

## Role of Technology in Driving Financial Inclusion in Indian Banking Sector

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### Abstract

Digitalization is a new buzz world today. Over the past few years, India has been witnessing an extraordinary level of digitization and digital disruption, which has completely transformed the way in which public services are delivered. Technology has become a prominent theme which is driving inclusion across the financial services, education and healthcare ecosystem for all the citizens of India. As a result of the powerful JAM trinity of Jan Dhan Bank Accounts, the biometric Aadhar Card and hundreds of millions of mobile phones, financial inclusion has become a reality for the citizens of India. This has been speeding up by the Unified Payments Interface (UPI) which has witnessed incredible adoption. UPI recorded over 22.33 billion transactions worth over ₹ 41.03 trillion at the end of FY 2020-21. The platform approach taken by the government in conceptualizing UPI has resulted in supreme payments products being developed on top of it, as a result of which payments can be made with the click of a mobile phone not just at retail outlets but also peer to peer, completely redefining the way in which money is transferred between individuals. Before UPI, the banking system is severely depending on different card system, the Real Time Gross Settlement (RTGS) system and transactions through National Electronic Funds Transfer (NEFT) system to have the inclusive financial growth. The present research article discusses about the technology revolution in different payment infrastructure, tools and techniques adopted by the Indian banking sector and recognised the challenges faced by Indian banking system to have a digital financial inclusion in the country.

**Key Words:** Financial Inclusion, Digitalization, UPI, RTGS, NEFT, Debit and Credit Card.

### Introduction

The method of cybernation gained pace with the reform inside the Indian economy in 1991-92 at the time once personal and foreign banks entered the Indian market aiming to digitalize the economy and improve the services provided by the final public sector banks to the purchasers. 1996-1998 were the years of web banking/e-banking adoption in Republic of India when that, inside the year 2000, the government of Republic of India enacted the knowledge Technology Act, 2000 to produce legal recognition to electronic transactions and different means that of electronic commerce. The digitalisation inside the banking sector is usually seen in Republic of India since the institution of ATMs. more developments like Telebanking, Electronic Compensation Service, Electronic Funds Transfer system, MICR, RTGS (Real-Time Gross Settlement), purpose of sale terminal, etc. square measure typically seen inside the banking sector. E-banking has resulted in reducing prices drastically and has helped generate revenue through varied channels. varied steps and initiatives had been adopted by the tally and National Payment Corporation of Republic of India in strengthening the Payment and Settlement Systems in banks similar to the launch of United Payments Interface (UPI) and Asian country Interface for cash. it's because of such initiatives and platforms,

customers currently don't need to store or carry money aboard them any longer, they will currently create transactions anyplace at any time. these days banks aim to produce quick, correct and quality banking expertise to their customers. The Indian Government is at a high rate is promoting monetary inclusion through digitalization. The launch of the United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by National Payments Corporation of India (NPCI) square measure the two major vital steps for innovation inside the Payment Systems domain in India. As per the tally Report of 2020-21, there are 2,22,475 automatic teller machine Machines (ATMs) and 65,49,386 purpose of Sale devices (POS). Implementation of electronic payment system like NEFT (National Electronic Fund Transfer), ECS (Electronic Clearing Service), RTGS (Real Time Gross Settlement), Cheque Truncation System, Mobile industry, Debit cards, Credit Cards, paid cards have all gained wide acceptance in Indian banks. These are all outstanding landmarks inside the digital revolution inside the banking sector. on-line banking has modified the face of banking and has achieved a very important amendment in banking operations.

### Research Objectives

1. To summarise the concept of Digitalisation in Banking Sector.
2. To analyse the different tools of digital financial inclusion used by the Reserve Bank of India.
3. To study the challenges and impact of digitalisation on financial inclusion.

### Research Methodology

The present study is descriptive in nature and offers the conceptual discussion. It is an effort to explore the facts related to banking sectors initiatives towards financial inclusion through technology. Data for the study is assembled through the annual reports of Reserve Bank of India and various magazines and manuscripts are used for building the concept for the study. The followings are the different digital infrastructure of the banking sector in India.

#### 1. National Electronic Funds Transfer (NEFT)

It is that the most ordinarily used electronic payment method for transferring money from any bank branch to a different bank in India. It operates in half-hourly batches, at the present, there are 23 settlements. There is no minimum and maximum limit for the transactions under NEFT. Basic requirement for NEFT is a few details of the beneficiary to initiate an NEFT transfer. i.e., the name of the beneficiary, account number and account type, name of the bank, and the Indian Financial System Code (IFSC) of the bank.

#### 2. Real-Time Gross Settlement (RTGS)

It is primarily used for high-value transactions which are supported 'real-time'. The minimum amount to be remitted through RTGS is Rupees Two Lakhs and there's no upper limit. It is the continuous (real-time) settlement of funds transfers individually on an order-by-order basis (without netting). 'Real Time' means the processing of instructions at the time they are received rather than at some later time; 'Gross Settlement' means the settlement of funds transfer instructions occurs individually (on an instruction-by-instruction basis). Considering that the funds settlement takes place in the books of the Reserve Bank of India, the payments are final and irrevocable.

**Table 1.1 : Performance of RTGS and NEFT  
(Volume in million)**

Year	RTGS	EFT/NEFT
2008-09	13.4	32.2
2009-10	33.2	66.3
2010-11	49.3	132.3
2011-12	55.0	226.1

<b>2012-13</b>	68.5	394.1
<b>2013-14</b>	81.1	661.0
<b>2014-15</b>	92.8	927.6
<b>2015-16</b>	98.3	1252.9
<b>2016-17</b>	107.8	1622.1
<b>2017-18</b>	124.4	1946.4
<b>2018-19</b>	136.6	2318.9
<b>2019-20</b>	150.7	2744.5
<b>2020-21</b>	159.2	3092.8

(Source: RBI Annual Report Data Combined by the Author)

The above table depicts that, the performance of NEFT and RTGS from the past 13 years. It is identified that; both the payment system of digitalisation is performing excellently and the progress is also in upward trend since its introduction. The volume of transactions of NEFT is more than the volume of RTGS.

### 3. Debit and Credit Card

Card payments are also called as plastic payment system which is directly linked with the customer's bank account. It eliminates the carrying of physical money or cheque and some cards also provide the reward points, through that the card holder utilise the points make the digital payment through Point-of-Sale system. There are three different types of debit card processing pin debit, signature debit, and contactless debit. These cards can be used for withdrawals and make payment for various purchases subject to a limit to the amount exist in the account.

One of the benefits of using a credit card is customer can use the cash more than in the credit of his account. There are five key parties the buyer, the merchant, the acquirer, the issuer, and the network. Its primary role is to manage payment transactions such s operations and clearing. Visa & master cards are the largest global brands offer credit card which is accepted throughout the world. In ATM Most of the credit cards can be used to withdraw money, but charges will be levied on advances. Credit card online payment can be done through plain credit cards, encrypted credit cards, and third-party verification.

**Table 1.2 : Performance of Debit &Credit Card Transactions  
(Volume in million)**

<b>Year</b>	<b>Credit Card</b>	<b>Debit Card</b>
<b>2008-09</b>	259.6	127.7
<b>2009-10</b>	234.2	170.2
<b>2010-11</b>	265.1	237.1
<b>2011-12</b>	320	375.5
<b>2012-13</b>	396.6	469.1
<b>2013-14</b>	509.1	619.1
<b>2014-15</b>	615.1	808.1
<b>2015-16</b>	785.7	1173.5
<b>2016-17</b>	1087.1	2399.3
<b>2017-18</b>	1405.2	3343.4
<b>2018-19</b>	1762.6	4414.3
<b>2019-20</b>	2177.3	5123.9
<b>2020-21</b>	1764.1	4020.0

(Source: RBI Annual Report Data Combined by the Author)

The above drafted table 1.2 depicts that, the performance of Debit card and Credit card transaction volume from past 13 years. The data is showing the increasing trends of usage of credit and debit card up to 2019-20. In the year 2020-21 showing slight decrease in the transaction volume. It is identified that, after the implementation of PMJDY, access and usage of debit cards are increased.

#### 4. Unified Payment Interface and BHIM Aadhar Pay

UPI is the most trending form of digital banking presently. UPI makes use of a virtual payment address (VPA) so the user can transfer funds without entering bank account details or IFSC code. Another striking feature of UPI is that the applications let you consolidate all your bank accounts in one place. Funds can be transferred and received around the clock with no time restrictions. UPI-based apps in India are BHIM, PhonePe, and Google Pay. BHIM application, in addition to the transfer of funds to other virtual addresses and bank accounts, also lets the user transfer funds to another Aadhaar number. More importantly, UPI-based payments are free of cost.

#### 5. Mobile Wallets

Mobile wallets have eliminated the need to remember four-digit card pins or enter CVV details or carry loose cash. Mobile wallets store bank account and card credentials to easily add funds to the wallet and make payments to other merchants with similar applications. Popular mobile wallets are Paytm, Freecharge, Mobiwik, etc., however, generally have a limit on how much can be deposited in the wallet. A small fee may also be charged on depositing the funds from the mobile wallet back into the bank account.

#### 6. Internet and Mobile Banking:

Commonly known as e-banking, internet banking refers to obtaining certain banking services over the internet, such as fund transfers, and opening and closing accounts. Internet banking is a subset of digital banking because internet banking is only limited to core functions. Similarly, mobile banking is availing banking services through mobile-based applications.

**Table 1.3: Performance of Unified Payment Interface and BHIM Aadhar Pay Transactions**  
(Volume in million)

Year	Unified Payment Interface (UPI)	BHIM Aadhaar Pay
2016-17	17.9	-
2017-18	915.2	2
2018-19	5,353.4	6.8
2019-20	12,518.6	9.1
2020-21	22,330.7	16.1

(Source: RBI Annual Report Data Combined by the Author)

In the above table 1.3 it is mentioned that, the UPI payment system are introduced in the year 2015 and BHIM Aadhar was in the year 2016. As a popular mode of payment in the recent digitalised era, the performance of UPI transaction volume reached 22,330 million and the volume of transactions are doubling year by year. In the same way performance of BHIM Aadhar pay also reached 16.1 million of transaction volume withing 5 years.

#### Advantages Of Digitalisation In Banking Sector

Digital banking lately is not just confined towards using the web to access the banking services, as is typically perceived, however, it likewise incorporates of a whole exhibit of banking services delivered or consumed using technology. Advantages of digitalization within the banking sector are: -

### **1. Pay, Receive or Transfer Money Easily**

Digitalization within the banking sector has offered the use of various sorts of services by sitting reception alongside no time restrictions. It has also reduced the gap between rural and concrete areas. With the digital payment modes or through E-Banking one can send money from one account to the other account of any bank branch from anywhere and anytime. Modes like USSD (Unstructured Supplementary Service Data), E-Wallets, UPI, Paytm other banking applications allow us to try to do so.

### **2. Written Record**

Digitalization has offered us to take care of our record, track our spending and budget planning. By using online applications, we get a record of each transaction we make. Applications automatically record the transactions within the passbook or simply have the records maintained inside the E-Wallet App. Banks can make use of digital analytics to form sound data-driven decisions.

### **3. It Is Easy and Convenient**

Digitalization has created a simple and convenient lifestyle for the purchasers and therefore the financial organization, as now the utilization of physical cash has become very less as compared to digitalized cash and there's no need carry along loads and a lot of cash from one place to another. The danger of human error has minimized which has led to a rise in consumer loyalty. Services like NEFT (National Electronic Fund Transfer), RTGS, etc. have also made it easy to transfer the amount from one bank to another very conveniently and quickly.

### **4. Online Bill Payment**

One of the good advantages of online banking is online bill pay. instead of having to write down checks or fill out forms to pay bills, once you found out your accounts at your online bank, all it takes is just simple click or maybe less, as you'll usually automate your bill payments. With online bill pay, it's easy to manage your accounts from one central source and to trace payments into and out of your account.

### **5. Discounts From Taxes and Other Incentives**

Many discounts were announced by the govt and therefore the financial institution to encourage digital payments. If one uses digital modes for a payment up to 2000 INR, one gets full exemption from service tax. Nowadays many mobile application operators also provide some incentives like cash back and other promotional offers which have also provided benefits to the consumers. One also gets 75 per cent discounts on fuels and 10 per cent discounts on insurance premiums of state insurers etc.

### **Challenges Involved In Digitalizing Banking Activities**

Digitalization has many obvious advantages such as accessibility to information, easy and immediate communication, low cost, reduced time and ability to share information, new jobs, and increased commercial competition. Even though there are plenty of advantages in going digital and enjoying the comfort of going digital but digitization in banking does not come without disadvantages. Below is a list of some of the challenges faced due to digitalization in the banking sector.

#### **1. Cybercrime**

Cybercrime is the use of digital instruments to further illegal ends, such as committing fraud, violating privacy, or stealing identities. This mode does not require the physical presence of the person, and one can execute such a crime from a faraway place, sitting comfortably in front of their computer/mobile screens. As the information and services have been digitalized the risk has been increased for both the bank and the consumer.

## **2. Attaining application perfection**

There is an immense feeling of consolation while using smartphones with various applications and features. The introduction by banks and financial institutions of application has progressively offered comfort and extravagance of observing costs at anywhere and time. It has made it easy for consumers to enjoy the services provided by the bank through mobile applications. But these associations have omitted that for several people these services are inaccessible as some can't afford mobile and a few don't skill to work these applications. Nonetheless, most of those applications are frequently ridden with bugs and also face various performance issues. it's hard to explore these apps, once in a while, and that they frequently crash.

## **3. Inefficient at complex transactions**

Worldwide, business-oriented banks like Chase have global transaction capabilities, like the power to send payments to quite 35 different currencies worldwide, that online banks won't be ready to master. Without a real-world presence, most online banks can't even offer the services of a notary, which require an in-person visit and necessary for many important financial transactions like buying a home.

## **4. Decreasing Quality at the cost of Speed:**

In the surge of wanting to convey products and services at an accelerated speed, companies regularly tend to compromise on the standard of the application. The standard-issue is that there's nothing of the type as a touch bug; a bug may be a bug; it can harm the smartphones easily. There are a couple of cases of associations purposely choosing to disregard deserts in products and programming even before the thing hit the market.

## **5. Technology upgrade**

Technology isn't constant, it always keeps on evolving. As technology develops, more and more banking services are digitized to deal with the competitive market. Thus, it becomes difficult for consumers to stay up with these advancements and learn accordingly. As an example, an adult man after learning the banking application with difficulty started using it but some days later as technology advances, new features and updates are released by the bank on its applications then it again becomes difficult for that man to find out the updated app which mostly happens in the older population of the society and then they have to go back to the traditional ways of banking.

## **6. Authentication issues**

The main issues which are mainly faced by the banking authorities is the issue of authentication of their customers. The instructions which have virtually been provided by the Customer have originally been lodged or requested by him/her only or someone is personating on behalf of him is the main issue. Even after enacting various different measures like OTP, PIN, SMS/CALL verification relationship numbers, customer ID, etc. for securing the authentication of the consumers, the Bank and Cyber Frauds are increasing day by day and have emerged as a major challenge before the Cyber Cells and the concerned authorities.

## 7. Superheating with innovation

Superheating the marketplace by offering imaginative services isn't simply wanted, yet also, it required remaining on top of things and attracting a good customer base. Particularly with a huge base of youthful users, it becomes imperative to acknowledge the institution within the consistently becoming and competitive marketplace. In any case, financial institutions are frequently reluctant to require the jump, as they know that things can reverse discharge and cause moment reactions from perturbed customers.

### Future of Digital Banking

- Option to order currency
- Customizable standing options
- Accounts linked to tax exemptions status
- Card blocking feature
- Innovation toward safety vaults
- Integration with stock market investment channels
- Financial management analytics
- Enable grouping of accounts of different banks
- Easily accessible assistance

A full-fledged replacement of physical branch banking with digital banking right now seems like a far-fetched dream. Digital banking comes in handy for recurring banking essential functions. However, customers prefer human interaction for more important and irregular decisions, such as while taking a loan or negotiating the terms of the loan.

### Findings & Suggestions

Today, the planet has reworked from a data central to techno data central. Already the technology is inheritable in all the sectors of the economy and therefore the digital application within the banking sectors is requisite type for achieving financial inclusion. Totally different revolution like from cash-based economy to cashless economy initiative by the Indian Banking sector ought to be perceived by the everybody. With the study it is recognised that, the technology like RTGS, NEFT and other online mode are acquiring huge consideration from the people from every corner of the country. They are clearing all the barriers standing for the financial inclusion. Since the cybercrimes, cost of the services and somehow insecurity feel is also increasing day by day through these developments in technology. Government and RBI should curb the development of unauthorised access and upgrade the technology regulations for minimising the cyberterrorism. For the reason that, the digitalisation is losing the confidence of people latterly.

### Conclusion

Ancient banking and digitalized banking aim to create versatile processed product and services to fulfil the necessities of their customers. The introduction of technology in banking has revolutionized the banking sector and changed the whole procedure bank transfers, it's expedited the purchasers helping them to ascertain their account details, pay on-line bills and transfer cash from one account to the alternative throughout a quicker manner. This has helped the end-user to get pleasure from an organized monetary life, more embrace hassle-free on-line banking. The necessity for cybernation was felt inside the Indian banking sector inside the late Nineteen Eighties, wherever there was a desire to reinforce the client service, book-keeping and MIS news. Within the late Nineteen Eighties, Republic of India was ruined by varied monetary reforms and thus the banking sector felt a demand to reinforce client services and cybernation of recording

and accounting of information. A committee was acknowledged in 1988 by the FRS Bank of Republic of India that was headed by Dr C. Rangarajan to review cybernation inside the Banking Sector. when the introduction of the alleviation, Privatization, and economic process (LPG) policy, the strategy of digitalisation picked up the pace aboard the amendment inside the Indian Economy.

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