

The Impact of Digitalisation on Indian Banking Sector

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Abstract

A key component in the growth of a country's economy is financial system which plays vital role in the development of the country by capital accumulation and technological progress by increasing savings rate, mobilizing and pooling savings, producing information about investment, facilitating and encouraging the inflows of foreign capital as well as optimizing the allocation of capital. But on the other hand this system contributes significantly in air, water, land fill and other types of pollution thereby damaging the environment and become the biggest contributor to climate change. The concern for environmental sustainability by the banks has given rise to concept of green banking. Green banking means promoting eco-friendly practices and reducing carbon footprint from banking activities by making use of online banking instead of branch banking. it aims at banking processes and the use of IT and physical infrastructure as efficient and effective as possible. Green banking avoids paper work and focuses on use of electronic transactions by customers. The introduction of digital banking has revolutionized the banking sector and modified the whole procedure of simple bank transfers. It has facilitated the customer assisting them to check their account details, pay online bills and transfer money from one account to the others in a faster way. Though the purpose of introduction of digitization in financial system was to transit from conventional to convenience for both the customers and banks itself but it also plays its role in protecting environment by making less use of papers. Paper less banking helps in controlling deforestation thereby helps in achieving sustainable development goals by contributing in protecting cutting of trees as well as provides convenience to the customers and banks. The paper attempt to analyse the impact of transition of financial system of India from traditional to digitization on environment. Also paper focus to analyse the contribution of increased digitization of Indian banking system in environmental sustainability thereby making contribution in the achievement of sustainable development goals over the years since its inception in India.

Keywords

Development,
environment,
financial system,
sustainability,
digitization.

Introduction

Digitization is the process of converting information into a digital (i.e. computer-readable) format, in which the information is organized into bits. The result is the representation of an object, image, sound, document or signal (usually an analog signal) by generating a series of numbers that describe a discrete set of its points or

samples. The result is called digital representation or, more specifically, a digital image, for the object, and digital form, for the signal. In modern practice, the digitized data is in the form of binary numbers, which facilitate computer processing and other operations, but, strictly speaking, digitizing simply means the

conversion of analog source material into a numerical format; the decimal or any other number system that can be used instead. Digital banking is the move to online banking where banking services are delivered over the internet. The advantages for banks and customers are providing more convenient and faster banking services.

History of Digital Banking

The earliest forms of digital banking trace back to the advent of ATM machines and cards launched in the 1960s. As the internet emerged in the 1980s with early broadband, digital networks began to connect retailers with suppliers and consumers to develop needs for early online catalogue and inventory software systems. By the 1990s the Internet emerged and online banking started becoming the norm. The improvement of broadband and ecommerce systems in the early 2000s led to what resembled the modern digital banking world today. The proliferation of smartphones through the next decade opened the door for transactions on the go beyond ATM machines. Over 60% of consumers now use their smartphones as the preferred method for digital banking.

The challenge for banks is now to facilitate demands that connect vendors with money through channels determined by the consumer. This dynamic shapes the basis of customer satisfaction, which can be nurtured with Customer Relationship Management (CRM) software. Therefore, CRM must be integrated into a digital banking system, since it provides means for banks to directly communicate with their customers.

There is a demand for end-to-end consistency and for services, optimized on convenience and user experience. The market provides cross platform front ends, enabling purchase decisions based on available technology such as mobile devices, with a desktop or Smart TV at home. In order for banks to meet consumer demands, they need to keep focusing on improving digital technology that provides agility, scalability and efficiency.

1994 -Online banking is built into Microsoft money. 1, 00,000 households begin accessing their bank accounts online.

Stanford Credit Union begins offering banking services via their website, paving the way for credit unions and banks across the country.

2001 -Online banking hits 20 million users, with 8 different U.S. banks achieving at least a minimum of 1 million online users.

2002 -Avoka was founded to help banks and financial institutions in their digital transformations.

2007 -The launch of I phone begins shifting digital banking from desktop computers to smart phones.

2009 -Online banking hits 54 million users in the United States.

2016 -Millennial succeed in fundamentally shifting digital banking preferences.

2021 -Online banking users in India currently are 47 million in India.

Digital banking in India:

Banks in India have witnessed a radical change from conventional banking to convenience banking. Today they are poised for digital banking rapid pace. The need for computerization was felt in the India Banking sector in late 1980s, in order to improve the customer service, book keeping & MIS reporting. In 1988, RBI set up a committee on computerization in banks headed by Dr.C Rangarajan. Banks began using information Technology initially with the introduction of standalone PCs and migrated to Local Area Network (LAN) connectivity. With further advancement, banks adopted the core Banking platform. Thus branch banking changed to banking. Core Banking Solution(CBS) enabled banks to increase the comfort feature to the customers as a promising step towards enhancing customer convenience through anywhere and anytime Banking. Different Core Banking platforms such as Finacle designed by Infosys, BaNCS by TCS, FLEXCUBE by flex gained popularity.

The process of computerization gained pace with the opening of the economy in 1991-92. A major driver for this change was propelled by rising competition from private and foreign banks. Several commercial banks started moving towards digital customer services to remain competitive relevant in the races.

Banks have benefited in several ways by adopting newer technologies. E-banking has resulted in reducing costs drastically and has helped generate revenue through various channels. The number of

customer base has also increased because of the convenience in anywhere banking. Digitization has reduced error. It is possible to access and analyse the data anytime enabling a strong reporting system. RBI has been a guiding force for the banks in forming regulations and giving recommendations to achieve various objective. Commercial banks in India have moved towards technology by way of bank mechanization and automation with the introduction to MICR based cheque processing, electronic funds transfer, inter- connectivity among bank branches and implementation of ATM channel have resulted in the convenience of anytime banking. Strong initiatives have been taken by the reserve bank of India in strengthening the payment and settlement systems in banks.

The Indian govt is aggressively promoting digital transactions. The launch of united payment interface(UPI) and Bharat interface of money(BHIM) by national payment corporation of India(NPCI) are significant steps for innovation in the payment system Domain.UPI is mobile interface where people can make instant funds transfer between accounts in different banks on the basis of virtual address without mentioning the bank account. Today banks aim to provide fast, accurate and quality banking experience to their customers. Today, the top, most agenda for all the banks in India is digitization.

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Objectives of study:

1. To know the impact of growth of digitization on banking system in India.
2. To know the opportunities Indian banking system got by switching to digitization.
3. To study the challenges Indian banking system is facing with the adaptation of digitization.

Statement of the problem

Banks have embraced computerization and subsequently digitization, in slightly various degrees though they have invested in physical infrastructure and human resources for the purpose. But such investment in itself is not the end. Periodically, the transformation engendered by the investment should be gauged to ascertain if the outlay has translated into outcome.

Review of literature

Jarunee Wonglimpiyarat (2006) is concerned with the technological learning and capabilities of Thai banking. The results show that the use of technology in the mass automation regime is carried through to the smart automation regime, showing that the technological change in the banking sector is not revolutionary but evolutionary.

Vadlamani Ravi (2007) defines the term “banking technology” refers to the use of sophisticated information and communication technologies together with computer science to enable banks to offer better services to its customers in a secure, reliable, and affordable manner and sustain competitive advantage over other banks.

Costas Lapavitsas and Paulo L. Dos Santos (2008) argued technological innovation has Contributed to recent changes in th conduct and character of banking, but its impact has been Contradictory. First, money-dealing transactions have become cheaper, but investment costs have increased and a broader range of services had to be provided. The cost efficiency of banks has not improved.

Bhattacharya, H (2015) “analyses contrast among online and digital banking for the most part. These two words are options, be that as it may, web based banking can be characterized more barely as-web based banking principally accentuates on money transfer, charge pay and fundamental online administration of accounts. Different equivalent words for web based banking incorporate virtual banking, internet banking and e-banking. Along these lines, web based banking centers around digitizing the “core” highlights of banking. Yet digital banking incorporates digitizing each program and action attempted by financial establishments and their customers.

George , A. and Kumar, G (2016) concluded that mobile telephone are probably going to lead the digital development in India, in light of the fact that the young of India want to utilize smart telephones instead of remain in long lines to benefit banking services. Mobile view of around 90% is probably going to drive financial inclusion. The current and unsurprising boundless for every one of smart telephones in the nation gives a disruptive and easy medium, to expand the achieve of banking and payments services

Khandelwal, A.K. (2017) According to banks assume a huge job in our day- to-day lives. For endless individuals, in any event a solitary financial exchange is done in a solitary day. In this manner banks dependably endeavor to execute most recent technologies to improve customer experience. Digitization is definitely not a decision for banking industry, rather it is sure in light of the fact that each industry is being digitized and banking part is no exclusion.

China and India boast of the highest percentages (55-60 per cent) of Gen Y and tech-savvy Customers that use financial services from non-traditional firms (**The Hindu Business Line, 2017**).

The governments of the two countries continue to priorities digital initiatives. Hence, the tech-savvy individuals will become more relevant. Affordable, small but powerful computers and other hand-held gadgets and higher Internet bandwidth gradually facilitated easy access to banking products and effortless banking transactions (**The Banking & Finance Post, 2017**). The rise of call centers and phone banking services added to customer comfort. A major change in banking practices was facilitated by directing banking transactions through different electronic channels and by helping customers access their bank accounts directly.

Hema Divya and Suma Vally (2018) in the article entitled “A study on digital payments in India with perspective of consumer’s adoption” focus on the analysis of the adoption level of the digital payment systems by customers. Primary data was collected from 183 respondents in Hyderabad. The collected data through questionnaire were analyzed by using Chi-Square technique. The study found that, the deployment of technology for digital payments have improved the performance of banking sector and able to achieve the motive cashless country.

G Shainesh and Avijit Choudhary in their article study the role of technological changes and advancements in the form of automated teller machines, internet banking, tele-banking, mobile banking, internet banking, etc **Invalid source specified..** They conclude that reaching the customers through various channels contribute a lot to meet the competitive challenges.

Research methodology

The present study is descriptive in nature and is based on secondary data. The data has been extracted from Various sources like research articles, publications from Government of India, various bulletins of RBI and Authenticated websites.

Digital banking trends in India

Digital India in the banking sector has grown sharply in recent times. Some trends in digital banking in India are:

Increase in Customers: The government’s encouragement to use electronic wallets has contributed much to people adopting the use of technology in financial transactions. There is a rapid increase in the use of credit/debit cards as well as electronic wallets and the trend will continue.

Chat bots: A number of banks have already employed chat bots in their customer care operations. There is steady increase in the number of chat bots employed as well as improvements in their speed of response, quality of interaction and the quality of services rendered.

Merge Physical and Digital Process: Many banks today offer a mixed physical and digital process to their Customers. The customers could walk into the bank and then use devices there to carry out their transactions. In the Indian context we will certainly see a steady increase in this kind of service especially in the rural areas.

Mobile Technology: The proliferation of mobile phones and the easy and cheap availability of internet have meant that the banking sector had to provide digital services via mobile phones. A number of banks have developed apps to help customers handle banking transactions on their mobile phones. This trend will only continue.

End to End Digital Banking in India: A number of customers are already using devices to handle their banking tasks. Banks have come to realize that digitization is the only way forward. Hence a number

of banks have already started on the path of end to end digitization in their effort to provide all kinds of services over the internet resulting in paperless transactions.

Technological Milestones in Indian Banks

S.No	1980	1990	2010	2020
1	MICR	ATMs	IMPS	Bio Metrics
2	Standard cheque	Electronic Funds Transfer	RTGS	Mobile Banking
3	Encoders	Branch Connectivity	NEFT	Banking Cheque Truncation UPI
4	-	Computerization	NECS	
5	-	-	Online Banking	USSD
6	-	-	Tele Banking	E-Wallet

Source: ICMAI

Indian government is aggressively promoting digital transactions. The launch of United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by National Payments Corporation of India (NPCI) are significant steps for innovation in the payment systems domain. UPI is a mobile interface where people can make instant funds transfer between accounts in different banks on the basis of virtual address without mentioning the bank account. Today banks aim to provide fast, accurate and quality banking experience to their customers. Now a day the topmost agenda for all the banks in India is digitalization.

As part of encouraging cashless transactions and transforming India into less cash society, various modes of digital payments are available.

Debit/Credit Card: Suitable for online/offline merchant sale. Transaction limit set by card issuer. Card number details required.

RTGS/NEFT: Suitable for high value online transactions. Transaction limits minimum 2 Lakh, no upper limit. Account number, password, beneficiary registration, IFSC code are required.

Immediate Payment Service (IMPS): Suitable for instant transfer. Transaction limits up to 2 Lakh per day. Account number, password, beneficiary registration, IFSC code are required.

Unified Payment Interface (UPI): Suitable for instant transfer. Transaction limits up to 1 Lakh. Virtual payment ID (VPA) of recipient is required.

Unstructured Supplementary Service Data (USSD): Suitable for feature phones without internet connectivity. Aadhar number, IFSC or code allotted by banks on registration is required.

E-Wallet: Suitable for small ticket transactions. Transaction limits 20,000 per month (1 Lakh for KYC compliant wallet holders. Login ID is required.

Growth of digital payments

The acceptance and growth of digital payments has been exponential over the years. From 498 crore transactions with a value of 96 lakh crore handled during FY 2010-11, digital payments have grown to 1623 crore transactions with a value of 3435 lakh crore in the FY 2019-20. This represents a CAGR of 12.54% and 43.01% in terms of volume and value, respectively.

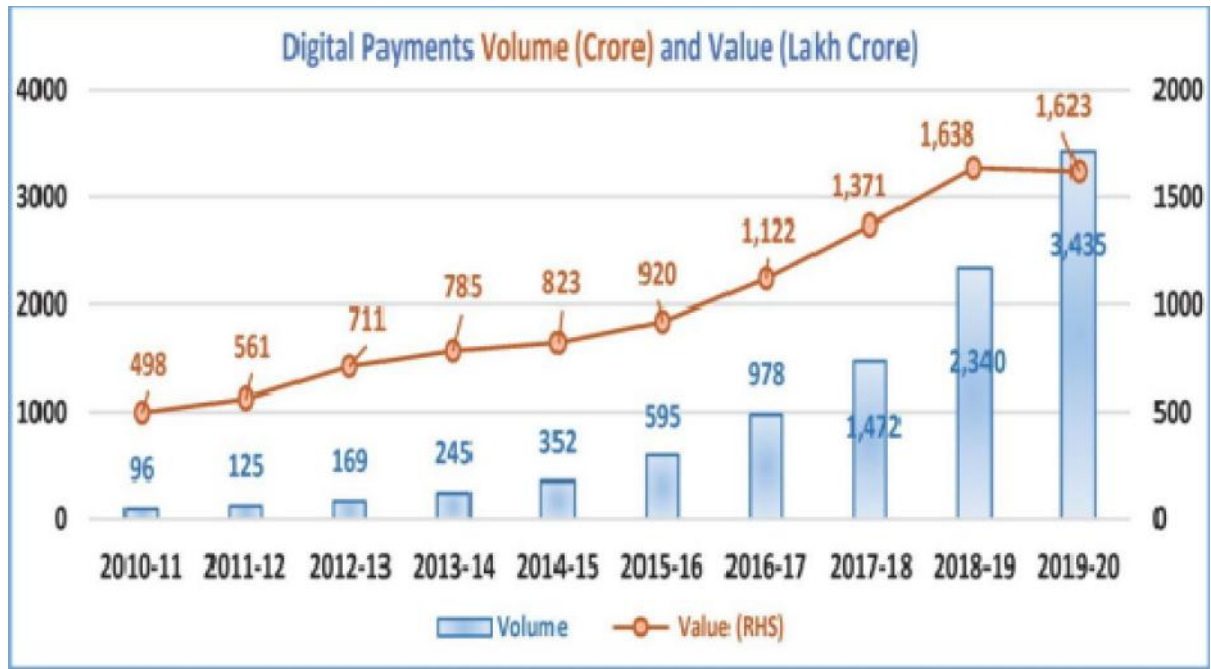
Global Data, a data and analytics company, in its 2017 Consumer Payments Insight Survey, observed that India is one of the top markets globally in terms of digital cash adoption with 55.4% survey respondents indicating usage of digital cash. India is followed by China and Denmark. The adoption level in India is much higher compared to many of the developed markets such as the US and the UK, where consumers predominantly use cards.

Digital Payments in India

Within the digital payments, retail electronic payments comprising credit transfers {NEFT, fast payments (IMPS and UPI)} and direct debits (ECS, NACH) have shown a rapid growth over the past ten years at a CAGR of 55% and 43% interms of volume and value, respectively. e-Money issued in the form of wallet sand prepaid cards demonstrated an increased adoption with a CAGR of 91% and 56% interms of volume and value, respectively in the past 9y ears.

Payment System Data-2010, 2015 and 2020

Item	Volume (Lakh)			Value (₹ '000 Crore)		
	2010-11	2015-16	2019-20	2010-11	2015-16	2019-20
Payment Systems						
1. Large Value Credit Transfers – RTGS	493	983	1507	48487	82457	131156
Retail Segment						
2. Credit & Debit Transfers	4064	31415	215619	1194	9140	29398
2.1 NEFT	1323	12529	27445	939	8327	22946
2.2 IMPS		2208	25792		162	2338
2.3 UPI			125186			2132
2.4 NACH		14041	36979		380	1976
2.5 ECS	2741	2638	19	255	271	5
2.6 Others			198			1
3. Card Payments	5022	19593	73013	114	399	1535
3.1 Credit Cards	2652	7857	21773	75	241	731
3.2 Debit Cards	2371	11736	51240	39	158	804
4. Prepaid Payment Instruments		7480	53317		48	215
5. Paper-based Instruments	13873	10964	10414	10134	8186	7824
Total Retail Payments (2+3+4+5)	22959	69452	352363	11442	17775	38974
Total Payments (1+2+3+4+5)	23452	70435	353870	59930	100233	170130
Total Digital Payments (1+2+3+4)	9579	59472	343456	49795	92046	162305



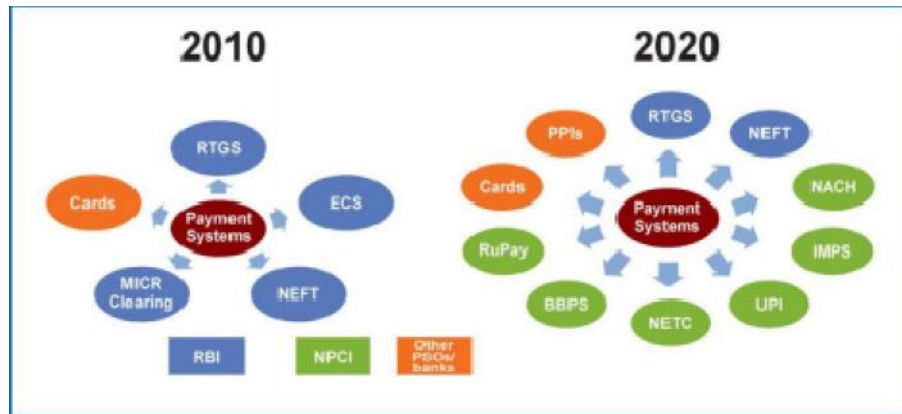
Source: RBI

The most effective way to exponentially increase the digital payments is to target the generation which is most responsive to technology and digital age⁷. Since India has a large population of millennium children (individuals born between 1982 and 2004) or currently referred to as the "heads down" generation, the aptitude for digital products is large. This generation has little brand loyalty and is ready to try out new payment systems / channels when the rewards are good. PSPs will have to design products and plans which would help drive and sustain mass adoption and engagement.

The digital revolution is taking the world by storm and no other area has witnessed a metamorphosis as has been seen in the payment and settlement arena, resulting in a myriad of payment options for the consumer. In the last 10 years, India has witnessed an exponential growth in payment systems and a significant shift in payment preference.

The shift in payment preference in the last 10 years is evidenced by the fact that the volume of paper clearing, which comprised of 60% of total retail

payments in the financial year (FY) 2010-11, shrunk to 3% in the FY 2019-20. This striking shift in payment preference has been due to the creation of robust electronic payment systems such as RTGS, NEFT and ECS that has facilitated seamless real time or near real time fund transfers. In addition, this decade has witnessed introduction of innovative payment systems that provide instant credit to the beneficiary, with the launch of fast payment systems such as IMPS and UPI that are available to consumers round the clock for undertaking fund transfers, and introduction of mobile based payment systems such as Bharat Bill Payment System (BBPS), PPIs to facilitate payment of bills and purchase of goods and services and National Electronic Toll Collection (NETC) to facilitate electronic toll payments. The convenience of these payment systems ensured rapid acceptance as they provided consumers an alternative to the use of cash and paper for making payments. The facilitation of non-bank FinTech firms in the payment ecosystem as PPI issuers, BBPOUs and third-party application providers in the UPI platform have furthered the adoption of digital payments in the country.

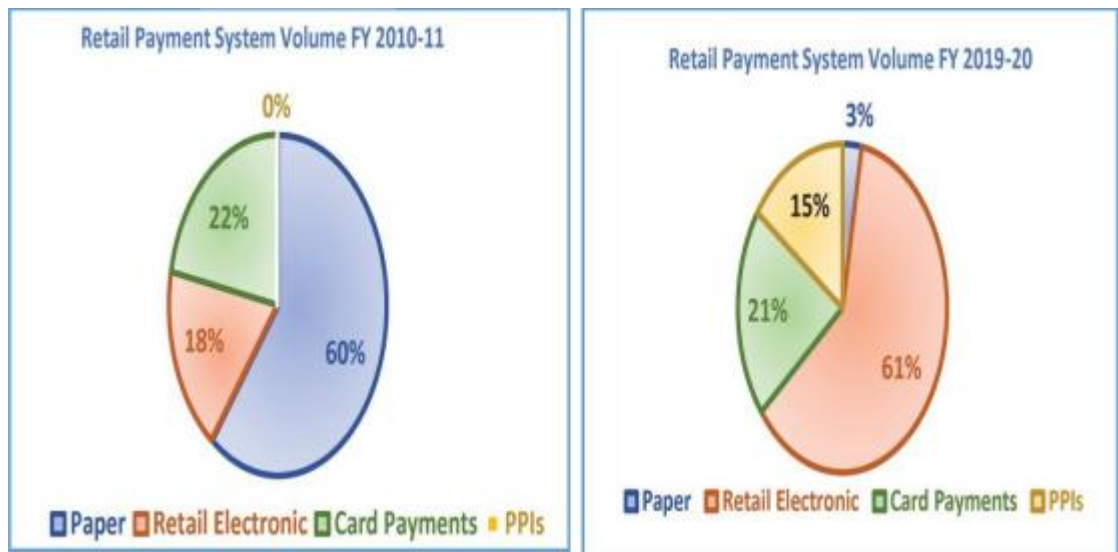


India's payment systems

The advent of innovative electronic payment systems that leverage on technology which can be used through internet and mobile, has led to electronic payment systems dominating the retail payment space with around 61% share in terms of volume and 75% share in terms of value during the FY 2019-20. Increased mobile and internet penetration in the

country has resulted in significant shift towards use of mobile / internet- based payment systems for effecting payments for purchase of goods and services. Introduction of lightweight acceptance infrastructure (QR codes) has further facilitated the use of mobile based payments across the country. Data shows that low value payments dominate the volume / turnover, and products that afford real time, instantaneous transfers are the most preferred modes of payment.

Share of payment systems:



Source: RBI

The last decade, therefore, has seen an explosion of payment systems with consumers having multiple options to choose from. In the approach towards payment system development in the country, safety and security has been of paramount importance to RBI; followed by efficiency, accessibility, affordability and convenience. Payment systems have always been regarded as a public good and an ancillary activity of banks which can be leveraged as a base to provide various other services. Given the

sizeable populace of the country, the endeavour is to make the payments space a large-volume, low-average-value and low-cost game for sustained presence and continuance.

A study on payment systems is incomplete without touching some of the institutions which contributed to the efficacy and efficiency of the systems, notable among them being the Institute for Development and Research in Banking Technology (IDRBT) and the

National Payments Corporation of India (NPCI) which have contributed to making India's payments ecosystem the showpiece that it is today. It is with

great foresight that RBI not only established these institutions but also nurtured them till they were able to stand on their feet.

Table 2: The Volume of Transactions in Digital Banking

Year	RTGS	Retail Electronic Clearing (ECS, NEFT, IMPS)	Prepaid Payment Instruments (M-Wallets, PPI Cards, Paper Vouchers)
2011-12		512.4	30.6
2012-13	55.1	694.1	66.9
2013-14	68.5	1108.3	133.6
2014-15	81.11	1687.4	130
2015-16	92.78	3141.5	310
2016-17	98.34	4222.9	750
2017-18	107.86	3607.59	1960
2018-19	124.46	6374.96	3460
2019-2020	136.63	12463.58	4600
2020-2021	150.7	18578.1	5330
2021-22	159.2	29664.8	4930

Source: RBI

Digital Population in India as of January, 2022

Particulars	Number of Users (in Million)
Active internet users	825.30
Active mobile internet users	799
Active social media users	467

Source: TRAI & MEITY

Top 3 devices	percentage
mobile phones	75.91%
laptop and desktop	23.67%
tablet	0.42%

Digitalization has made it easier for individuals and businesses to access credit in India. Online loan applications and digital lending platforms have simplified the loan approval process, reducing paperwork and enabling faster decision-making. This has facilitated credit availability for small and medium-sized enterprises (SMEs) and individuals who may have struggled to access traditional banking channels. While security concerns exist in the digital realm, digitalization has also brought advancements in banking security measures. Banks have implemented robust security protocols, such as two-factor authentication, encryption technologies, and fraud detection systems, to protect customer information and transactions. Additionally, digital platforms offer features like real-time transaction alerts and account

monitoring, empowering customers to identify and report any suspicious activities promptly.

Digitalization has paved the way for the emergence of numerous fintech startups in India. These companies leverage technology to offer innovative financial products and services, including peer-to-peer lending, digital payments, robo-advisory, and automated investment platforms. Fintech collaborations with traditional banks have fostered innovation and brought about new customer-centric solutions. Digitalization has helped banks reduce operational costs. By moving transactions and services online, banks can minimize expenses associated with physical infrastructure, such as maintaining brick-and-mortar branches and handling cash. The adoption of digital channels has enabled banks to streamline processes, reduce

paperwork, and achieve cost efficiencies, which can translate into better value for customers. While digitalization has brought numerous benefits to the Indian banking system, it has also posed challenges related to cybersecurity, digital literacy, and data privacy. Banks and regulators must continue to address these issues to ensure a secure and inclusive digital banking ecosystem in India.

Conclusion


Digitalization has had a significant impact on the Indian banking system, transforming various aspects of the industry. Here are some key ways in which digitalization has influenced banking in India;

Enhanced Accessibility: Digitalization has made banking services more accessible to a larger population. Through internet banking, mobile banking applications, and online platforms, customers can access their accounts, make transactions, and avail banking services from anywhere at any time, reducing the need for physical visits to the bank. **Convenience and Efficiency:** Digitalization has brought about a significant improvement in the convenience and efficiency of banking processes. Customers can

perform various banking operations such as fund transfers, bill payments, and account management with just a few clicks, eliminating the need for paperwork and reducing processing time. Digitalization has played a crucial role in promoting financial inclusion in India. With the advent of mobile banking and digital wallets, a large segment of the population that was previously unbanked or underbanked now has access to basic financial services. This has helped in reducing the dependence on cash transactions and promoting a digital economy.

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