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## DIGITAL BANKING IN INDIA: THE WAY AHEAD

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### *Abstract*

*The banking sector is the backbone of every economy. It plans and implements the economic reforms and all other sectors are largely depends on it. Any small change in that particular sector has a large impact on all over the economy. By digitalisation of banking system through the adoption of technology have an extensive impact on the growth of an economy. Nowadays, banks are seeking unconventional ways to provide and differentiate amongst their diverse services. Both corporate as well as retail customers are no longer willing to queue in banks for the basic banking services. They want a facility to conduct banking activities at any time and any place. Unified Payments Interface (UPI), Plastic money (Credit Cards, Debit Cards and Smart Cards), Point of Sale, electronic fund transfer and clearing services, online trading accounts, telephone banking, Internet Banking, Immediate Payment Service (IMPS), Mobile Banking are some of the recent products offered by the bank. Digital Banking system will reduce cash related robbery thereby reducing risk of carrying cash and cash related corruption. That reforms helps in modernization of payment system, Reduction in high security and safety risk, Reduction in the cost of banking service and also curb banking related corruption. The proposed study focuses on the emergence of digital banking system in Indian economy and digital banking trends in India and also try to find out the opportunities and challenges of going digital in the Indian banking sector.*

**Keywords:** Digital Banking, Demonetisation, Information Technology, Financial Literacy, Cyber Security.

### **I. Introduction**

Digital Banking is a generic term for delivery of banking/ financial services and products through electronic channels, such as the Automated Teller Machines (ATMs), the telephone, the internet, the social media, the mobile phone, etc. The banking industry in India is progressively expanding. The liberalization of the

economy has created a competitive culture that has taken the service sector, particularly the banking sector by storm. The banking sector has been the backbone of every emerging economy. It plans and implements the economic reforms. Any change in this sector through the adoption of technology will have a sweeping impact on an economies growth. The

advancement of information collection, storage, processing and transmission technologies have impacted all aspects of the banking activity.

The post liberalization competitive culture in India has forced all banks realize that in order to remain competitive and provide the most excellent services to their customers, they need to encompass the most recent technology in place. This cutting-edge competition, rapid changes in technology and the hectic lifestyles have changed the facade of banking. Nowadays, banks are seeking unconventional ways to provide and differentiate amongst their diverse services. Both corporate as well as retail customers are no longer willing to queue in banks, or wait on the phone, for the basic banking services. They require and expect a facility to conduct their banking activities at any time and place. Irrespective of being a public sector or private sector bank, almost all of them have given maximum significance to technological development and deployment. To illustrate, ATMs, plastic money (Credit Cards, Debit Cards and Smart Cards), online collection and payment services, online investments (Deposits and Mutual Funds), online Demat and Trading accounts, Electronic Funds Transfer (ETF) and clearing services, branch networking, telephone banking, mobile applications and wallet, and internet banking are the outcomes of their initiative towards technological up gradation.

## II. Literature Review:

**Mr. Vijay Prakash Gupta & Dr. P. K. Agarwal (2013)** - In their research paper "Comparative Study of Customer Satisfaction in Public Sector and Private Sector Banks in India". This paper gives with the introduction of liberalization policy and RBI's easy norms several private and foreign banks have entered in Indian banking sector which has given birth to cut throat competition amongst banks for acquiring large

customer base and market share. Banks have to deal with many customers and render various types of services to its customers and if the customers are not satisfied with the services provided by the banks then they will defect which will impact economy as a whole since banking system plays an important role in the economy of a country, also it is very costly and difficult to recover a dissatisfied customer.

**Vijay M. Kumbhar (2011)**- In his research paper "Factors Affecting the Customer satisfaction In E-Banking: Some evidences Form Indian Banks". This study evaluates major factors (i.e. service quality, brand perception and perceived value) affecting on customers' satisfaction in e-banking service settings. This study also evaluates influence of service quality on brand perception, perceived value and satisfaction in e-banking

**Pooja Malhotra & Balwinder SINGH (2009)** - In their research paper "The Impact of Internet Banking on Bank Performance and Risk: The Indian Experience". The paper describes the current state of Internet banking in India and discusses its implications for the Indian banking industry. Particularly, it seeks to examine the impact of Internet banking on banks' performance and risk. Using information drawn from the survey of 85 scheduled commercial bank's websites, during the period of June 2007, the results show that nearly 57 percent of the Indian commercial banks are providing transactional Internet banking services

**Rathee (2017)** says that revolutionary technological transformation that includes the features like anytime anywhere banking, ultra-fast response time, the usage of digital channels by avoiding or bringing down the paper-based transactions has changed the face of Indian banks.

**Yadav (2017)** highlights that digitalization is enhancing customer experience and making it easy for the customer to do business with the Bank and vice-versa, by effective use of technology.

**Golani (2017)** says that the banking and financial services sector in India has undergone through disruptive changes in the last decade as far as adoption of technology is concerned. With the government providing incentives for digitalization of the economy, it is definitely the success mantra for the banks.

**Malhotra and Singh (2010)** conducted an exploratory study and make effort to present the current status of Internet banking in India and the extent of Internet banking services offered by Internet banks.

### III. Objective of the Study:

The objective of the proposed study are as follows:-

- The concept & Evolution of Digital Banking in India
- Trends and Innovations in Digital Banking
- Opportunities and Challenges faced by the users of Digital Banking services

### IV. Research Methodology & Data Source

The proposed study is descriptive and exploratory in nature and is based on secondary information sources collected from various research papers, reputed journals and magazines, University of Calcutta library, various annual report published by Government of India & Reserve Bank of India, and other related websites to this matter.

### V. The Concept of Digital Banking

Digital Banking means any user with a personal computer and a browser can get connected to his bank's website or mobile application to perform any of the virtual banking functions. Digital banking is the term that signifies and encompasses the entire sphere of technology initiatives that

have taken place in the banking industry. E-banking is a generic term making use of electronic channels through telephone, mobile phones, internet etc. for delivery of banking services and products. The concept and scope of e-banking is still in the transitional stage. E-banking has broken the barriers of branch banking.

The term "Digital Banking" covers computer and mobile / telephone banking. The system is updated immediately after every transaction automatically. In other words it is said that it is updated "on-line, real time." The system is updated immediately after every transaction automatically. Digital banking is further defined as delivery of banking products and services to customers through electronic channels. It does not involve any physical exchange of money as all transactions are done electronically from one account to another through internet. Digital banking includes the systems that enable financial institution customers, individuals or businesses to access accounts any time and from any part of world and do so when you have time and not when the bank is open.

Digital Banking is also known as Electronic Banking, Cyber Banking, Home Banking, or Virtual Banking and includes various banking activities that can be conducted from anywhere. A perusal of the concept of e-banking as described in the literature reveals that the term e-banking, is an upper construct that encompasses an array of banking services delivered through electronic media, be it through phone, PC, TV or internet. Thus the term E-banking includes RTGS, NEFT, ECS, Credit cards and debit cards, Cheque truncation, ATM, Tele banking, Internet banking and Mobile banking.

### VI. Evolution of Digital Banking in India – Major Landmarks

The traditional system of banking in India has been the branch banking. The Magnetic Ink Character Recognition (MICR) based cheque processing was introduced during the period 1986-88.

The late eighties marked the emergence of computerisation of banks' branches with the introduction of Ledger Posting Machines (LPMs), Advanced Ledger Posting Machines (ALPMs), followed by network based systems and the latest core banking solutions. Computerisation of Government industry from the late nineties in turn facilitated the computerization of all banks branches handling Government business. The Institute for Development and Research in Banking Technology (IDRBT) was set up at Hyderabad as a centre for research and technology in the banking sector. The Indian financial system was commissioned as a closed user group based network in 1991 with state-of-the-art safety and security, for the use of the banking sector exclusively. IDRBT commenced its Certification Authority (CA) functions for ensuring the requisite legal protection for the electronic banking transactions under the Information Technology Act, 2000. Formulation of

Information Systems Audit (IS Audit) guidelines for ensuring such audit in the banks and establishment of National Financial Switch (NFS) for inter-connectivity of shared ATMs and to facilitate payment settlement across banks. This is now managed by National Payments Corporation of India (NPCI). Implementation of the Electronic Payment and Settlement Systems (EPSS), Negotiated Dealing System (NDS), Centralised Funds Management System (CFMS) etc. [24]. The recent Digital India program was initiated in 2017, with the objective to provide high speed internet, mobile and bank accounts, in order to enable participation in digital and financial space at individual level.

**Table 1**  
**Technological Milestone in Indian Banks**

Sl. No.	1980	1990	2000-2010	2011-2019
1	MICR	ATMs	IMPS	Bio Metrics
2	Standard Cheques Encoders	Electronic Funds Transfer	RTGS	Mobile Banking
3		Branch Connectivity	NEFT	Cheque Truncation
4	-	Computerization	NECS	UPI
5	-	-	Online Banking	USSD
6			Tele Banking	E-Wallet

### VII. Demonetisation Effect

The story of digital transformation of Indian economy is incomplete without a chapter on demonetization. 8th November 2016 was an eventful day not only for the Indian economy, but for the whole of India. The central government took a very bold step which led to withdrawal of 86

percent of Indian currency. There was an immediate ban on highest denomination bills of Rs 500 and Rs 1000. Due to this sudden move, there was immediate shortage of cash in the market. As a result retail sales went down, wholesale markets tumbled. Indian economy is one of the largest economies in the world. But there are millions of businesses and hundreds

of millions of people having either no access to banks or don't have bank accounts. These businesses use cash for their day to day dealings and the individuals need cash to pay for everything from groceries to hospital stays to land purchases. Then there is a shadow economy which exists alongside the main economy comprising of countless hidden transactions, which are almost impossible to trace. This shadow economy, which is believed to be about a quarter of the country's Gross Domestic Product, operates in cash. The current demonetization exercise is not the first one in India. A similar attempt was made in 1970s to curb the corruption, but eventually it failed in its purpose. Since then, the shadow economy or the underground economy has grown immensely. The main objective behind the whole demonetization exercise was to curb the menace of black money and weeding out the counterfeit currencies out of circulation. However, it went out to serve another useful purpose. It pushed people towards digital money as they searched for alternatives of cash. The government set a target of Rs. 25 billion cashless transactions for the fiscal year ending March 2018. According to a report, by the end of March 2018 digital initiatives such as digital wallet payments, electronic toll payments, Aadhaar-based and bank-to-bank electronic money transfers accounted for about Rs. 20 billion worth of transactions, but fell short of the target. The performance of private sector banks was better than the public sector banks primarily on account of the concentration of their operations in urban areas. Even though the target was not achieved, the standalone figures indicate that the achievement is commendable.

### **VIII. Need for Digital Banking in India**

#### **1. Customer Service:**

With internet freely available everywhere, all a customer needs to access his account is a device & internet Connectivity. It saves

time & expenses as he no longer has to travel to a bank to carry out transaction. Online services make it possible for him to sit in the comfort of his home or office, or in fact even in a vehicle while travelling, & carry out transaction without having to wait for anything.

#### **2. 24\*7 Availability**

The customer is able to check his bank records anytime he wishes & a number of banking services are available to him round the clock. Transferring money is easier, quicker & safer.

#### **3. Time Constraint**

A number of services required waiting for considerable periods. Banks had boards put up at their branches specifying the time required for different services. Even simply cashing a cheque took time. But digital Banking is instant, with no time constraint.

#### **4. Online Bill payments:**

This is a feature that saves customers a lot of time & expenses. Customers do not have to carry cash & queue up to pay their utility bills or other bills.

#### **5. Lower Overheads:**

Digital Banking has drastically reduced the operating costs of banks. This has made it possible for banks to charge lower fees for services & also offer higher interest rates for deposits. Lower operating costs have meant more profits for the banks.

#### **6. Banking Benefits:**

With the increased convenience of anytime, anywhere banking, the number of customer has increased for banks. Human error in calculations & record keeping is reduced, if not eliminated. With records of every transaction being maintained electronically, it is possible to generate reports &



analyze data at any point, & for different purpose.

**IX. Digital mode of Transaction:**

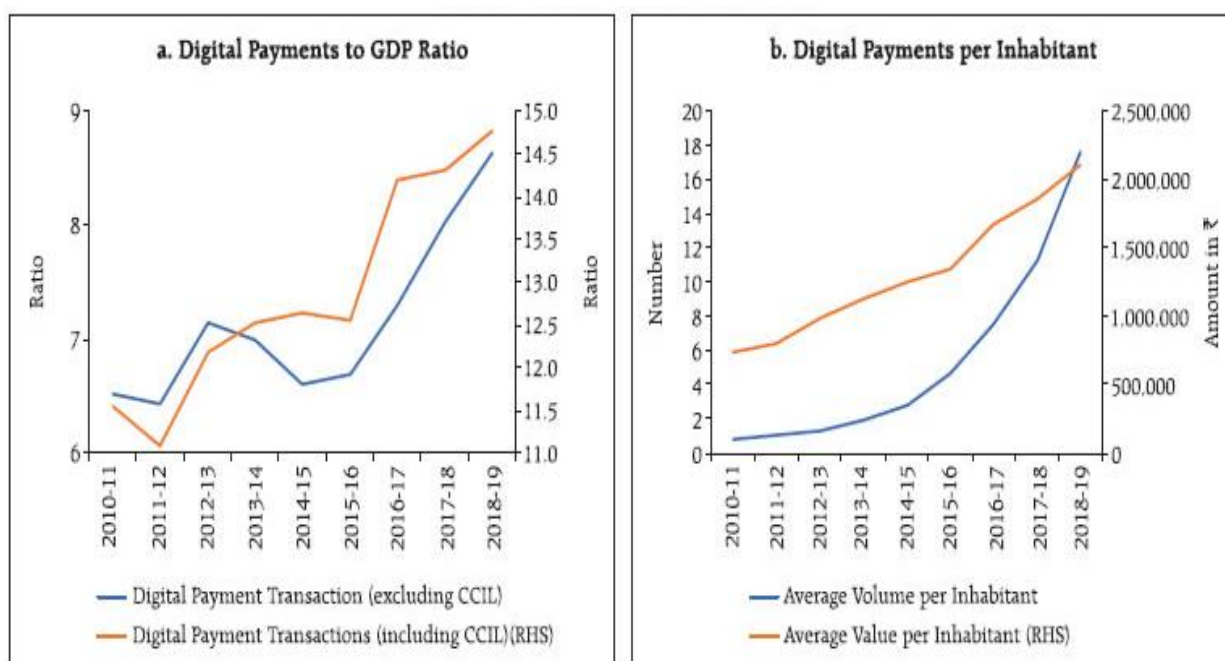
To build a successful cashless economy the Government of India introduce a large number of alternatives for digital transactions. Which are enumerated below –

1. Banking cards
2. Aadhaar Enabled Payment System (AEPS)
3. MICRO ATMS

4. Unified Payments Interface (UPI)
5. Mobile Wallets
6. Banks Pre-Paid Cards
7. Point of Sale
8. Internet Banking
9. National Electronic Fund Transfer (NEFT)
10. Real Time Gross Settlement (RTGS)
11. Immediate Payment Service (IMPS)
- Mobile Banking

**X. Digital Banking Trends in India**

**Chart 1  
Digital Payments in India**



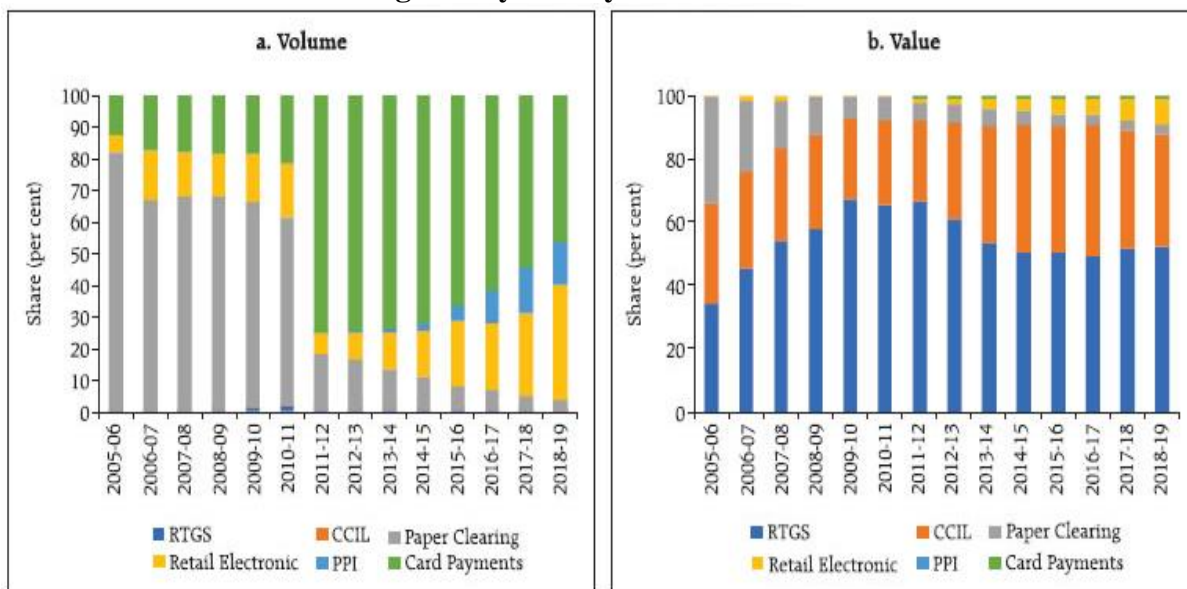
Source: RBI (www.rbi.org.in)

Digital payments to GDP ratio in India has been traditionally low, in the last few years. Although it has increase significantly with the introduction and promotion of various cashless payments instruments which have resulted in a significant increase in digital payment transactions and that change taken place especially after demonetisation on 2016-17(Chart 1a).

value and volume, also increased significantly. The share of retail electronic payments in total payments in terms of both volume and value is consistently rising since 2011-12 and reach high in 2018-19. This increase may be due to the introduction of some new modes of retail payments such as Prepaid Payment Instruments (PPI), Unified Payments Interface (UPI) etc.

Chart 1(b) depicts that the per person digital payments, both in terms of

**Chart 2**  
**Digital Payment system Indicators**



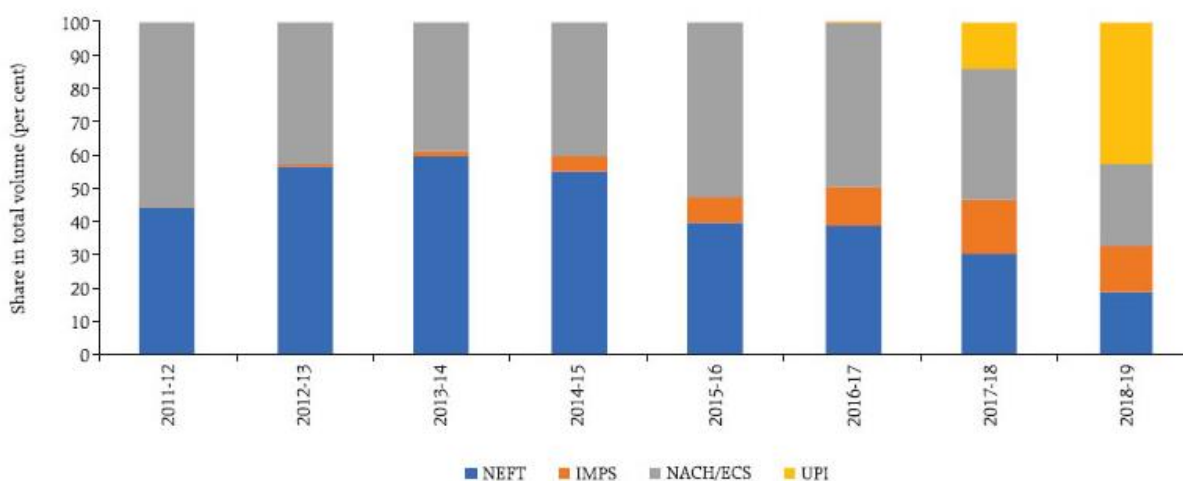
Source: RBI ([www.rbi.org.in](http://www.rbi.org.in))

Chart 4 depicts that, the share of card payments in terms of volume has been declining, although it continues to be the most important component. Card payments increase hugely from 2011-12 but starts to continuous declining from 2015-16. This may be happen due to the switching of customers to other innovative digital payment mode of transactions. Share of retail electronic decline in 2011-12 but after that it starts

increasing and takes a good position in 2018-19.

In terms of value, highest transactions taken place in payments through Real Time Gross Settlement (RTGS). Here, RTGS and Clearing Corporation of India Ltd. (CCIL) dominate the digital transaction system. The share of paper clearing is in a declining trend, both in terms of volume and value during and its existence is very narrow in 2018-19.

**Chart 3**  
**Retail Electronic Payment**

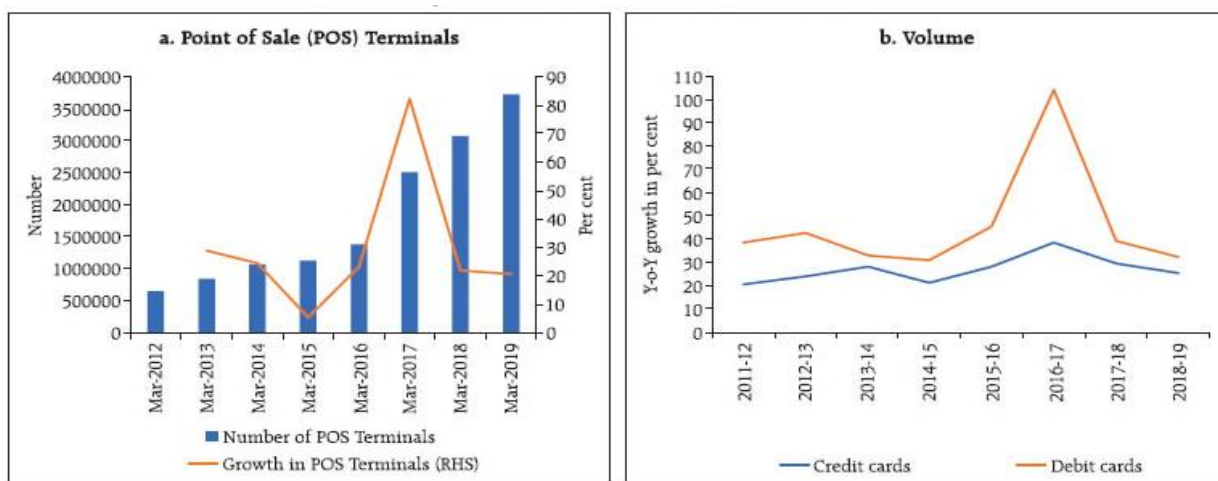


Source: RBI ([www.rbi.org.in](http://www.rbi.org.in))

Above chart depicts that, retail electronic payment system has been dominated by NEFT upto 2014-15. The introduction of UPI in 2016-17 changed the landscape of retail electronic payment system. The

UPI's share in it increased to 43 per cent within a span of three years. NACH/ECS has also plays a big role in digital payment system.

**Chart 4**  
Usage of Debit and Credit cards at POS Terminals

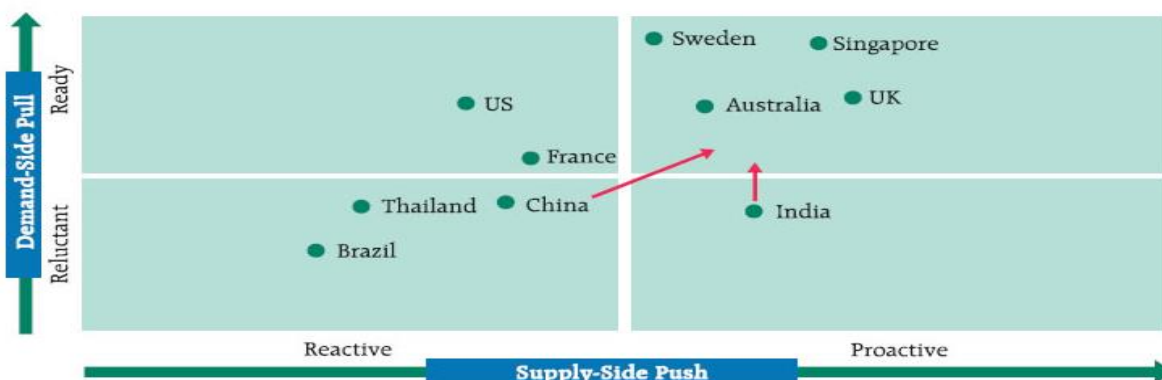


Source: RBI ([www.rbi.org.in](http://www.rbi.org.in))

Chart 4 depicts that, on account of demonetisation the number of POS terminals and usage of debit and credit cards increased significantly during 2016-17. Though growth in usage of debit and credit cards at POS terminals declined in the post-demonetisation period. The usage of debit cards at point of sale (POS) terminals has witnessed a sharp rising in the recent years. In terms of volume, their share rose near 110% in 2016-17 but end

with 31% in 2018-19. In case of growth in usage at POS terminals debit cards has generally been higher than that of credit cards. The tremendous growth in use of debit cards may be due to the push provided through the RuPay cards under the Pradhan Mantri Jan Dhan Yojana (PMJDY), increase in the number of POS terminals and various incentives provided by the Government of India and the merchants for digital payments.

**Chart 5**  
Demand side and supply side factors affecting digital payments



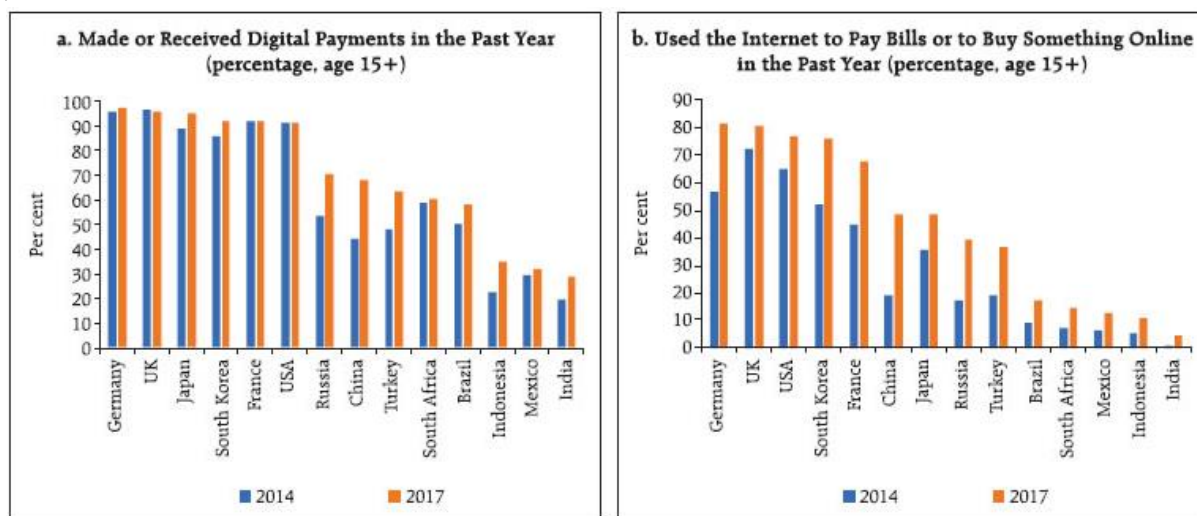
Source: RBI ([www.rbi.org.in](http://www.rbi.org.in))



The wider adoption of digital payments depends on both the supply side push and demand side push. supply side factors consist of robust payments system infrastructure, minimum cost of e-payments, push to greater financial literacy and bank accounts, introduction of new and innovative schemes to attract consumers. On the other hand demand side factors are strong consumer demand for e-payments, safety, add-on benefits etc. The World Payments Report, 2018 shows that the UK, Australia, Singapore and Sweden are the leaders in terms of both regulatory supply-side push and demand-side pull. In India, people are not so much connected with the digital transaction. In spite of sound proactive supply side push, due to insufficiency in demand side pull India does not belong a

good position in digital payment system. The government and the Reserve Bank have taken various initiatives which have helped in popularising and inculcating the habit of digital payments. Initiatives such as UPI, PPI, significant expansion in access to RuPay debit card through Jan-Dhan Accounts and Aadhar based direct benefit transfers (DBTs) have helped in popularising and increasing the usage and penetration of digital payment system. The Reserve Bank’s ‘Payment and Settlement Systems in India: Vision 2019-2021’ endeavours to ensure increased efficiency, uninterrupted availability of safe, secure, accessible and affordable payment system as also to serve segments of the population which are hitherto untouched by the payment system.

**Chart 6**  
**Cross- Country spread of Digital Banking**



Source: RBI ([www.rbi.org.in](http://www.rbi.org.in))

Although government of India have taken various initiatives for increasing the usage and penetration of digital payments system, the usage of digital medium remains much lower than major advanced and emerging economies. In terms of various indicators of payment system infrastructure and usage such as

number of cards per inhabitant, number of cashless payments per inhabitant and value of cashless payments per inhabitant, India lags behind the AEs and other EMEs. Above Chart depicts that Germany, UK and Japan are the top three countries in respect of made or received digital payments in the past few years

(Chart 6a). Germany, UK, USA and South Korea are dominates on used the internet to pay bills or to buy something online in the past years (Chart 6b).

### **XI. Hurdles in Digital Banking system**

**1. Internet Penetration:** As per a report titled “Internet in India 2017” by Internet and Mobile Association of India (IAMAI) and Kantar IMRB, the number of Internet users stood at 481 million in December 2017, which is second highest in the world. Urban India with an estimated population of 455 million has 295 million internet users whereas rural India, with an estimated population of 918 million as per 2011 census, has only 186 million internet users leaving out potential 732 million users in rural India. This indicates a very low internet penetration, which is a major obstacle in the path of digital banking.

**2. Internet Shutdowns:** Internet shutdowns are one of the major hindrances in seamless connectivity which is required for digital banking. In the current year, India has already witnessed 95 internet shutdowns as against 79 such cases in the whole year of 2017, as per the data compiled by Software Freedom Law Centre (SFLC), a legal services organization. Although the problem of shutdown exists across many states, Jammu & Kashmir and Rajasthan are leading states. Frequent internet shutdowns result in serious disruptions and tremendous loss to individuals and businesses, and may prevent the nation from realizing the benefits of digital economy.

**3. Inadequate Infrastructure** India is having the highest number of bank branches in the world, but people in rural areas still have to travel miles to access banking interface. Although India is a huge country, it has only 2.3 lakh ATMs and 14 lakh Point of Sale (PoS) terminals. Though digital channels like apps, websites, SMS/Text, ATM, video teller machines (VTMs) and e-kiosks are narrowing the gap between banks and customers, rural Indians are more

comfortable with physical cannels. A 2015 Ernst and Young report said there were only 693 machines per million of India’s population, compared to similar emerging countries such as Brazil, which has 32,995 terminals per million people and China and Russia, each of which has around 4000 terminals per million people. Number of ATMs per million population has been growing in almost every country. There are countries with 1,000-plus ATMs per million population — South Korea (2423 ATMs), Canada (1859), France (1745), Russia (1537) and Australia (1338) — while the number is 180 for India, which is lower than China (538) and South Africa (516).

**4. Financial Literacy:** A survey was conducted by Standard & Poor’s Financial Services LLC, where it was found that 76 percent of Indian adults are unable to understand key financial concepts, which is seven percentile points lower than the worldwide index. With better financial literacy will help these individuals in the selection of products that best suits their requirements. A financially aware individual is more likely to adopt the digital banking services and channels.

**5. Cyber Crime and Security:** Digital banking has brought in comfort, convenience and flexibility in banking services. The flip side is that it has increased the risk of cybercrimes. Most banking and financial applications are subject to cyber-attacks. With so much money at stake, there is always a risk involved. There are hackers who employ innovative techniques to siphon funds, either as large amounts in a single shot, or minuscule amounts from hundreds and thousands of accounts, over a long period of time. Also, there is always the threat of valuable personal data being compromised. Banks need to ensure that their system is well maintained and upgraded to counter any threats from cybercrimes.

**XII. Conclusion:**

There is no doubt that the Banking Sector in India has become more competitive with the advent of digitization and the Digital India Program for ensuring better customer service, thereby attaining the goal of a cash-less economy. From the study it can be concluded that the digital innovations are creating a new picture of banking services all together. The digitization in banking has started shifting the paradigm of cash and paper based banking to cashless and paperless banking. However, there is still a long way to cover by encountering the challenges with possible solutions and encashing the available opportunities.

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