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Tech Trends In Digital Banking: An Empirical Study

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ABSTRACT:
The Banking Industry plays a significant role in the financial structure of the Indian economy. It enables the creation and maintenance of a vital payment structure to fulfill the needs of the Government, Business, and the public. The banking industry of India is witnessing a revolution in Information Technology and is heading towards digitalization. Digital banking has opened new doors to another continuum of banking by allowing customers to conveniently conduct their daily banking activities. The banking operation has changed rapidly from conventional to model banking, which offers massive opportunities to move towards a less-cash and cash-less society. The government of India has taken various actions to enhance and encourage the digital banking system to encourage 'Digital India.' The Government of India intends to build a 'digitally empowered' economy as part of the initiative: 'Faceless, Paperless, and Cashless.' Due to growing technology, internet penetration, and smartphone users in India, the Digital Banking Market is expected to grow over 22% CAGR during 2019-2024. This paper studies the growth and recent tech trends in digital banking facilities in the Indian economy. As a study methodology, data was collected from the RBI database and another report and analyzed using index number methods. The researcher analyzed the data for 12 years (2011-12 to 2022-23) to determine the trend of digital banking technologies. Research findings indicate that technologies like RTGS, Retail Electronic Clearing, Credit cards, Prepaid Payment Instruments (Mobile Wallets), and Mobile Banking show increasing trends. In contrast, Debit cards show decreasing trends due to increased smartphone use and mobile banking and mobile wallets.

Keywords: Digital Banking, Government Initiatives, Technology, Trend

1. INTRODUCTION

Digital banking has radically reformed the banking sector in the last few years. Initially, digital technologies were limited to banking networks but now they are integrated into the entire banking system. Through innovative technologies, the Digital banking system supports back-end operations and customer-facing networks, which is the looking forward for all stakeholders in the financial service industry. The revolution from conventional/traditional banking to digital banking has carried substantial changes in the lifestyle of Indian citizens. (Shahabas Ahmed C.B, 2020) Net Banking, digital wallets, and mobile banking apps allow customers to live their lives with minimum cash requirements. (Ayachit, 2019) The recent trends and new technologies anticipated India's banking and finance industry differently. The banking sector has experienced discrete levels of digital transformation in the last few years. Banks by using innovative technologies started to focus on improving customer convenience. (Vatsa, 2020) Government of India launched schemes like "Pradhan Mantri Jan Dhan Yojana" and "Digital India," to support digital technology by aiming for every citizen to provide an account in a bank and convert India into a digitally empowered economy. (Shahabas Ahmed C.B, 2020) Increases in smartphone users and Internet availability at the cheapest rates have given significant exponential growth of digital transactions in India. In the meantime, government regulators nationalized banks, and financial institutions employ cutting-edge technology to compete with international and private sector banks and stay relevant in the race. (Shahabas Ahmed C.B, 2020).

2. LITERATURE REVIEW

(Vatsa, 2020) This paper aims to provide an overview of recent developments in Fintech sectors, with a concentration on digital payments and the characteristics that contributed to the Fintech sector's rise from the context of market players, consumers, and supporting agencies and organizations, including the reforms and government initiative in allowing the massive growth in the sector. This paper is motivated by the expanding ecosystem and infrastructure supporting digital systems in India and the rest of the world. (Ayachit, 2019)This paper aims to provide a framework of recent growths in the field of the Fintech sector, with an emphasis on digital payments and the characteristics that

contributed to the industry's rise from the framework of market players, consumers, and supporting agencies and organizations, including the reforms and government initiative in allowing the massive growth in the sector. This paper is motivated by the expanding ecosystem and infrastructure supporting digital transactions in India and the rest of the world. Banks must outfit themselves with the necessary infrastructure as the country embraces ICT advancements. Virtual banking is widely accepted and used by the nation's educated urban young; banks must reach out to the illiterate rural poor. As the nation watches promising ICT trends in next-generation banking, banks must also establish a plan to overcome obstacles. This research paper examines how ICT can be used to make the entire banking process more customer-focused. The report also emphasizes how modern technology is being used in a few particular Indian banks. The difficulties presented by ICT advancements are also listed, along with solutions. This essay describes things. Secondary information is gathered from a variety of publications, websites, and journals. (Shahabas Ahmed C.B, 2020). By enabling users to do their regular banking activities at their convenience, digital banking has opened the door to a new range of financial services. The widespread use of the Internet and mobile devices has led to the blooming of digital banking systems in developing nations like India. A huge potential exists to transition to a cashless and less-cash society as the banking transaction environment has quickly moved from typical to conventional banking. To advance "Digital India," the Indian government has taken several measures to improve and encourage the digital banking system. The GoI wants to create a "digitally empowered" economy that is "Faceless, Paperless, and Cashless" as part of the plan. The banking sector has gone through several major stages of digital transformation during the past few decades. The increased competition between domestic, international, and public banks accelerated this transition. Making banking affordable, effective, and accessible to all residents is the aim. The benefits, prospects, barriers, and difficulties of the Indian digital banking system are all examined in this essay. Convenience is the primary purpose of combining financial services with technology; the research piece will carefully analyze the idea and look at the aforementioned objectives. (Vipin Jain, 2020). The banking industry contributes significantly to an economy's financial system. It makes it simpler to establish and keep a trustworthy payment system that meets the requirements of businesses, the government, and the general public. It serves as a means of providing credit that those in need of money might use. In terms of economic activity, the banking industry represents the heart of a country. Therefore, a strong and healthy financial sector is essential for economic development. A revolution in IT is currently taking place in the Indian banking sector, which is leading the country toward digitization. Internet and IT have dramatically changed how banks and other financial institutions function. The Indian banking business first encountered information technology in the late 1980s. The IT revolution, however, is currently going through a more intense and significant phase that has the potential to change not only the financial sector but also the basic structure and direction of the economy. Following the introduction of IT and the Internet, the banking industry underwent modernization, which has helped both banks and clients. Banking is now only utilized for transactions done in-branch, but it has spread to portable devices like smartphones and tablets. The current state of banking is referred to as "digital banking."

3. OBJECTIVE OF THE STUDY

1) Identify different facilities available in the digital banking system
2) Discuss the government initiative to boost the digital banking system
3) Identify and analyze the latest technology trends in the digital banking system.
4) Discuss the emerging technology in digital banking and its impact on future digital banking systems.

Hence based on the above objectives, the following research questions were identified to proceed with the study:

(1) RQ1 What are the different techniques available in the digital banking system?
(2) RQ2 How does the government initiative support the digital banking system in India?
(3) RQ3 What is the pattern or trend of the digital banking payment system in India?
(4) RQ4 What is the future of the digital banking system in India?

4. RESEARCH METHODOLOGY

The study is descriptive research. Secondary data were employed in the research. Data was gathered from the bulletin, annual reports of the Reserve Bank of India, and several reference books. The secondary data for the above-mentioned research study was also collected from several websites and national and international research journals about business, management, marketing, and finance. Trend analysis is a statistical technique used to identify and analyze patterns or trends in the data over time. Businesses, researchers, and governments can use trend analysis to comprehend previous data trends, anticipate potential changes, and make data-driven decisions. The author has adopted the Trend analysis technique to analyze the latest technology trends in the digital banking system.

5. ANALYSIS AND INFERENCES

Based on the literature review, objectives, and research questions, the author proceeded with the analysis and inferences as follows:

RQ1 What are the different techniques available in the digital banking system?

To proceed with understanding different technique that can be applied as part of the digital banking system, various government, and corporate reports and relevant research paper were analyzed and discussed as follow:

Digital Banking is the automation of traditional banking services. Customers can access banking services and products on an electronic or online platform thanks to digital banking. Digital banking involves digitizing all aspects of banking

and replacing the bank's physical location with an ongoing online presence, obviating the need for customers to visit a branch. (Tavaga, 2021)

Table-1

Digital Banking facility	Utility
1. Obtain the bank statement	View and download any period of bank statements.
2. Transfer of Fund	The need to issue cheques and DD has been eliminated with alternatives such as NEFT, RTGS, and IMPS.
3. Mobile Banking	Mobile banking is a part of digital banking through an optimized application for smartphones and laptops.
4. Cash Withdrawals	Cash withdrawals are made possible through ATMs at any time. ATMs are extensively available in every locality.
5. Bill Payments	Users can set up a monthly debit in favor of routine utility payments using the auto debit option for bill payments.
6. Finance	Digital banking allows you to invest, raise loans, and open fixed deposit accounts. You can link your Demat Account to your bank accounts to provide a smooth flow of funds for investments.
7. Manage cheque	Use digital banking to interfere with the check-clearing process.
8. Monitor transaction records	Due to digital banking's ability to check account balances at the touch of a button, the bank sends transaction alerts to the associated cell phone number or email.

Source: **Tavaga Research**

Evolution of Digital Banking Services

The banking sector has experienced three diverse phases of the digital revolution in the last few decades. The first revolution moved operations to the electronic realm, resulting in a paradigm driven by efficiency and automation that ended banking as more transactional and technologically focused. Through the use of contact centers, mobile banking, and ATMs, that increase client convenience. (Shahabas Ahmed C.B, 2020)

The next wave was fuelled by an array of SMAC technologies (Mobile, Social, Cloud, and Analytics) that visibly influence today's banking services and products. Fintech companies were able to transition from being effective facilitators to providing more individualized banking services because of this technology. (Shahabas Ahmed C.B, 2020).

After 2011, mobile devices dominated the digital banking revolution. The rise in smartphone sales, the launch of 4G internet services with high speeds, and the sheer quantity of young people who are tech-aware all point to the way that the digital banking movement is moving. In India, there were 291.6 million smartphone users in 2017, according to a survey from the US-based market research firm e-Marketer. By 2020, this figure is predicted to reach 337 million and 500 million, respectively. These figures indicate that all digital players, including banks and Fl's, have a huge market potential. (Vipin Jain, 2020)

Blockchain, API Banking, Robotic Process Automation, and the Internet of Things (IoT) are among the cutting-edge technologies driving the digital transformation that is fundamentally changing the banking industry. Together, these technologies will enable deeper personalization and a better client experience, revolutionizing banking operations and the whole nature of the current banking sector.

RQ2 How does the government initiative support the digital banking system in India?

The Indian government has been taking several initiatives to support the growth of the digital banking system in the country. Aadhaar-based authentication and Digital KYC make it more accessible banking services. The Reserve Bank of India (RBI) and other regulatory bodies introduced regulations and guidelines to promote digital banking. The government introduced cybersecurity regulations and measures to protect customers from fraud. Based on various government reports and articles, the following government initiatives were acknowledged to support the digital banking system in India.

Government Initiatives

Additionally, the Indian government is actively promoting digital transactions. The United Payments Interface (UPI) and the Bharat Interface for Money (BHIM) were introduced by the National Payment Corporations of India (NPCI) in April 2016 and December 2016, respectively. The action performed by NPCI is notable for its innovation in the realm of payment systems. With the use of the United Payments Interface, users of mobile devices can instantly transfer money between accounts at other banks using virtual addresses without disclosing their bank account information.

Using a smartphone enables rapid, smooth fund transfers across bank accounts. In August 2016, nearly 93,000 UPI transactions through 21 banks were made, totaling Rs. 3.1 crore. It increased diversification to 23.5 crore transactions (worth RS 45,843 crore) through 114 banks in July 2018. After demonetization, when there was a shortage of currency on the market, the trend toward UPI peaked. When the BHIM app was first released in December 2016, there were just 43,000 transactions. By July 2016, there were 1.64 crores. From Rs. 1.83 crores, the transaction's value has grown to Rs.

6692 crores. Within a week of its release, it had received a million downloads. More than 32 million transfers have been made as of late.

The use of a smartphone to quickly and easily transfer money across bank accounts is possible. In August 2016, 21 banks processed approximately 93,000 UPI transactions, totaling Rs. 3.1 crore. It increased diversity to 23.5 crore transactions in July 2018 through 114 banks, valued at RS 45,843 crore. After demonetization, when cash was hard to come by in the market, UPI usage reached its height. The BHIM app, which was released in December 2016, has also experienced a sharp rise in transactions, going from 43,000 at launch to 1.64 crores in July 2016. The transaction's value went from Rs. 1.83 crores to Rs. 6692 crores. Within a week of its release, one million people downloaded it. Now, there have been over 32 million transfers.

Without a section on the demonetization of the Indian economy, the story of digital change is lacking. The eighth of November 2016 was a significant day for both the Indian economy and the country as a whole. A bold move by the federal government resulted in the withdrawal of 86 percent of Indian currency. The biggest denomination bills of Rs. 500 and Rs. 1000 were immediately prohibited. There was a temporary cash shortage as a result of this abrupt move. Retail sales decreased as a result, and wholesale markets struggled. Due to implementation of demonetization policy in November 2016, cash circulation decreased by two-thirds times and the volume of digital transactions increased by43% from November to December 2016. Digital initiatives like Aadhaar-based and bank-to-bank electronic money transfers, digital wallet payments, and electronic toll payments reported roughly Rs 20 billion worth of transactions at the end of March 2018, however, they fell short of the target, according to The RBI report. Due to the concentration of their operations in metropolitan regions, private-sector banks performed better than public-sector banks overall. India's Union Budget for 2022–2023 included provisions for a central bank digital currency (CBDC), dubbed the Digital Rupee. (Ibef team, 2022) Prime Minister Mr. Narendra Modi introduced e-RUPI, a cashless and contactless device for digital payments, on August 2, 2021. An e-voucher-based QR code called e-RUPI is delivered to the recipient's mobile device. Even though the objective wasn't reached, the independent statistics show that the accomplishment is still impressive.

RQ3 What is the pattern or trend of the digital banking payment system in India?

The digital banking payment system in India was experiencing significant growth and evolving trends. These trends were influenced by various factors, including government initiatives, technological advancements, changing consumer behavior, and the expansion of digital infrastructure. To measure the growth of the digital banking system in India, RBI data from the RBI websites have been taken and a trend analysis method applied. Growth of the digital banking system was measured by RTGS, NEFT, IMPS, Credit card, Debit Card, Mobile banking, and Mobile wallet (prepaid payment instrument) transactions (in Volume and Value) and represented through charts.

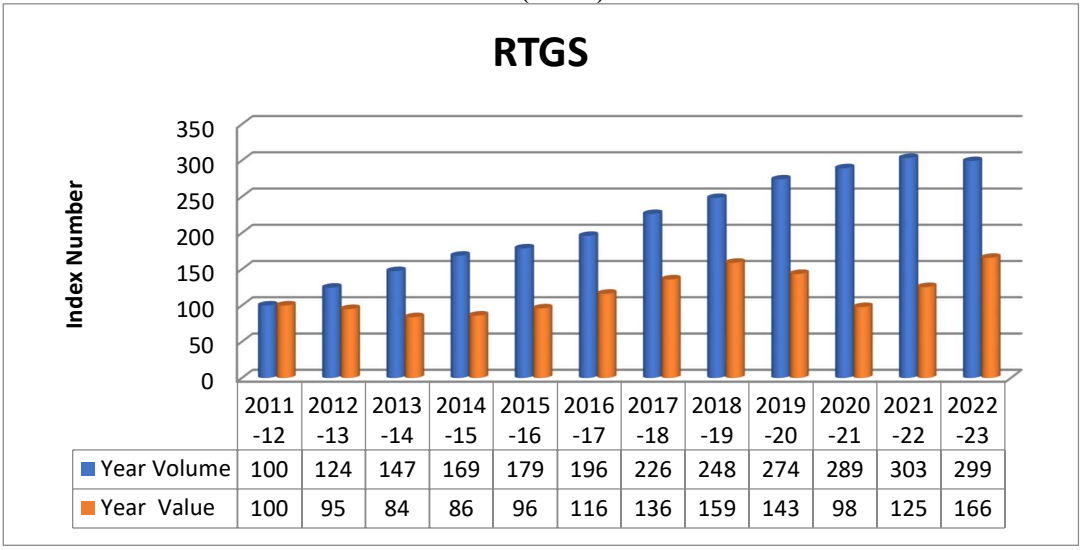
Growth of Digital Banking in India

With the fast development of digital technology, it became essential for banking and financial services in India to keep up with the fluctuations and develop new digital solutions for tech-savvy customers. In addition, the banking industry, insurance, healthcare, retail, trade, and commerce are significant sectors experiencing a massive digital shift. To remain competitive, the banking sector must get on the digital bandwagon. With multiple features including RTGS (Real Time Gross Settlement), NEFT (National Electronic Funds Transfer), IMPS (Immediate Payment Service), Tele-banking, and Mobile banking, modern trends in digital banking systems make banking more accessible, simpler, paperless, signature-free, and branch-less. "Anywhere and anytime banking" has been made more comfortable thanks to digitization. Costs have been decreased, revenue generation has improved, and human error has decreased as a result. (Shahabas Ahmed C.B, 2020) According to estimates, the cost of bank transactions for physical banking ranges between Rs. 70 and Rs. 75, while it costs between Rs. 15 and Rs. 16 for ATM transactions, Rs. 2 or less for online transactions and Rs. 1 or less for mobile transactions. (Vipin Jain, 2020) According to the Reserve Bank of India's most recent Annual Report for 2020–21, overall digital transaction volume increased to $4,371 billion in 2020–21 from $3,412 billion in 2019–20, demonstrating the adaptability of the digital payment system in the face of the pandemic. (Turakhia, 2021)

(1) RTGS (Real Time Gross statement)

An RTGS system can be characterized as a funds transfer system that can provide continuous intraday finality for individual transfers (Basle, 1997). RTGS payment method is a fund transfer mode that permits the remitter's money to instantly spread to the beneficiary/payee as and when the request is received. (Lends India, 2020).

Chart: 1 Real Time Gross Statement (RTGS) Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	124	147	169	179	196	226	248	274	289	303	299
Year Value	100	95	84	86	96	116	136	159	143	98	125	166

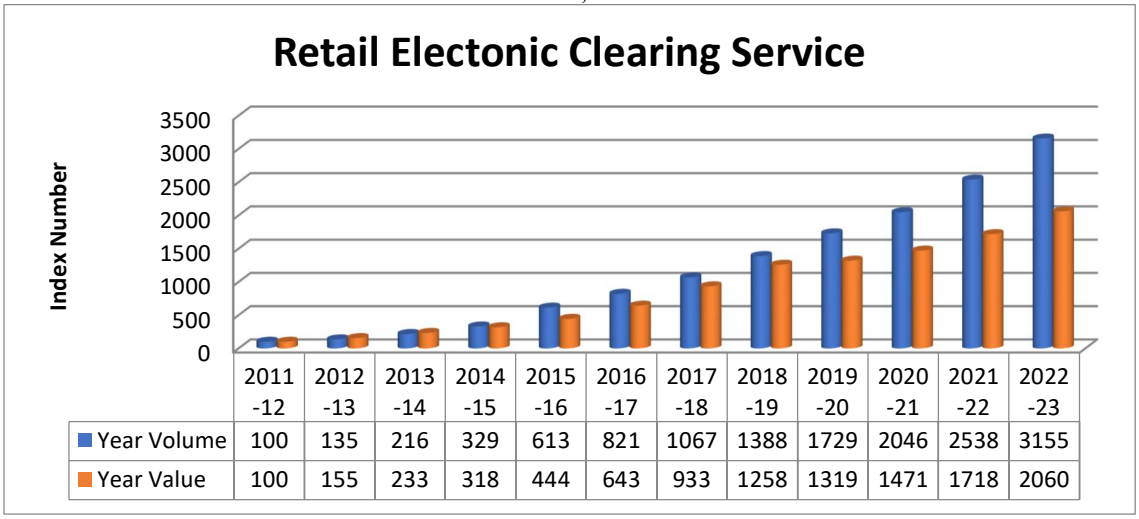
Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

Real-Time Gross Statement means real-time, where transactions are settled as soon as it received. An RTGS system is usually used for large cash transfers between banks managed and coordinated by the central bank. As per RBI data, RTGS transactions volume-wise (in lakhs) raised 300 times in 2022-23 compared to 100 in the year 2011-12, while RTGS transaction value-wise (in cores) increased 166 times in 2022-23 compared to 100 in the year 2011-12. The transaction doubled in numbers compared to value, indicating that more persons or organizations used the RTCG payment method to transfer money.

(2) Retail Electronic Clearance Service

Retail electronic clearing includes NEFT (National Electronic Funds Transfer), IMPS (Immediate Payment Service), National Automated Clearing House (NACH), and Electronic Clearing System (ECS)

Chart:2 Retail Electronic Clearance, Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	135	216	329	613	821	1067	1388	1729	2046	2538	3155
Year Value	100	155	233	318	444	643	933	1258	1319	1471	1718	2060

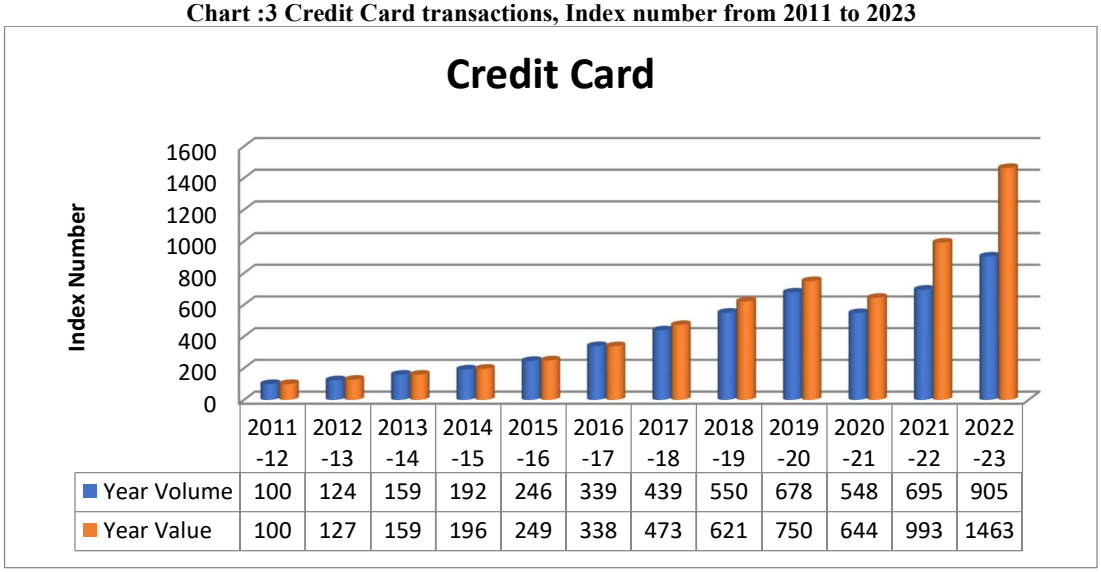
Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

Transferring money from one bank account to many other bank accounts or from many bank accounts to one bank account is known as retail electronics clearing services. For repeated and recurring transactions, an Electronic Clearing Service (ECS) is a type of electronic payment or receipt. Institutions use ECS to make bulk payments for the distribution of dividends, salaries, pensions, interest, etc. They also use ECS to make bulk payments for telephone, energy, water, cess, tax, loan repayments, periodic mutual fund investments, insurance premiums, and other expenses. Retail Electronic payments transactions volume (in lakhs) increased 3155 times in 2022-23 compared to 100 in 2011-12, while transactions value (in crores) increased 2060 times in 2022-23 compared to 100 in 2011-12.

(3) Credit Card

Credit cards allow individuals to borrow money from the card issuer up to a precise limit to purchase or withdraw cash. (CUSSEN, 2021) Credit card transactions include ATM and POS transactions

Chart :3 Credit Card transactions, Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	124	159	192	246	339	439	550	678	548	695	905
Year Value	100	127	159	196	249	338	473	621	750	644	993	1463

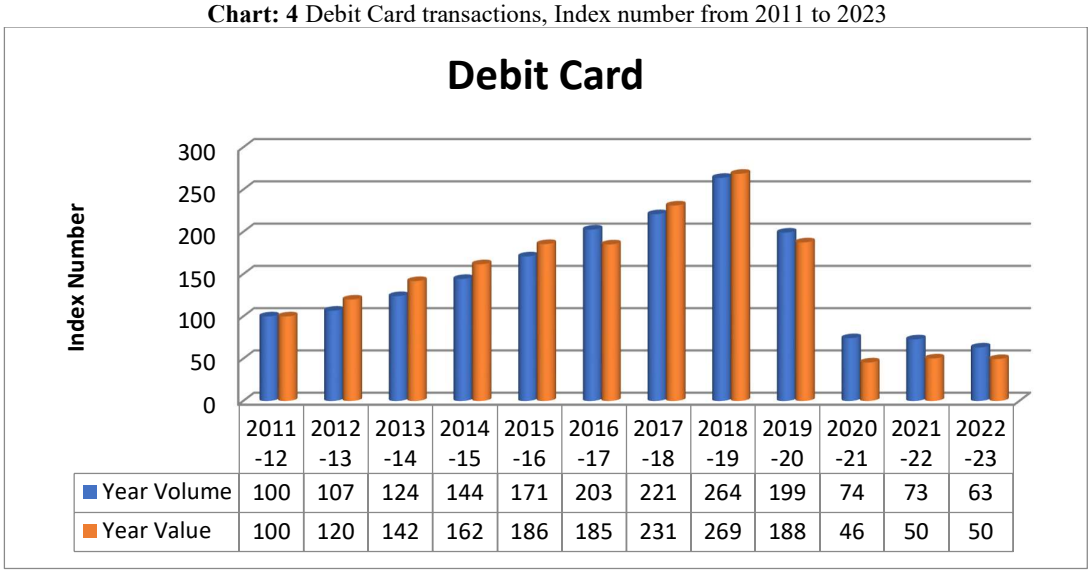
Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

A credit card is a payment method that banks offer with a pre-determined credit limit that allows for cashless purchases. In India, there are currently 8.5 crore credit cards, up from 7.5 crore the year before. Less than five crore credit cards were in circulation three years ago. (Team, Outlook Business, 2023) Credit card transaction volume (in Lakhs) increased 100 times (2011-12) to 905 times (2022-23), and value (in crores) increased 100 times (2011-12) to 1463 times (2022-23).

(4) Debit Card

Debit cards allow users to spend money by using monies that have been deposited at the bank. (CUSSEN, 2021) Debit card transactions include Automated Teller Machine (ATM) and Point of Sales (POS) transactions.

Chart: 4 Debit Card transactions, Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	107	124	144	171	203	221	264	199	74	73	63
Year Value	100	120	142	162	186	185	231	269	188	46	50	50

Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

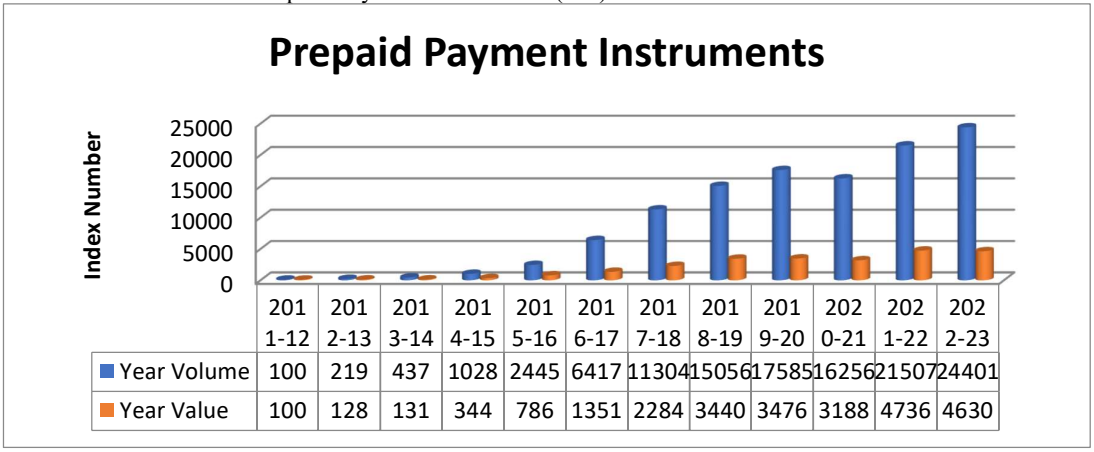
The debit card is a plastic currency. When making purchases, the debit card holder can electronically transfer funds from their bank account. Contrary to a credit card, the money needed to make the purchase must be in the cardholder's bank account at the moment of the transaction and must be transferred promptly and directly from that account to the trader's account. Due to mobile banking and mobile wallet (UPI) transactions, debit card swipes were denied. In the previous year, there was a 31% decrease in debit card usage. (Team, Outlook Business, 2023) As per RBI data, in the

year 2018-19, debit card transactions volume (in Lakhs) and value (in crores) were 199 times and 188 times, respectively, which declined 63 times and 50 times, respectively, in the year 202-23 compared to 100 times in the year 2011-12.

(5) Prepaid Payment Instruments (PPIs)

As per the RBI regulations, Prepaid Payment Instruments (PPIs) are a type of payment card that makes it easier to pay for products and services by transferring money, providing financial aid, and sending money back to recipients against the value that is held inside or on the card. (Cleartax, 2021) PPIs include Mobile wallets and PPI cards (semi-closed and closed systems).

Chart : 5 Prepaid Payment Instruments (PPI) Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	219	437	1028	2445	6417	11304	15056	17585	16256	21507	24401
Year Value	100	128	131	344	786	1351	2284	3440	3476	3188	4736	4630

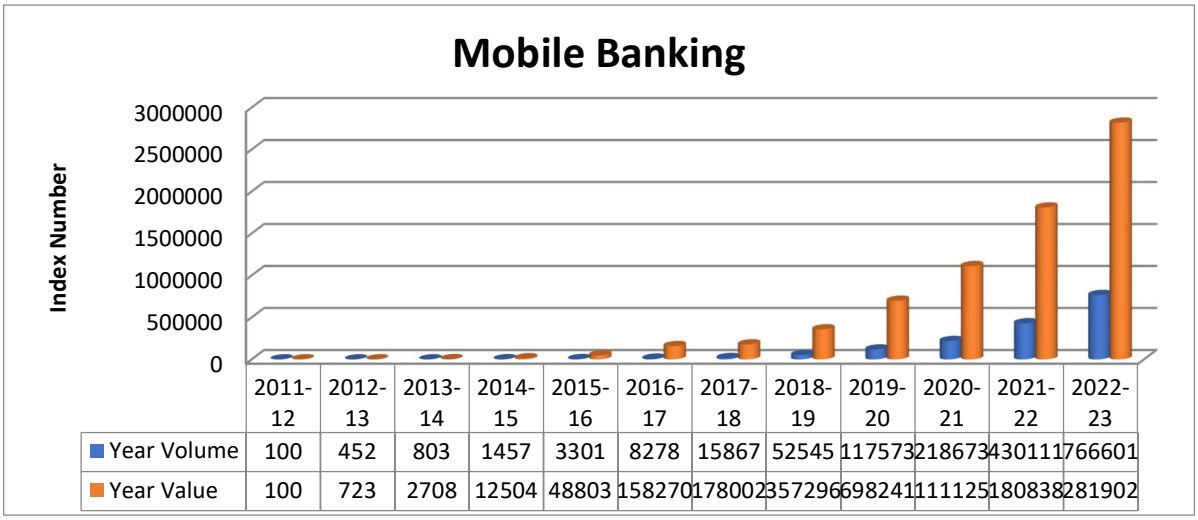
Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

Prepaid Payment Instruments include mobile wallets, smart cards, and vouchers. A unified payments interface (UPI) was developed by the National Payments Corporation of India (NPCI) and launched officially for the public in 2016. PPI transaction volume (in lakhs) increased 24401 times in 2022-23 compared to 100 in 2011-12. From 2015-16 PPI transactions volume (in lakhs) increased four times, and in value (in crores) increased three times in 6 years.

(6) Mobile banking

Mobile banking is one of the leading trends in the digital banking industry. Smartphones are used to conduct banking transactions like bill payments, money transfers, and checking account balances without going to the branch. In a few years, it's projected that mobile banking will become even more straightforward and effective to fulfill customer demands. Future trends in digital banking to the adoption of IoT (Internet of Things) and voice-enabled payment services as realities of the future. Smart TVs, intelligent vehicles, smart houses, and bright everything all have voice-enabled services.

Chart : 6 Mobile Banking Index number from 2011 to 2023



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Year Volume	100	452	803	1457	3301	8278	15867	52545	117573	218673	430111	766601
Year Value	100	723	2708	12504	48803	158270	178002	357296	698241	1111251	1808382	2819021

Source: RBI Data Releases: https://www.rbi.org.in/Scripts/Statistics.aspx

India has more than 600 million smartphone users, which is expected to grow as more feature phone users migrate to smartphones. In 2018-19 Mobile banking transactions in volume and value increased tremendously. As per the RBI data, base Mobile banking transactions grew in volume (in lakhs) 76660 times and in Volume (in crores) 28190 times in the year 2022-23, taking the base year 2011-12.

FINANCIAL TECHNOLOGY COMPANIES

India is booming, with over 4,200 fintech startups creating credit and debit cards, co-branded cards, fintech SaaS, and other fintech problems and solutions, making India a global fintech hub. (Rohit Jain, 2023) In India, fintech firms have been driving the expansion of digital payments. These include payment companies like Paytm, PhonePe, PayU, MobiKwik, and FreeCharge that handle P2P and retail payments using mobile wallets or UPI as well as technology firms like Pine Labs and Mswipe that offer hardware and POS devices for digital payments. (Project, mStar, March 2019) While Robo advisory startup ArthaYantra is already serving 75,000 users and aims to reach one million users within the next 24 months, Funds India, an online automated advisory service, can gather 80,000 subscribers with Assets Under Management of Rs. 1500 crore. (Sharf, 2016) India's financial startup ecosystem will generate a $1.3 trillion market opportunity by 2025, with a CAGR of 31% from 2021 to 2025, according to a report by Inc42. (Rohit Jain, 2023)

Over 550 startups have been funded, and India has 21 financial unicorns. Startups and fintech investors both contribute to the growth of India's fintech ecosystem. Since 2014, fintech has raised $23.6 billion in venture capital funding in India, slightly less than other industries like consumer internet and e-commerce. He closed 81 deals in the fintech sector worth a combined $1.77 billion in the first quarter of 2022. (Rohit Jain, 2023) The amount increased by 155 percent when compared to the first quarter of 2021 and by 45 percent when compared to the preceding fourth quarter of 2021. This figure, which accounts for nearly 44% of all funding in 2021, is more substantial than all fintech funding in 2020. (Rohit Jain, 2023).

RQ4 What is the future of the digital banking system in India?

In the future, India has been experiencing a steady rise in digital payment adoption which is driven by government initiatives. The Indian FinTech market has been booming, providing a wide range of financial services, including insurance, robo-advisory, and peer-to-peer lending in addition to digital wallets. This trend is expected to continue, with FinTech companies innovating and collaborating with traditional banks to provide more comprehensive and accessible financial services. Artificial intelligence and automation are likely to play an increasingly significant role in digital banking in India. Continued growth in smartphone and internet penetration will drive the expansion of digital banking services, especially in rural areas. To understand the future of the digital banking system, various government, and corporate reports and relevant research paper were analyzed and discussed as follow:

TECH TRENDS DEFINITE INDIA'S BANKING SYSTEM:

(1) Advanced Self-Service Capabilities

In today's world, self-service capabilities don't just apply to standard tasks like online account balance checks and money transfers. The best self-service banking options are those that are available to customers at any time, from any location and are quick, easy, and transparent. Modern banking technologies enable users to complete complex digital self-service tasks as shown in Figure: 1

Figure -1 Digital self-service task

Designing processes of self-service tasks involves following cutting-edge technologies, including:

Figure -2 Usage of Cutting-edge Technologies in Self-service Task

(2) Open Banking

Banks developed a single interface for customers to access their bank services while integrating their financial solutions into third-party software called Open banking. Banks provide solutions to their customers through applications for payments of their services by associating with Fintech. Open banking enables online payments when a customer uses Zomato to order a meal or payments when using Uber.

(3) Application Programming Interfaces (APIs)

In this highly linked society, a bank's ability to create and take part in digital ecosystems will be crucial to its development. The bank must have the ability to link its services and products both internally and externally with a variety of third-party services and applications. APIs (Application Programming Interfaces) enable the linkage and data sharing between two software programs, applications, or other services. APIs make possible real-time, secure interconnection between bank products and third parties.

(4) Blockchain

Block chain technology is being used by banks to implement risk management procedures. Due to Blockchain technology, it becomes more difficult for hackers to steal data like Customer's bank information. The banking sector is already testing blockchain technology by replicating asset transactions. It aids in boosting efficiency, enhancing security, and finalizing transactions more quickly and at a reasonable cost.

(5) Biometrics Technology

Biometric Technology has enormously changed national identity regulations for security concerns, and the impact is expected to be significant. Due to Biometric authentication, the Bank is enabling to establish a highly secure database, protecting it from leaks and hacker attempts, using a mix of encoding technology and OTPs. Indian financial institutes are looking into the possibilities of this technology to guarantee the sophisticated protection of client accounts and money. Consumers' use of mobile payments is shaped by biometric transactions—any payments made after scanning a person's finger or using facial recognition technologies.

(6) Cloud banking
The majority of banks have initiated to switch to cloud-based banking. Banks may integrate their transactions, eliminate operational and data silos across customer assistance, finance, risk, and other areas, thanks to the cloud. Cloud banking improves their cost efficiency and allows them to provide clients with digital experiences.

(7) Process automation: Artificial Intelligence and Machine Learning
To provide customized, just-in-time services, banks deeply utilize AI and ML. Improved customer, credit, and loan services are made possible by the systematization of banking procedures by AI and ML. They fight fraud as well.

(8) Chabot's services
Banks will start delivering an increasingly vast array of services via voice interface as voice-based interactions improve customers' experience. Chabot reduces transaction times by almost four minutes. Additionally, it will make it possible for banks to swiftly and cheaply obtain client feedback at a lesser cost.

(9) Zero Trust Security Model
The Zero Trust Security Model is an innovative strategy to solve security issues. By eliminating hidden trust and imposing stringent user and device authentication across the network, it creates a security context that safeguards financial institutes and banks.

(10) Wearable Devices
Existing technologies evolve to create more interactive consumer experiences when new technologies hit the market. Customers' experiences with digital payments are expected to change as a result of wearable technology like smartwatches. The payment industry will change as wearable payment gadgets become more and more popular with millennials and Generation Z.

(11) Big Data and Advanced Analytics
The banks that consistently produce personalized offerings and customized customer experiences will come out on top in the fight for digital banking. Big Data and Advance Analytics recognized consumer needs and wants and identified data frauds across various financial channels. Through data analysis, banks can listen to their consumers and develop financial services that are tailored to their needs. Online and mobile payments, ATM withdrawals, digital banking (m-m-wallet, internet banking, mobile banking app), IoT devices, customer data gathered for KYC, biometric identification, and other data sources are all under the jurisdiction of banks.

(12) Contactless ATMs
Since the introduction of ATMs in 1967, ATMs have revolutionized the financial industry, and the upcoming generation will support contactless payments. ATMs use smartphones to complete contactless transactions, similar to Google Wallet and Apple Pay. The banking industry has expanded thanks to technological advancements including biometric validation utilized in India, iris identification in Qatari banks, and facial recognition technology in China. The all-encompassing banking security system has improved, giving banks a strong layer of protection against fraud and scams.

(13) Neo Bank
Neo-banks are virtual financial institutions that do not have physical locations and provide all of their customers' financial services through mobile apps. (Surya, 2021) They have few paperwork requirements, are inexpensive, have negligible to no transaction costs, and are borderless.

6. CONCLUSION

Therefore, based on the above-discussed analysis and inferences, it was found that the Indian banking industry has entirely changed into a different spectrum during the past several years. In the current environment of digital banking, banks face a variety of difficulties and opportunities. Convenience, efficiency, and transparency are the main goals driving the technology-enhanced integration of financial services. For the majority of people, technology has gotten convenient to the point where it affects how they live. The face of Indian banking has been dramatically transformed by numerous financial innovations like UPI, Internet Banking, Mobile Banking, Mobile Wallets, QR Codes, etc.
Hence, based on the above-discussed analysis and inferences, it was observed that the Indian banking sector has completely transformed into another spectrum in the past few years. Banks face many challenges and opportunities in the present digital banking situation. The key objectives behind integrating banking services with technology are

convenience, efficiency, and transparency. Technology has become comfortable for most individuals to the extent that it influences their lifestyle. Many financial innovations like UPI, Internet Banking, Mobile Banking, Mobile Wallets, QR codes, etc., have completely changed the face of Indian banking. Alternative payment methods like mobile wallet systems like UPI and the BHIM app as well as mobile banking are becoming more and more popular. People are more likely to use digital payment systems instead of cash as internet purchases rise. (V, 2019)

By implementing more creative solutions and technology security measures, the opportunities may be taken advantage of effectively, and the challenges can be readily overcome. The Indian banking sector is currently edging toward "next-generation banking." Undoubtedly, the banking sector will transform as a result of technological innovation in the sector and the aspiration of a "cashless economy."

7. LIMITATION AND FUTURE SCOPE

This research study is based on secondary data and covers broader aspects of the digital banking system. Future studies can focus on separate pre and post-analyses of trends and preferences among individuals regarding their usage of different digital banking systems.

Note: This paper is part of a systematic literature review of an ongoing doctoral thesis. The author sincerely thanks the doctoral supervisor for their support throughout the work.

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