covid-19 as important event that cause the UPI transaction increased significantly in terms of volume. The study also explores the future scope so to understand the Indian customer preferences of payment systems and gateways with a primary data and its analysis based upon financial literacy, demographics and perception of the consumers towards digital & mobile banking. Considering the literature surveyed and secondary data available pertaining to the UPI Product Statistics<sup>f</sup> from April 2016 to November 2023, the current study considered the 88 Months as a Data points from August 2016 to November 2023 for analysis. The Data points are divided into two parts Pre-Covid Period of 44 months (August 2016 to March 2020) and Post Covid period of 44 months (April 2020 to November 2023). These two data bases are analysed for monthly volume transactions of UPI Payments using a t-test statistic. This explanatory study has a hypothesis, which was tested using paired t-test with SPSS 21.

**Ho:** - There is no difference Between the Monthly Volume of UPI Transactions Pre & Post Covid Period

**Ha:** - There is a difference Between the Monthly Volume of UPI Transactions Pre & Post Covid Period

The study sample is divided into two data sets that is pre & post covid UPI Monthly transactions since August 2016 till November 2023. Total there are 88 months which were divided into two data sets with each set having data for 44 months.

### III. IMPACT OF MOBILE BANKING ON TRADITIONAL BANKING SERVICES

Mobile banking has significantly impacted traditional banking services in several ways, transforming the industry and changing the way customers interact with financial institutions. In order to manage the Indian Economy transition from current level to the Developed economy by 2047, it is imperative to take assistance of technology which would enable 150 crore Indians to have access to the Banking system. It is estimated to have around 120 crore smart phones in Indian by 2047 (Statista.com)<sup>8</sup> which would be facilitating the Mobile –Banking to the masses. The Transition from Traditional Banking to Mobile Banking would have following key impacts:

- 1. Convenience and Accessibility:** Mobile banking offers unparalleled convenience, allowing customers to access their accounts, make transactions, and manage finances anytime, anywhere. This convenience reduces the reliance on physical branches, making banking services more accessible.
- 2. Cost Reduction for Banks:** Traditional banking involves substantial operational costs, including maintaining physical branches and staff. Mobile banking enables banks to reduce these costs by offering services through digital channels, leading to increased operational efficiency.
- 3. Customer Experience Enhancement:** Mobile banking provides a more streamlined and user-friendly experience for customers. With intuitive interfaces, personalized notifications, and features like mobile check deposit, customers can manage their finances with greater ease and efficiency.
- 4. Transaction Speed and Real-time Updates:** Mobile banking facilitates faster transaction processing and real-time updates. Customers can instantly transfer money, receive notifications for transactions, and monitor their account activities in real-time, enhancing transparency and control.
- 5. Financial Inclusion:** Mobile banking has played a crucial role in promoting financial inclusion by providing banking services to individuals in remote or underserved areas. People who previously had limited access to traditional banking services can now participate in the financial system through mobile devices.
- 6. Security Concerns:** While mobile banking offers convenience, it also raises concerns about security. The risk of unauthorized access, data breaches, and fraudulent activities has become a challenge that banks need to address to ensure the trust and confidence of their customers.
- 7. Changes in Customer Interaction:** The advent of mobile banking has led to a shift in the way customers interact with banks. While traditional branches still serve a purpose, many routine transactions and interactions have moved to digital platforms, altering the dynamics of the customer-bank relationship.
- 8. Technology Adoption and Innovation:** Mobile banking has driven the adoption of cutting-edge technologies such as biometrics, artificial intelligence, and blockchain in the financial sector. Banks are increasingly investing in technological innovations to stay competitive and meet evolving customer expectations.
- 9. Impact on Traditional Branches:** The rise of mobile banking has led to a decline in foot traffic at traditional bank branches. Some banks have responded by optimizing their branch networks, offering specialized services, or enhancing the customer experience to remain relevant.
- 10. Competition and Market Dynamics:** The introduction of mobile banking has intensified competition within the financial industry. Traditional banks now compete with digital-only banks and fintech startups, prompting traditional institutions to innovate and adapt to changing market dynamics.

In summary, mobile banking has reshaped the landscape of traditional banking services, bringing both opportunities and challenges. While it has improved convenience and access for customers, it has also necessitated adaptability and innovation for traditional banks to stay competitive in the evolving financial ecosystem.

India serves as a pivotal player in driving advancements and pioneering innovations within the payments sector. In the current landscape, the diverse and dynamic nature of payment options available to Indian residents reflects a comprehensive array of choices and avenues for initiating transactions. This expansive range includes traditional methods like Net Banking, Mobile Banking, and Cards, as well as newer technologies

and systems such as NEFT, RTGS, IMPS, UPI, NeTC, AePS, NACH, CTS, QR-based methods, and various other channels.

The evolution of the digital payments' ecosystem in India over the past few years has been remarkable. The journey showcases a transition from conventional modes of banking and transactions to a sophisticated and interconnected system that embraces cutting-edge technologies. This transformative shift has not only broadened the scope of available payment methods but has also streamlined the overall process, making transactions more efficient, secure, and convenient for Indian citizens. The continuous expansion and diversification of the payments landscape underscore India's commitment to staying at the forefront of global financial technology trends.

### Digidhan Mission

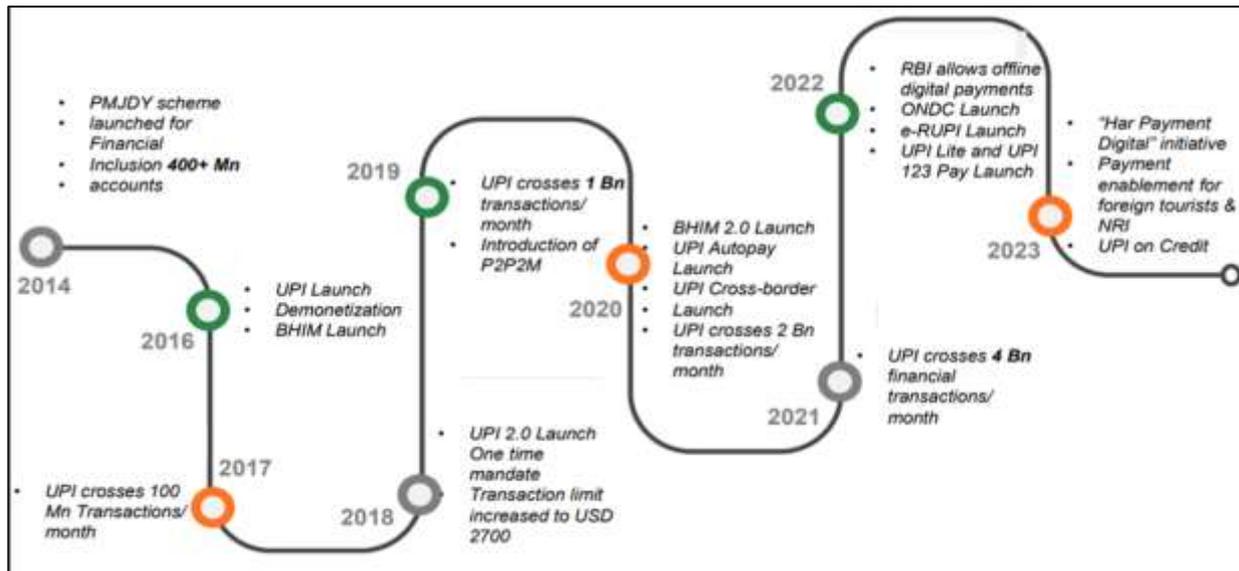
- Government of India is making efforts for promoting a less cash economy and to provide the facility of seamless digital payment to all citizens of India in a convenient manner.
- Indian Finance Minister in his Budget Speech of FY 2017-18 announced a target of 2,500 crores digital transaction for 2017-18 and had announced that a dedicated Mission shall be set up for this purpose.
- In pursuance of this vision, "DIGIDHAN Mission" has been set under the Ministry of Electronics and Information Technology (MeitY), with an objective to achieve the target of 2500 crore digital payment transactions in financial year 2017-18 and to enable digital payment infrastructure throughout the country.



**Figure No. 2: The Journey of DIGIDHAN Mission<sup>9</sup>**

Source: - MeitY Coffee Table Book (February 2023)

India's demonetization in 2016 significantly impacted the economy, but it propelled the growth of digital payments from 10% to over 20%. (please quote the source if possible) The move, announced by Prime Minister Narendra Modi, demonetized 86% of cash, driving the aggressive promotion of the digital ecosystem. Factors like government initiatives (**Digital India, Make in India**), increased internet and smartphone use, and the rise of e-commerce have fuelled this growth. The government's push for 2,500 crore digital transactions in the 2017-18 Union Budget further promotes digital payments, aiming to reduce reliance on cash. Incentives for merchants and infrastructure development support this transition, fostering financial inclusion and a more efficient, secure financial system.<sup>10</sup>



**Figure No. 3: Journey of UPI Transactions<sup>11</sup>**

Source: RBI Website, PwC Analysis

#### IV. CHALLENGES FACED BY FINANCIAL INSTITUTIONS AIMD RISE IN DIGITAL BANKING & PAYMENTS

The rise of digital banking and payments has introduced several challenges for financial institutions, requiring them to adapt to the rapidly changing landscape of the financial industry. Some of the key challenges include:

- 1. Security Concerns:** The increased digitization of financial transactions has amplified the risk of cybersecurity threats, including data breaches, identity theft, and fraud. Financial institutions must invest heavily in robust security measures to protect customer data and maintain trust.
- 2. Regulatory Compliance:** The regulatory environment for digital banking is evolving, and financial institutions must navigate complex compliance requirements. Adhering to regulations related to customer authentication, data protection, and anti-money laundering (AML) poses challenges for banks operating in the digital space.
- 3. Technology Infrastructure:** Transitioning to digital banking requires significant investments in technology infrastructure. Legacy systems may not be equipped to handle the demands of digital services, leading to the need for system upgrades and modernization.
- 4. Customer Education and Trust:** Many customers may be unfamiliar with digital banking services, and there can be resistance to adopting new technologies. Financial institutions need to invest in customer education programs to build trust and ensure that users are comfortable with digital transactions.
- 5. Fraud Prevention:** As digital transactions increase, so does the sophistication of fraudulent activities. Financial institutions must continually innovate in fraud detection and prevention mechanisms to stay ahead of cybercriminals.
- 6. Interoperability Challenges:** Achieving seamless interoperability between different digital banking systems and payment platforms can be challenging. Ensuring compatibility and smooth transactions across various channels and providers requires industry collaboration and standardized protocols.
- 7. Operational Resilience:** Digital banking services are heavily dependent on technology, and any disruptions in the system can lead to service outages. Financial institutions need to invest in robust business continuity and disaster recovery plans to ensure operational resilience.
- 8. Data Privacy Concerns:** With the increasing volume of digital transactions, concerns about data privacy have become more pronounced. Financial institutions must adhere to strict data protection regulations and implement measures to safeguard customer information.
- 9. Competition from Fintechs:** The rise of fintech companies offering specialized digital financial services poses a competitive threat to traditional financial institutions. Banks need to adapt and collaborate with Fintechs or develop their own innovative solutions to stay competitive.

**10. Lack of Standardization:** The lack of standardized processes and technologies in the digital banking ecosystem can create inefficiencies and interoperability challenges. Establishing industry-wide standards could help overcome some of these issues.

Financial institutions need to proactively address these challenges to capitalize on the opportunities presented by digital banking and payments. This includes investing in technology, prioritizing cybersecurity, fostering customer trust, and staying agile in response to regulatory changes and market dynamics.

The surge in banking frauds in India has brought forth a wave of escalating concerns for financial institutions. With the rapid adoption of digital banking and online transactions, cybersecurity vulnerabilities have become a paramount worry, as sophisticated cybercriminals exploit weaknesses to gain unauthorized access and perpetrate fraudulent activities. Phishing attacks, card skimming, and mobile banking frauds have surged, posing a direct threat to the security of customer information and financial transactions. Insider threats, social engineering tactics, and the increasing risk of data breaches have added layers of complexity to the challenge. Regulatory compliance has become more stringent, and banks are under pressure to fortify their defences against transaction tampering and unauthorized access. Ultimately, the cumulative impact of these rising concerns not only jeopardizes financial stability but also erodes the trust and confidence of customers in the banking sector. Addressing these challenges requires a concerted effort involving advanced technology, robust cybersecurity measures, and a proactive approach to stay one step ahead of evolving fraud tactics.

## V. DATA ANALYSIS AND INTERPRETATION

Twelve events that had a notable impact Indian Economy as well as Financial System, the arrival of Covid-19 stands out. It has affected the entire world. Lockdown was a life changing experience for most of the people. Many sectors of the economy were hit, and commuting was largely impacted. Covid-19 has significantly reduced the human-to-human contact. In spite of these adverse conditions, Indian adapted to this new environment quickly. As the minimum contact was the norm during covid -19, the payments for essentials were quickly shifted from cash, cheques to UPI as there was hardly any human contact. Some cases PoS with Wireless/Wi-Fi system also used but the UPI transactions has increased significantly. Indians saw the need for UPI or Online Transactions post demonetization of November 2016, but in the case of Covid-19 most of the transactions were online or UPI mode as there was risk of handling currencies and cheques due to nature of Covid-19 virus and minimal human and outside contact was required so to restrict the spread of Covid-19. In this scenario, the online payment system has taken a giant leap, which is shown in the table no. 2.

**Table No. 2: UPI Payments Since August 2016 to November 2023**

| Month Pre Covid-Period | No. of Transactions Volume (in Mn) | Month Post Covid Period | No. of Transactions Volume (in Mn) |
|------------------------|------------------------------------|-------------------------|------------------------------------|
| Mar-20                 | 1247                               | Nov'23                  | 11235                              |
| Feb-20                 | 1326                               | Oct'23                  | 11409                              |
| Jan-20                 | 1305                               | Sep'23                  | 10556                              |
| Dec-19                 | 1308                               | Aug-23                  | 10586                              |
| Nov-19                 | 1219                               | Jul-23                  | 9965                               |
| Oct-19                 | 1148                               | Jun-23                  | 9335                               |
| Sep-19                 | 955                                | May-23                  | 9415                               |
| Aug-19                 | 918                                | Apr-23                  | 8898                               |
| Jul-19                 | 822                                | Mar-23                  | 8685                               |
| Jun-19                 | 755                                | Feb-23                  | 7535                               |
| May-19                 | 734                                | Jan-23                  | 8037                               |
| Apr-19                 | 782                                | Dec-22                  | 7829                               |
| Mar-19                 | 800                                | Nov-22                  | 7309                               |
| Feb-19                 | 674                                | Oct-22                  | 7305                               |
| Jan-19                 | 673                                | Sep-22                  | 6781                               |
| Dec-18                 | 620                                | Aug-22                  | 6580                               |
| Nov-18                 | 525                                | Jul-22                  | 6288                               |
| Oct-18                 | 482                                | Jun-22                  | 5863                               |
| Sep-18                 | 406                                | May-22                  | 5955                               |
| Aug-18                 | 312                                | Apr-22                  | 5583                               |

|        |       |        |         |
|--------|-------|--------|---------|
| Jul-18 | 274   | Mar-22 | 5406    |
| Jun-18 | 246   | Feb-22 | 4527    |
| May-18 | 189   | Jan-22 | 4617    |
| Apr-18 | 190   | Dec-21 | 4566    |
| Mar-18 | 178   | Nov-21 | 4186    |
| Feb-18 | 171   | Oct-21 | 4219    |
| Jan-18 | 152   | Sep-21 | 3654    |
| Dec-17 | 146   | Aug-21 | 3556    |
| Nov-17 | 105   | Jul-21 | 3248    |
| Oct-17 | 77    | Jun-21 | 2808    |
| Sep-17 | 31    | May-21 | 2540    |
| Aug-17 | 17    | Apr-21 | 2641    |
| Jul-17 | 12    | Mar-21 | 2732    |
| Jun-17 | 10.35 | Feb-21 | 2293    |
| May-17 | 9     | Jan-21 | 2303    |
| Apr-17 | 7     | Dec-20 | 2234    |
| Mar-17 | 6     | Nov-20 | 2210    |
| Feb-17 | 4     | Oct-20 | 2072    |
| Jan-17 | 4     | Sep-20 | 1800    |
| Dec-16 | 2     | Aug-20 | 1619    |
| Nov-16 | 0.29  | Jul-20 | 1497.36 |
| Oct-16 | 0.1   | Jun-20 | 1336.93 |
| Sep-16 | 0.09  | May-20 | 1234.5  |
| Aug-16 | 0.09  | Apr-20 | 999.57  |

The Data of Monthly UPI Transaction Volume is classified for analysis into two groups, pre Covid Period and Post Covid Period with each period has 44 months. A paired t-test was performed using SPSS-21 version with following results shown in Table no. 3, 4 & 5.

**Table No. 3: Paired Samples Statistics**

| Particulars                   | Mean      | Sample Size-N | Std. Deviation | Std. Error Mean |
|-------------------------------|-----------|---------------|----------------|-----------------|
| Pre Covid-Transaction Volume  | 428.0175  | 44            | 448.60277      | 67.62941        |
| Post Covid Transaction Volume | 5305.6389 | 44            | 3125.03714     | 471.11707       |

**Table No. 4: Paired Samples Correlations**

| Particulars                                  | Sample Size-N | Correlation | Sig.  |
|--|---------------|-------------|-------|
| Pre & Post Covid Pandemic Transaction Volume | 44            | 0.980       | 0.000 |

**Table No. 5: Paired Samples Test**

| Particulars                                  | Paired Differences |                |                 | t-Statistics | df | Sig.  |
|--|--------------------|----------------|-----------------|--------------|----|-------|
|  | Mean               | Std. Deviation | Std. Error Mean |              |    |       |
| Pre & Post Covid Pandemic Transaction Volume | -4877.62           | 2686.903       | 405.0659        | -12.042      | 43 | 0.000 |

The Table Nos. 3, 4 & 5 Indicate the results of paired t-test with One Data set representing pre-Covid 19 UPI Monthly Transaction Volumes while other data set representing post-Covid 19 UPI Monthly Transaction Volumes. The t-statistics was significant as p value is less than 0.05 for one tail and less than 0.025 for two-tail. Thus, the study null hypothesis is rejected and alternative hypothesis  $H_0$ -There is a difference Between the Monthly Volume of UPI Transactions Pre & Post Covid Period is accepted. It proves the volume of monthly transactions increased significantly post covid 19 period as against pre-covid 19 period.

## VI. CYBERSECURITY THREATS IN THE BANKING SYSTEM

- 1. Increased Threat Landscape:** The rapid growth in digital payments in India has led to a surge in transaction volumes, but it has also elevated the overall cybersecurity threats faced by the ecosystem.
- 2. Phishing Concerns:** Phishing attacks, utilizing deceptive emails, are a significant worry as they aim to extract confidential payment information, posing a direct threat to the security of digital transactions.
- 3. Rising Malware and Ransomware:** Instances of malware and ransomware are on the rise, specifically targeting individuals and organizations engaged in digital payments, posing a risk to the confidentiality and integrity of financial data.
- 4. Mobile App Vulnerabilities:** The widespread use of mobile payment apps in India exposes users to risks from insecure devices and unsecured Wi-Fi networks, making them more susceptible to potential data breaches.
- 5. Systemic Risks and Complexity:** The interconnected nature of digital payment ecosystems introduces systemic risks, amplifying the impact of breaches. Additionally, insider threats within payment service providers and vulnerabilities in the supply chain further complicate the cybersecurity landscape.

These challenges underscore the necessity for robust cybersecurity measures, continuous monitoring, and user awareness programs to ensure the integrity and security of digital payments in India.

## VII. FUTURE OF MOBILE BANKING & DIGITAL PAYMENTS – INDIA IN 2047

In 2047, the future of mobile banking and digital payments in India promises a landscape of unprecedented innovation and widespread financial inclusion. The evolution of technology is expected to bring about a seamless integration of financial services into the daily lives of Indian citizens. With the advent of advanced artificial intelligence, blockchain, and quantum computing, the security and efficiency of mobile banking and digital payments will reach new heights. Consumers can anticipate highly personalized and predictive financial services, as these technologies enable real-time data analysis and personalized recommendations, ensuring that individuals can make informed financial decisions tailored to their unique needs and circumstances.

Moreover, the digital payment infrastructure in India is projected to be deeply integrated into various aspects of the economy. The proliferation of **Internet of Things (IoT)** devices, coupled with a robust 5G network, will lead to an era where transactions occur seamlessly and instantaneously. India's vision for a cashless society will be realized, with mobile banking and digital payments becoming the primary means of financial transactions. The government's initiatives for financial inclusion, coupled with private-sector innovations, will bridge the digital divide, ensuring that even remote and underserved areas have access to secure and efficient financial services. In 2050, India is poised to be a global leader in the realm of mobile banking and digital payments, showcasing a model for other nations to follow in the era of digitized finance.

## VIII. CONCLUSION

The Covid-19, Pandemic though affected many Sectors of economy, disturbed the commuting and changed the behavioural patterns. It has reduced substantially human to human contact, but it has given rise to UPI payments in order to settle financial transactions. It is also important to understand the financial literacy and to create awareness about the cyber security and transactions threats that would results of voluminous UPI transactions more inclinations for online banking and payment systems. The surge of digital banking has been transformative, reshaping the landscape of traditional banking services in profound ways. The advent of digital platforms has not only introduced unparalleled convenience for consumers but has also triggered a significant reduction in operational costs for financial institutions. This shift has intensified competition among banks, as the focus now extends beyond brick-and-mortar establishments to digital interfaces that prioritize accessibility and user-friendly experiences. Simultaneously, the rise of digital banking has necessitated a re-evaluation of security measures, with financial institutions adopting advanced technologies to safeguard customer data and transactions. As customer expectations evolve in tandem with technological advancements, the banking sector finds itself navigating a delicate balance between innovation and security to stay relevant in this rapidly changing landscape.

This paradigm shift towards digital banking has empowered traditional banks to rethink and customize their services, leading to an enhanced overall customer experience. The ability to provide tailored solutions, streamlined processes, and instantaneous transactions has become a benchmark for success in the industry. However, the profound impact of digital banking also poses a formidable challenge for traditional banks. To remain competitive, these institutions must embark on comprehensive digital transformations, embracing technological advancements and adapting their infrastructure to align with the digital era. In essence, the

ongoing evolution fueled by digital banking is not just a trend but a fundamental restructuring of the banking sector, shaping its trajectory for the foreseeable future.

India's payment systems have reached their pinnacle, notably gaining global traction. The RBI, through its Payments Vision 2025, emphasised on globalization of NEFT, RTGS, UPI, and RuPay cards. The vision further emphasised on expansion of SFMS and InFiNet and embraced the globally recognized ISO 20022 standards for the RBI operated payment systems<sup>12</sup>.

The study also highlights the future scope in terms of the Online Payment behaviour with respective to Education Qualification, Level of Financial Literacy and awareness about the online financial transactions with its merits and demerits.

#### Foot Notes-

- a- See <https://www.thehindubusinessline.com/money-and-banking/m-narasimham-father-of-banking-reforms-dead/article34368996.ece> Assessed December 27th,2023
- b- See Joshi P.N. (2008), "Glimpses of Changing Banking Scenario", Mehta Publishing House, Pune, India p. 199-211
- c- See <https://www.thehindubusinessline.com/money-and-banking/public-sector-banks-may-see-further-consolidation/article67647634.ece> Assessed December 27th,2023
- d- See <https://www.econstor.eu/bitstream/10419/261001/1/180803919X.pdf> Assessed December 27th,2023.
- e- See <https://www.npci.org.in/what-we-do/upi/product-statistics> Assessed December 27th,2023.
- f- See <https://www.npci.org.in/what-we-do/upi/product-statistics> Assessed December 27th,2023.

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2. Banking Circle Blog – <https://www.bankingcircle.com/the-rise-of-upi-in-india-and-its-cross-border-potential-1013875#:~:text=In%20April%2C%20Indian%20oneobanking%20platform,locally%2> Assessed December 27th,2023
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