

## Digital Payment System Towards Better Business Opportunities

*I dream of a Digital India where the world*

*Looks to India for the next Big Idea*

**-Shri Narendra Modi**

*\*Er. Nirupam Choudhury*

*\*\*Dr Debomalya Ghosh*

### Abstract

India is predominantly a cash-based economy where apprehensions of going digital, perennially persist. According to a report by Credit Suisse Group AG, 72% of India's consumer transactions take place in cash; double the rate as in China. Nevertheless, a paradigm shift was observed when India announced demonetization on 8th November 2016 followed by Covid19 pandemic which further amplified the use of digital payment in India manifold. An unsolicited push gave birth to the new economy that strives for digital inclusion and sees rapid expansion year on year. As of November 2019, India had over 115.5 crore wireless telephone subscribers resulting in a Tele-density of 88.90%. (Reserve Bank of India, 2020). This increase in smartphone devices and cheaper internet services has supported this growth and adoption of various digital means of payment. This research paper is highlighting the inclination of India towards digital payment and its effects on the people and economic system of India.

Keywords: **Digital payment, UPI, Digital divide gap, next-gen microfinance.**

### Introduction:

The rise of online payment era has nothing been short of meteoric success. Prior to the year 2000 (Gupta,1999; Pegu,2000 and Dasgupta,2002), people preferred to keep their money in banks and when a customer of the

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bank wanted to purchase some goods or in need of money, one has to approach the bank and ask the Teller to handover some of the cash deposited from their individual bank account. It is a cumbersome and time taking process.

With the launch of internet by ARPANET (United States Advanced Research Projects Agency Network) in 1966, laid the foundation of internet, the evolution of electronic payment systems advanced even further. In the year 1989, Tim Berners-Lee developed a system of pages and sites,

which could be connected together by hyperlinks, successfully paving the way for the realization of digitally payment. In India Information Technology Act was passed in the year 2000 after which mobile banking was started by way of SMS banking followed by Real Time Gross Settlement in short RTGS in 2004 and cash withdrawals from ATMs in 2009 (Suhas.D,2018).

In 2023, it's a completely different payment ecosystem that exists. There is a paramount shift from cash payment and check books to online payments, securely exchanging currency for any goods and services in real time over the internet. Starting from early 2000s, many companies in Asia continent, also trying to keep up the pace with technology changes in order to provide online transaction facilities to its customer. In the year 1996, industrial Credit and Investment Corporation (ICICI) introduced online banking services in the country, by the use of electronic banking at its branches. Likewise in due course of time, other corporate banks like IndusInd, Citi and HDFC started their online banking facilities. In 2008, the National Payments Corporation of India (NPCI) was established. This umbrella organization formed by RBI and Indian Banks' Association (IBA) created a robust payment and settlement infrastructure in India. In due course of time it has rolled out several other digital payment options like RuPay, Aadhaar enabled Payment system (AePS), Bharat Bill Payments System (BBPS), BHIM and more.

### **Statement of the Problem:**

To understand how Digital payment solutions is catalysing inclusive growth of India and proliferating the country's position on global economic order.

**Review of Literature:**

Rakesh H M (2014) in their research paper titled “A Study on Factors Influencing Consumer Adoption of Internet Banking in India” tried to examine the factors that influence internet banking adoption. It is found that internet banking is influenced by its perceived reliability, Perceived ease of use and Perceived usefulness. Dr. Abhishek Shukla (2016) the article entitled “The Study of Electronic Payment Systems”. This research is aimed to identify the issues and challenges of electronic payment systems and offer some answers for improve the e-payment system quality.

Preeti Garg (2016) in her research paper entitled “Study on Introduction of Cashless Economy in India 2016: Benefits and Challenge’s”. This paper contemplated the perspectives on individuals on presentation of cashless economy in India. The research was led in Delhi and information was gathered with the assistance of organized poll and examined utilizing basic rate technique. Reactions from respondents shows that cashless economy will help in checking dark cash, counterfeit money, battling against illegal intimidation, helps in improving financial development of our nation.

In the process of internet banking services expert should emphasize the benefits its adoption provides and awareness can also be improved to attract consumers” attention to internet banking services. Significant difficulties that can upset the execution of the strategy are digital extortion, disposition of individuals, absence of straightforwardness and effectiveness in digital payment system. The study found that, cashless economy in India can be viewed as a driving factor that assists in development and advancement of economy.

Vidya Shree DV (2015) in the article entitled “A Study on new Dynamics in Digital Payment System - with special reference to Paytm and Pay U Money”. The research paper is zeroing in on the effect of the new digital payments systems on clients and issues experienced. The research found that, individuals are more mindful about the online payments through portable applications and there is a more extensive expansion in development rate. The research likewise found that Paytm and Pay U cash is giving simple payment structures contrasted with Digital payment system. G.P. Sahu (2017) in his research paper titled “Paradigm Shift of Indian Cash-Based Economy to Cash-Less Economy: A Study on Allahabad City monitored “the status of e-Payment at Allahabad city (Uttar Pradesh, Indian) and to conduct an analysis of imitation of e-Payment in other regions of India.”

**Research Gap:**

Various studies have covered different aspects on the role of digital payments system in India. Taking into consideration the volatile nature of the global economy and trade disruptions between world powers there is uncertainty between consumers regarding the future of digital payments in a developing country like India. However India’s UPI interface can play a pivotal role in ensuring seamless cross-border transactions amidst global tension and trade disruptions.

As these global scenarios are recently developed, no literature as such has been published along the lines of this specific topic during preparation of this research paper. Hence, this study is a foot forward in the direction of fulfilling this gap for fellow enthusiasts and researchers to take the research henceforth.

**Research Methodology:**

This study is carried out to estimate the status, potential and importance of cashless economy in the country. The research paper mainly based on extensive study based on secondary data although in some cases primary data source is also explored by conducting face to face and telephonic interviews by the author. Secondary Data used while preparing the research paper have been collected from various online sources such as govt. publications, govt. reports, UN reports, websites, articles, journals, top news channels e-paper to make sure the study is an effective and useful one. The research will be conducted with objective to study various parameters responsible for driving India towards a Cashless Economy.

### Research Objectives:

- To deduce the factors those are driving India towards Digital payment system.
- To elucidate the various modes of Digital payment system available in the Indian market and identifying the top payment modes.
- To elaborate the bottlenecks affecting the adoption of cashless transactions in India.
- To analyze the future of Digital payment system in India.

### Research Questions:

- I. What are the factors responsible for digital payment?
- II. How these factors of digital payment system are driving a country like India towards cashless economy?
- III. What are the modes of digital payment services available in India?
- IV. What is the most preferred mode for payments in India?
- V. Most common factors responsible for digital payment adoption in India.
- VI. Obstacles in rural areas of India hampering digital financial services.
- VII. Why digital payment system became better than cash in a very short period of time in India?
- VIII. Understanding digital divide gap in access to financial services and present scenario of India against other countries.
- IX. How digital payment system will shape the next-gen microfinance in India?

### Scope of the study:

Taking into consideration the literature reviewed, reports published by national and international agencies and structure layout for writing this detailed research paper, undertaking surveys with primary data to study the overall growth of Indian economy due to invent of digital payment

ecosystem will help draw a comparative analysis, exploring some other unknown factors relevant to the study will help in observing a notably shift in consumer perception. These will further enhance the objectives of this paper and add greater value to it.

### **Limitations of the study:**

The quantitative insights of the study provide crucial insights into the consumer preferences and adoption rate of digital payment systems in India. However due to time constraints and nature of my occupation the study is mainly based on secondary data.

### **Analysis of Data and interpretation:**

#### ***Rise in digital payments after emerging of smartphones as mass-market product in India***

Digital payments started in India in the year 2015-2016 when smartphones became popular in the country. The rising demand is buoyed by cheaper internet, entry of e-commerce and the influx of low cost Chinese smartphones brands in India. By 2019, surpassing the USA, India's smartphone market touched 158 million (15.8 crore).

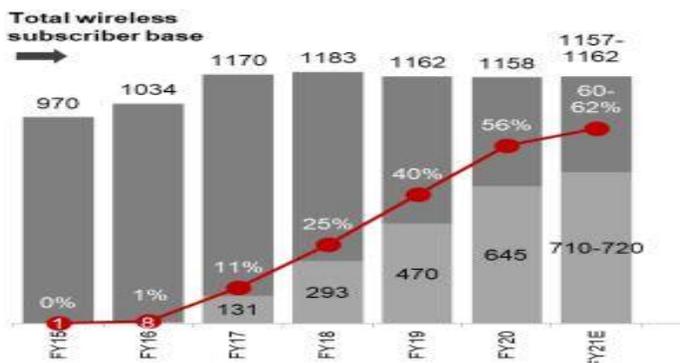
On 8 November 2016, the Govt. of India announced Demonetisation of all Rs. 500 and Rs. 1000 banknotes. Further in 2020 nationwide lock down for Covid 19 pandemic further fuelled the proliferation of online payments which pushes a larger chunk of population on the drive towards digital transformation. Moreover during Covid 19 pandemic, internet access has become a must for children to follow online classes by sitting in their home, prompting more low income families to scrape together money to purchase a low range or refurbished (used) smartphones or tablets for the first time.

<i>Percentage of Enrolled children who have a smartphone available at home.</i>			
<i>By school type in 2018, 2020 and 2021</i>			
<b>Children enrolled in:</b>	<b>ASER 2018</b>	<b>ASER 2020</b>	<b>ASER 2021</b>
Govt.	29.6	56.4	63.7
Private	49.9	74.2	79
Govt. & Private	36.5	61.8	67.6

Source: Annual Status of Education Report (Rural) 2021

Fig1.1: Rise in smartphones in families in India during the Covid 19 pandemic

Internet connectivity has drastically improved over the years in India with 4G connections have risen to approx. 710-720 million (71 crores-72 crores) in fiscal year 2021.



Source: [www.crisil.com](http://www.crisil.com)

Fig 1.2: India’s wireless-telecom subscriber base from 2015 till 2021

In coming days India will have smartphones user base of 1 billion (100 crores) by 2026, with rural areas driving the use of internet enabled phones. Smartphones have become indispensable for a lot of day to day tasks aside from enabling digital transactions which makes smartphones an important personal belonging for people of all age, geographic and socio economic status.

## **Key drivers boosting digital payments in India**

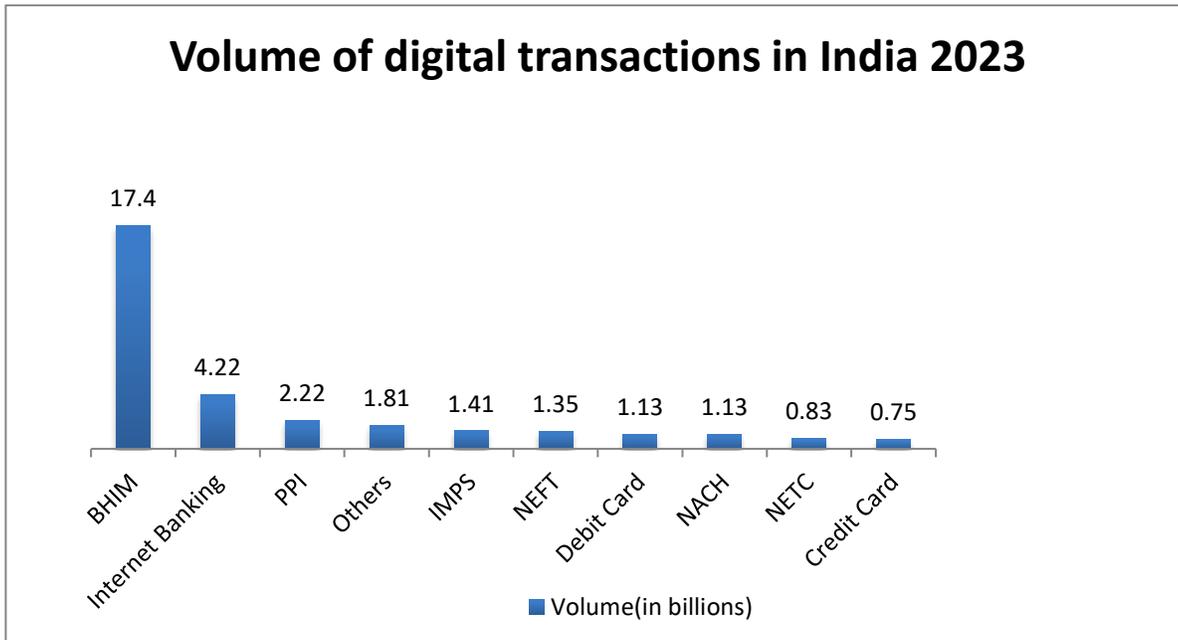
Rapidly growing telecom sector consisting of smartphone ownership and high speed internet penetration across the length and breadth of the country, Telecom services are the backbone for enabling online access for various important service sectors like banking, health, education, and many other services, which propels the overall economic growth of the country. The sector has witnessed manifold growth over the last few years as a result of many factors such as affordable internet tariffs, wider service availability, rolling out of new facilities and high speed internet services such as 3G and 4G, evolving consumption patterns of subscribers, and helpful regulatory environment. 5G services will generate data at unprecedented velocity and at an immense volume. This fast data will further fuel a wide range of data-driven services and digital business models in India.

Besides this in recent years there is a noticeable a technological revolution in governance in India. One of the major objectives of GOI flagship programme “Digital India” is to achieve “Faceless, Paperless, Cashless” status. The vision is to facilitate digital payment to every citizen of the country in an easy, convenient, affordable, quick and secured manner.

### ***Launch of Unified Payments Interface (UPI) system***

As smartphones and high speed internet were taking off, so were a lot of mobile first businesses. While India's diverse necessities have propelled the creation of various digital payment systems such as NEFT, IMPS, RTGS, NACH to name a few, the biggest problem was interoperability. Hence to mitigate this problem, The National Payments Corporation of India (NPCI) introduced UPI payments to make online transaction seamlessly and overcome the issue of interoperability. 780 crore transactions was recorded in December 2022, making UPI the fastest payment system in the world to hit such volumes. Bharat Interface for Money in short BHIM-UPI app has been evolved as the most preferred payment mode amongst users. In August 2022 alone, 346 nos. of banks were live on UPI interface, with 6.58 billion (65,800 crore) financial transaction being carried out for a total value of Rs. 10.73 lakh crores. At present, India has over 250 million (25 crores) unique users and five crores merchants on the UPI platform, which has become one of the most inclusive modes of payment. In Q3 2022, UPI Person to Merchant (P2M) and Person to Person (P2P) emerged as the most chosen payment methods among consumers, accounting for 42% of total transaction value via online mode UPI was 85%.

The technology of the UPI QR code is a major element of cashless payment methods. Its utilization is increasing with time, from small retail stores located across length and breadth of the country to large corporate and government sectors. UPI QR codes enable its users to quickly receive and send payments with some clicks and taps on their smartphones. Whether you want to pay for a purchase or send money to a friend, colleague, or family member, you can quickly do that using a UPI-enabled app on your mobile phone. BHIM UPI QR code is an advanced version that allows the amount to be transferred from any bank account to the receiver's account within seconds without any limitations.



Source: statista.com

Fig 1.3: BHIM-UPI emerging as most preferred mode in digital payment solutions.

### Govt. Initiatives

Digital India has been one of the Govt. of India flagship programmes to make the country digitally empower and move towards a cashless economy. The Digidhan Mission has been the primary catalyst to promote the digital payment ecosystem in India. The government of India launched Pradhan Mantri Gramin Digital Saksharta Abhiyan in short PMGDISHA in February 2017. This flagship Digital Literacy Programme has 6.63 crore registered candidates and out of this, 5.69 crore candidates have been trained and 4.22 crore have been certified. The Scheme would empower the citizens in rural areas by training them to operate computer or access digital devices like tablets, smart phones etc., send and receive e-mails, browse Internet, access Government services, search for information, undertake digital payment etc. and hence enable them to use the Information Technology and related applications especially Digital Payments to actively participate in the process of nation building. RBI also observed “Financial literacy week” in February 2022, in order to propagate financial education messages among the public across the country. The Govt.’s demonetization initiative in the year 2016 paved the way to go cashless. Soon after that, during Covid 19 pandemic Govt. of India launched UPI and rapidly established e-payment startups. All these efforts resulted in a paradigm shift in the mindset of people to adopt online transactions.

The Govt. of India has also launched e-RUPI on 2<sup>nd</sup> August 2021, a cashless and contactless instrument which may play a huge role in Direct Beneficiary Transfer (DBT). NPCI has partnered with 11 banks for e-RUPI transactions. Govt. establishments, Corporates can enable well-being of their employees by distributing the UPI Prepaid Vouchers. NPCI has tied up with more than 1,600 hospitals where e-RUPI can be redeemed. All these initiatives have constructed a robust cashless ecosystem in India.

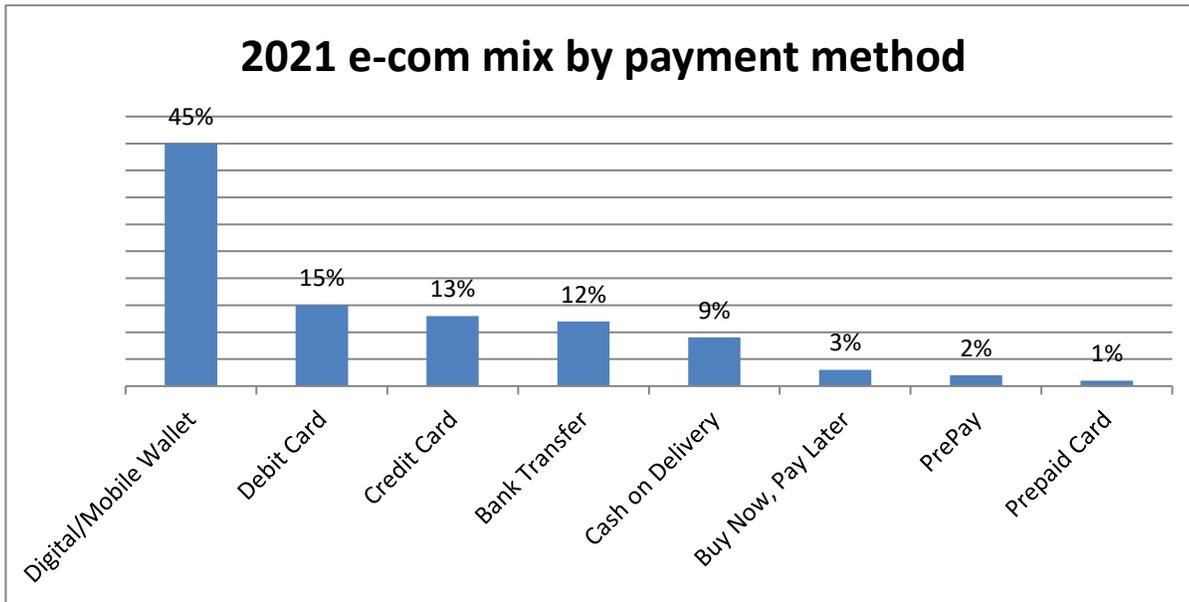
Financial Year	2017-18	2018-19	2019-20	2020-21	2021-22
Digital Transaction volume (in crore)	2,071	3,134	4,572	5,554	8,840
Digital Transaction value (in lakh crore)	1,962	2,482	2,953	3,000	3,021

Source: RBI, DigiDhan Dashboard

Fig 1.4: year on year growth in digital payments in India

***E-Commerce market***

India’s e-commerce market, earlier dominated by cash as the mode of payment, is evolving to meet the demands of its increasing smartphone-led online shopping culture. According to the 2022 Global Payments Report (GPR) by Worldpay from FIS, there has been a drastic increment in the adoption of cashless payment mode with advancement in technology and digitalization in India. Bank transfer facilities like NEFT, RTGS, IMPS, Cheques, Prepaid cards and Cash on Delivery market shares are decline and is estimated to be limited by just 8.8% of e-commerce transaction value by 2025. The report also added, Digital wallets (45.4%), Debit cards (14.6%) and Credit cards (13.3%) were the leading e-commerce payments mode in 2021.



Source: *fisglobal.com*

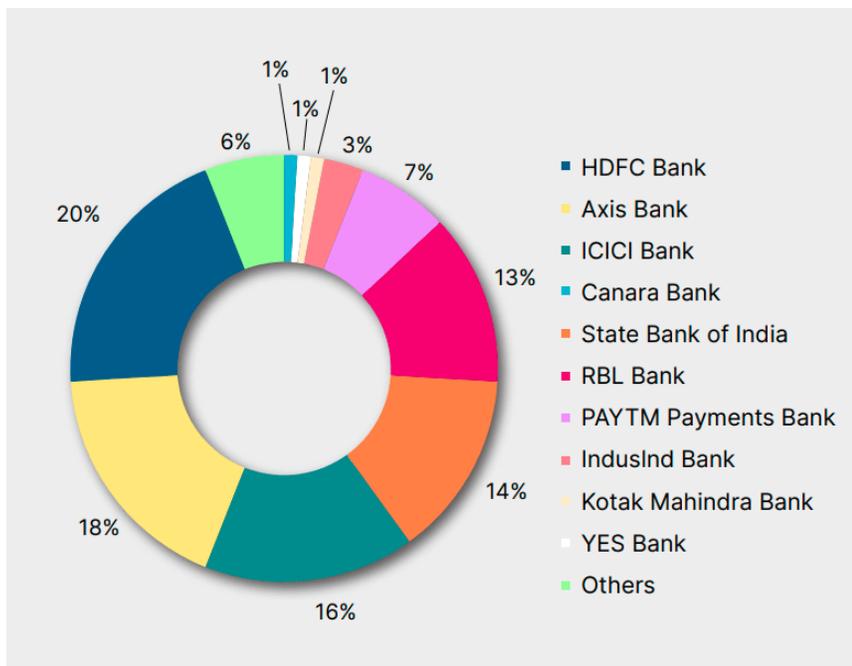
Fig 1.5:- E-commerce payments trends in India

### ***Point of Sales solutions***

A Point of sale (POS) is the most advanced payment accepting machine which is installed at Merchants Establishment (ME) to carry out the sale of goods and services to customer in a cashless system. POS solution providers are playing a pivotal role to empower business and pushing society towards becoming cashless. As a result, the market for POS machines has grown substantially. With the increment of POS solutions, businesses of all forms ranging from a neighborhood grocessary shop to a fine dine eatery are switching towards a cashless Indian society.

Till September 2022, overall POS machines installed by merchant-acquiring banks had surpassed 7 million (70 lakhs). Private sector banks contributed around 75% of the market, while Govt. undertaking banks account for 17%. Payments banks share 7% and foreign banks maintain only 1% share.

Top POS system facilitators in India are HDFC Bank, Axis Bank, ICICI Bank, State Bank of India, RBL Bank, Paytm Payments Bank, and IndusInd Bank are the top acquiring banks with 91% market share in terms of POS deployment.



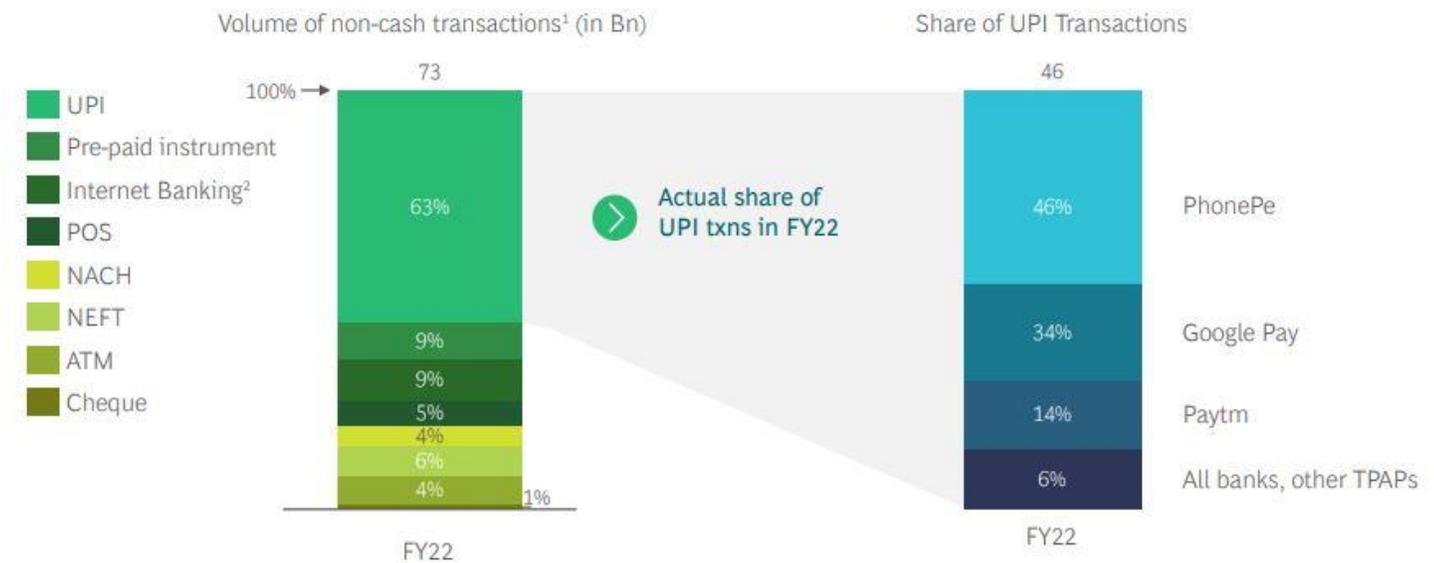
Source: <https://in.worldline.com/>

Fig 1.6:-Depicting top POS terminal providers in India by 2022

### Fintech

Fintech, short for financial technology is among the rapidly growing industry and India is ranked the third largest Fintech market globally with an estimated market size of US\$150 Billion (Rs.12,31,500 crores) by 2025. With Fintech adoption rate at 87% against the global average of 64%, India has emerged as one of the

largest digital markets in the world. With more than 2,000 Fintech companies currently operating in India, it has played a major role in facilitating access to financial services like AEPS, Aadhaar Pay, Remittances, peer to peer lending to block chain and online recharges for the masses. It has democratized digital payment and increased access to digital payments and digital banking. Although conventionally banks served as the gateway to payment service in India, however with the advent of technology, monopoly of banks in this area is gradually decreasing. Fintech companies are growing partnerships with banks, insurance companies, retail sectors where they are satisfactorily catering to the needs of the customer will further boost Fintech expansion in India manifold. With the advent of breakthrough Fintech startups in India like PayTM, PhonePe, Mobikwik, PineLabs, BharatPe etc. digital payment system have undoubtedly been the flag bearers of the Indian Fintech market.



Source: RBI data, NPCI, BCG Analysis

Fig 1.7: Fintech as major drivers of UPI adoption fostering digital transactions

**AePS- Aadhaar Enabled Payment System**

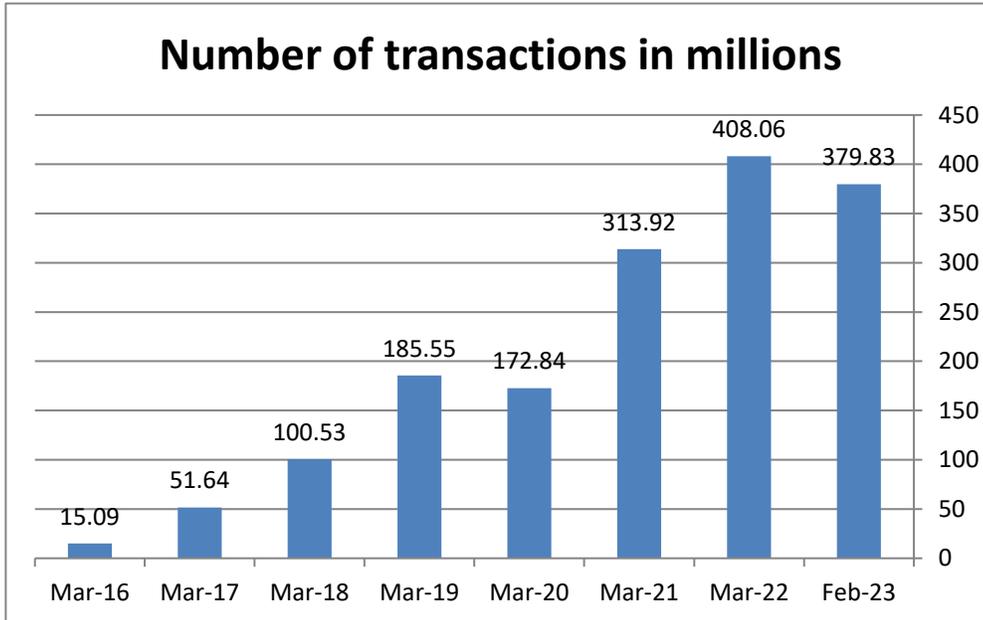
“The future of India lies in its villages”

-Mahatma Gandhi

In order to further expedite Financial Inclusion in the country, AEPS was launched a decade ago to enhance digital interoperability of financial transaction. Since then, it has been a game changer in promoting digital mode of transactions particularly in rural India. With the coming of Aadhaar, E-KYC has driven down the cost almost nil, therefore, technology and the digital age have reduced the costs of entry into the system. AEPS allows customers to carryout transactions through a micro ATM without any debit card is mostly meant for those who are not comfortable with smartphones or debit cards. While digital illiteracy has been a major deterrent, often paper works are needed by banks to open a bank account which is one of the major causes that discourage the rural population from availing formal banking services. However with the assistance of Business Correspondents or Bank Mitras the untapped section of society can digitally transact, thereby giving rise to increase demand for the AEPS infrastructure in the country.

As per NPCI and Annual report 2021-22 by Ministry of Electronics & IT, Govt. of India, Rs. 1,240.52 crore successful transactions have been done cumulatively by AePS platform using nearly 31.66 lakh micro ATMs. According to UIDAI CEO Dr. Saurabh Garg, as many as 120 crore bank accounts out of the 140 crore in the country have already been linked to Aadhaar, enabling urban to semi urban and rural population to enter into the formal financial system.

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Source: [www.statista.com](http://www.statista.com)

Fig 1.8: Number of AePs transactions across India 2016 to 2023

### ***Messaging Platform Enable Payments***

Money at the speed of a message. The digital payments space has been attracting Big Techs as they see it as an opportunity worth USD 3.6 trillion economy. In 2020, big tech has continued its advance into finance, with an emphasis on payments and emerging markets. These initiatives include both traditional payments infrastructure through Facebook Pay (to be included in Facebook, Messenger, and Instagram) along with WhatsApp Pay inside WhatsApp. WhatsApp, the meta-owned platform saw 23 million users send and receive money in June 2022 after it offered users cash back of Rs 35 per transaction for up to 3 transactions. In May only 3.48 million transactions had taken place on WhatsApp Pay. Although with the incentive ended up in July 2022, there was a sharp decline in number of transactions via WhatsApp pay. However there was a silver lining that the value of transactions registered a 16% rise from Rs 430 crore in June 2022 to Rs 502 crore in July 2022. The

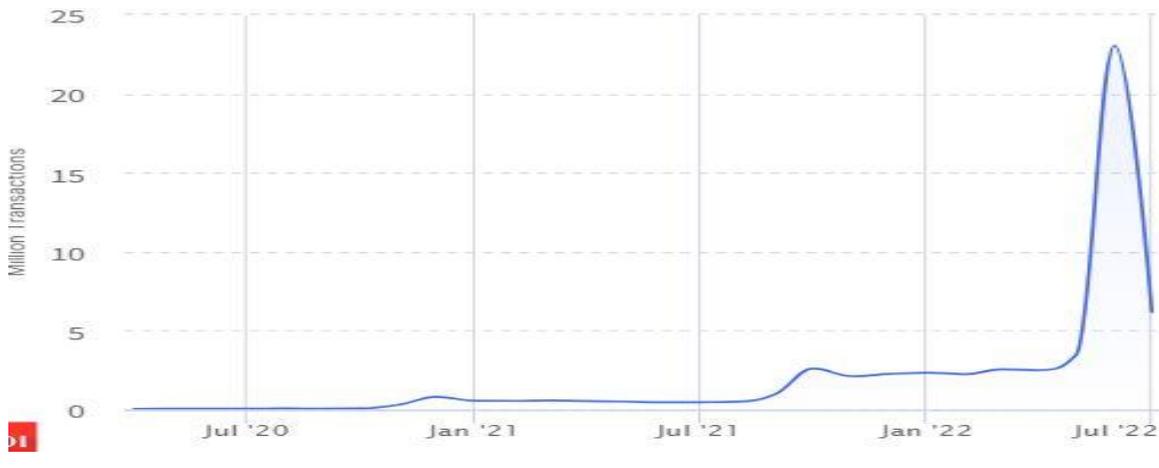
payments feature on the messaging app allows users to send and receive money hassle free and instantly with no charges. WhatsApp has seen impressive growth because of its massive penetration into the Indian market. , but has a long way to go before it can make significant headway.

Gupshup Messaging Platform wins NPCI Grand Challenge in 2020 by enabling payments through secure messaging on feature phones. With Gupshup solution, retail businesses have made conversations an integral part for customer engagement and retention. The solution enables a user to quickly and easily pay a merchant, or a friend just by using USSD feature on normal keypad mobiles just as easily as they can on a smartphone. The solution is highly secure with multiple levels of encryption and authentication so as to prevent financial fraud and abuse.

<i>Country</i>	<i>Number of users (in million)</i>
<b>India</b>	<b>487.5</b>
<b>Brazil</b>	<b>118.5</b>
<b>Indonesia</b>	<b>84.8</b>
<b>United States</b>	<b>79.6</b>
<b>Russia</b>	<b>67</b>
<b>Mexico</b>	<b>60</b>
<b>Germany</b>	<b>49.2</b>
<b>Italy</b>	<b>36.9</b>
<b>Spain</b>	<b>32.2</b>
<b>Argentina</b>	<b>26.5</b>

Source: <https://m.aisensy.com/>

Fig 1.9: Depicting India's WhatsApp users in the world



Source: NPCI

Fig 1.10: Showing average amount per transaction on WhatsApp app

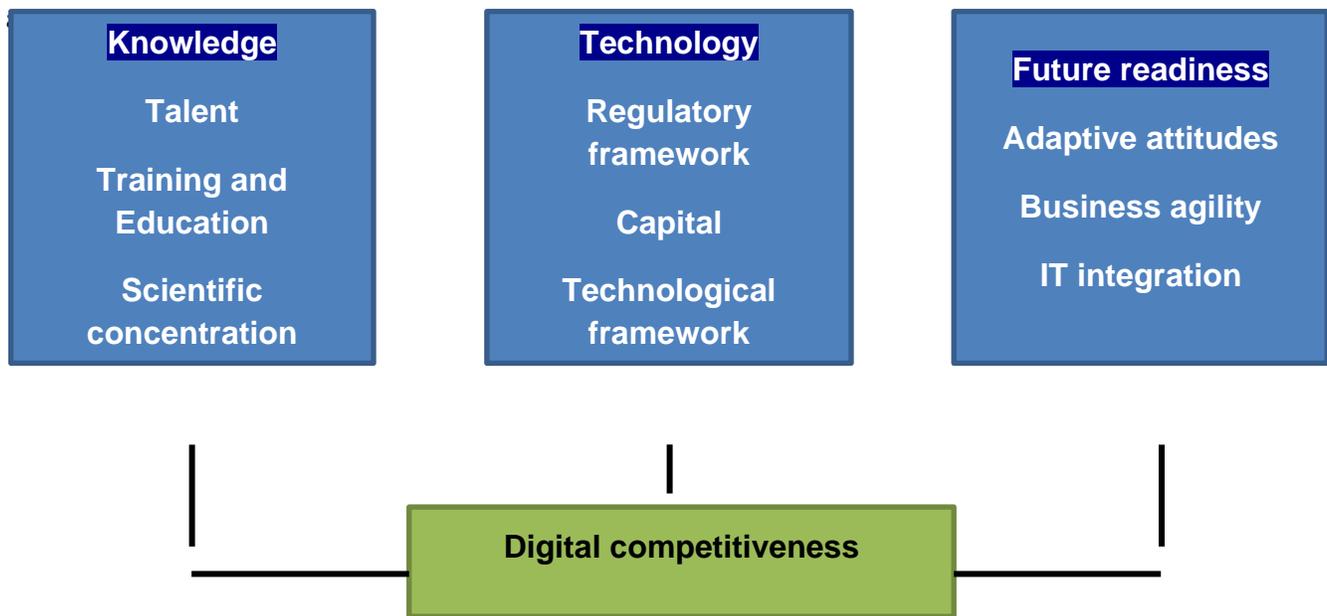
***Fostering Digital payment in India through Digital Literacy - Leaving no one behind means leaving no one offline.***

Rapid digital transformation already taking place prior to the COVID-19 crisis has accelerated during the pandemic, leading to the expansion of opportunities for digital inclusion. At the same time, some communities are facing tremendous technological challenges, with almost half of the world's population having no access to the Internet. The COVID-19 pandemic realized us that access to the internet should be a basic right that helps protect people's health, jobs, and lives. Moreover digitalisation of financial services offers the opportunity to achieve wide reach of financial inclusion by extending the availability and penetration of financial services digitally, benefitting formerly unbanked sectors of the population and extending digital alternatives to encourage consumers and entrepreneurs to exit the informal sector. Besides this, digital forms of identification like Aadhaar make it easier for consumers to meet the necessary identification requirements, overcoming an additional barrier to inclusion.

India has 64.6 crore active Internet users aged two years and above as on December 2021, revealed Nielsen's Bharat 2.0 report. Rural India registered a presence of 35.2 crore internet users, which is almost 20 per cent

higher than urban. However the study also revealed that almost 60 per cent of the rural population in India is still not actively using the internet, paving headroom for further growth.

Besides this, according to the National Family Health Survey 2019-2020 (NFHS-5), only 27.9 percent of rural women have ever used the internet while 41.4 percent of rural men report having used the internet at least once. The NITI Aayog, the apex public policy think tank of the Govt. of India report titled “Strategy for New India @75” emphasis on the need to eliminate the Digital Divide by 2022-23. National Digital Education Architecture in short NDEAR has been created as a unifying National Digital infrastructure to energise and further catalyse the education ecosystem. The core motive of developing NDEAR is to facilitate achieving the goals laid down by National Education Policy 2020, systematically through a digital infrastructure for innovations by, through and in the education ecosystem, ensuring autonomy and participation of all the relevant stakeholders. The IMD World Digital Competitiveness (WDC) Ranking, which is very much focused and assesses the capabilities and readiness of economies to undertake the process of digital transformation. Respective state Governments from all around the world is investing in scientific and technological infrastructure to keep up with the possibilities of the digital economy and enhance the prosperity of their citizens.



source: <https://www.imd.org/>

Fig 1.11: Illustrates the Digital Competitiveness Model

***Promotion of Digital payments minimizing regional Imbalance in Digital Payments Adoption in context to North East region of India.***

According to the Digidhan database maintained by the Ministry of Electronics & IT, Indians averaged about 3.85 digital transactions per person between July 2019 and July 2020. But there has been a stark difference in terms of the rate of adoption across states. The North-Eastern states of Mizoram, Manipur and Meghalaya have recorded the lowest digital transactions.

To understand the ground reality, I have personally interviewed with some of the local retailers dealing with various types of businesses including food, grocery shop, medical store, footwear operating in Cachar district of Assam.

<b>Name of the enterprise</b>	<b>Types of retail business</b>	<b>Customer base</b>	<b>Digital transactions by customer</b>
Ujjala Foods pvt ltd	Food	Urban	35-40%
Basudev enterprise	Grocery shop	Urban	45%
Swarupananda medical store	Pharmacy	Urban	55%
Vishal footwear	Footwear	Urban	25%

From the above table, it has been found that on an average 40% of retail transactions are being done in digital mode and the highest no. of digital payment transactions have been identified in the Pharmacy store. As per the proprietor of the pharmacy the basic reason behind this is normally customers visit the store with medical prescriptions and have no idea about the price of the medicines prescribed by the physician, so in most of the times customers prefer to pay the medicine bill via digital mode.

However due to extensive campaigning on use and benefits of digital payment by central as well as state agencies UPI has now become the most popular mode of payment and 58 per cent of the total 1.5 million merchants in the northeast have been digitised as per to the report by the Ministry of Electronics & Information Technology.

Rank 1-32	2020	2021	1 yr Change	Rank 33-64	2020	2021	1 yr Change
USA	1	1	-	Czech Republic	35	33	+2
Hong Kong SAR	5	2	+3	Portugal	37	34	+3
Sweden	4	3	+1	Slovenia	31	35	-4
Denmark	3	4	-1	Saudi Arabia	34	36	-2
Singapore	2	5	-3	Latvia	38	37	+1
Switzerland	6	6	-	Thailand	39	38	+1
Netherlands	7	7	-	Chile	41	39	+2
Taiwan, China	11	8	+3	Italy	42	40	+2
Norway	9	9	-	Poland	32	41	-9
UAE	14	10	+4	Russia	43	42	+1
Finland	10	11	-1	Cyprus	40	43	-3
Korea Rep.	8	12	-4	Greece	46	44	+2
Canada	12	13	-1	Hungary	47	45	+2
United Kingdom	13	14	-1	India	48	46	+2
China	16	15	+1	Slovak Republic	50	47	+3
Austria	17	16	+1	Turkey	44	48	-4
Israel	19	17	+2	Jordan	53	49	+4
Germany	18	18	-	Romania	49	50	-1
Ireland	20	19	+1	Brazil	51	51	-
Australia	15	20	-5	Bulgaria	45	52	-7
Iceland	23	21	+2	Indonesia	56	53	+3
Luxembourg	28	22	+6	Ukraine	58	54	+4
New Zealand	22	23	-1	Croatia	52	55	-3
France	24	24	-	Mexico	54	56	-2
Estonia	21	25	-4	Peru	55	57	-2
Belgium	25	26	-1	Philippines	57	58	-1
Malaysia	26	27	-1	Colombia	61	59	+2
Japan	27	28	-1	South Africa	60	60	-
Qatar	30	29	+1	Argentina	59	61	-2
Lithuania	29	30	-1	Mongolia	62	62	-
Spain	33	31	+2	Botswana	-	63	New
Kazakhstan	36	32	+4	Venezuela	63	64	-1

Source: <https://www.imd.org/>

Fig 1.12: Digital competitiveness ranking 2020 and 2021

**Digital financial inclusion in India against other countries**

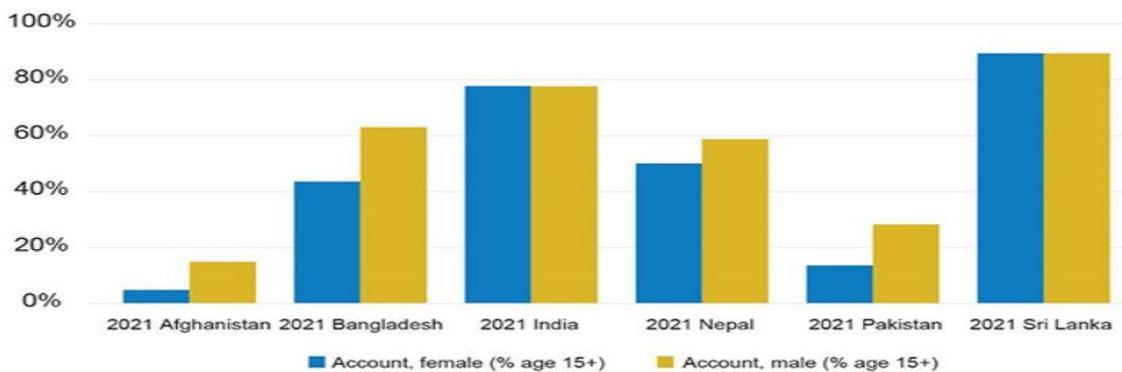
Digital financial inclusion involves the deployment of the cost-saving digital means to reach financially excluded and underserved populations with a range of formal financial services suited to their needs that are responsibly delivered at an affordable cost to customers and sustainable for providers.

While digital access provides a foundation for digital financial inclusion, usage hinges critically on the presence of digital skills. It has been observed that individuals are lagging behind on even basic information and communication technology (ICT) skills as the share of the population with basic ICT skills is 80%–100%

only in a handful of economies (OECD 2018). The use of digital payment system for the older population is more challenging than adults due to their lower digital access and absence of skills. Another important reason is their resistance to moving away from cash (Klapper and Miller 2021).

In India, digital payment adoption has been driven by smartphone ownership among other factors such as debit card possession, Bank Mitra or Banking correspondent (BC) access, and mobile banking applications. However, access to “bank mitras” and mobile banking applications was less important for digital payment adoption in India. Digital financial services has opened window of opportunities for millions of women across the globe. More than 24 crore women now have an account with a financial institution or mobile money service, compared to the year 2014. With this increased engagement in the formal economy, women’s resilience to financial, economic and health shocks has improved. Even so, there remains much work to be done to achieve gender equality in financial services. At present approximately 100 crores women worldwide do not have formal financial services, due to persistent barriers in access to identification documents, mobile phones, digital skills, financial capability, as well as inappropriate products and more.

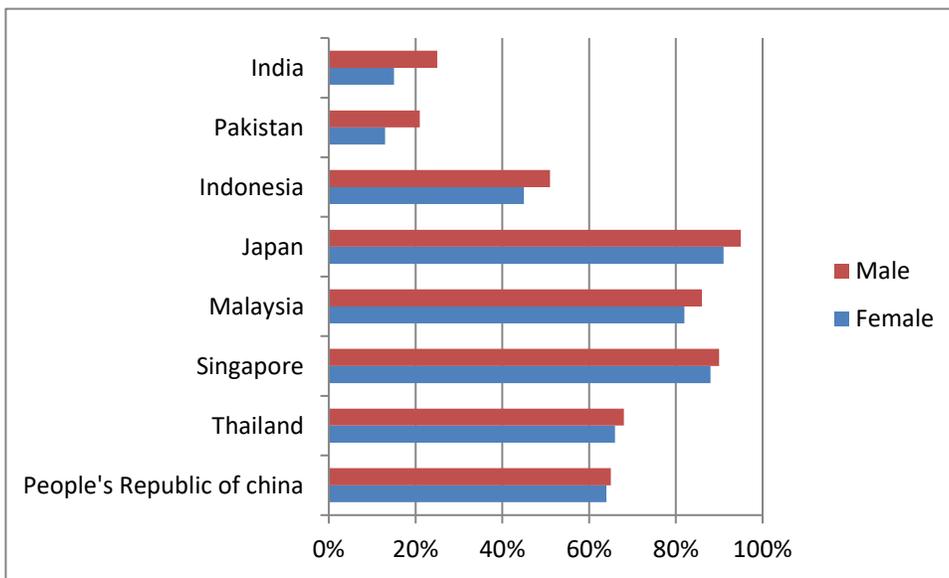
Globally, 65 percent of women have an account with a financial institution, compared with 72 percent of men, as women continue to face socioeconomic, cultural, and technological barriers to financial services (Demirgüç-Kunt and others 2018).



Source: Global Findex Database

Figure 1.13 : Bank Account Ownership in South Asian countries (2021)

Women’s financial inclusion is one of the many powerful levers that can boost gender equality and, at the same time, raise economic growth. Indian women are 15 percent less likely to own a mobile phone, and 33 percent less likely to use mobile internet services than men. In the year 2020, 25% of the total adult female population owned a smartphone versus 41 percent of adult men. In comparison, Bangladesh’s gender gap in mobile ownership stood at 24 percent and 41 percent in mobile usage. Pakistan’s gender gaps were even higher at 34 percent for mobile ownership and 43 percent for mobile usage. Despite the mobile ownership gap reducing from 26 percent to 19 percent, and mobile internet use gap from 67 percent to 36 percent, between 2017 to 2020, South Asian countries continue to have the widest mobile gender gaps globally.



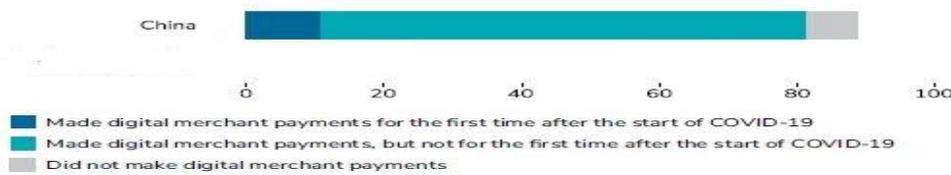
Source: International Telecommunication Union, 2021

Fig 1.14: Individuals using the internet service gender wise in India and some other Asian Countries.

In the year 2021, for the first time, the Global Findex survey included an expanded module on digital merchant payments in developing economies, where 37% of adults made digital merchant payments. This average is heavily skewed by the pervasive use of digital merchant payments in China (82 percent of

adults). Excluding China, the average share of adults in developing economies making digital merchant payments is around 20%. By contrast, in India, only about 12% of adults—fewer than 20% of account owners—made a digital merchant payment. However, two-thirds of those who made a digital merchant payment did so for the first time after the onset of COVID-19 pandemic.

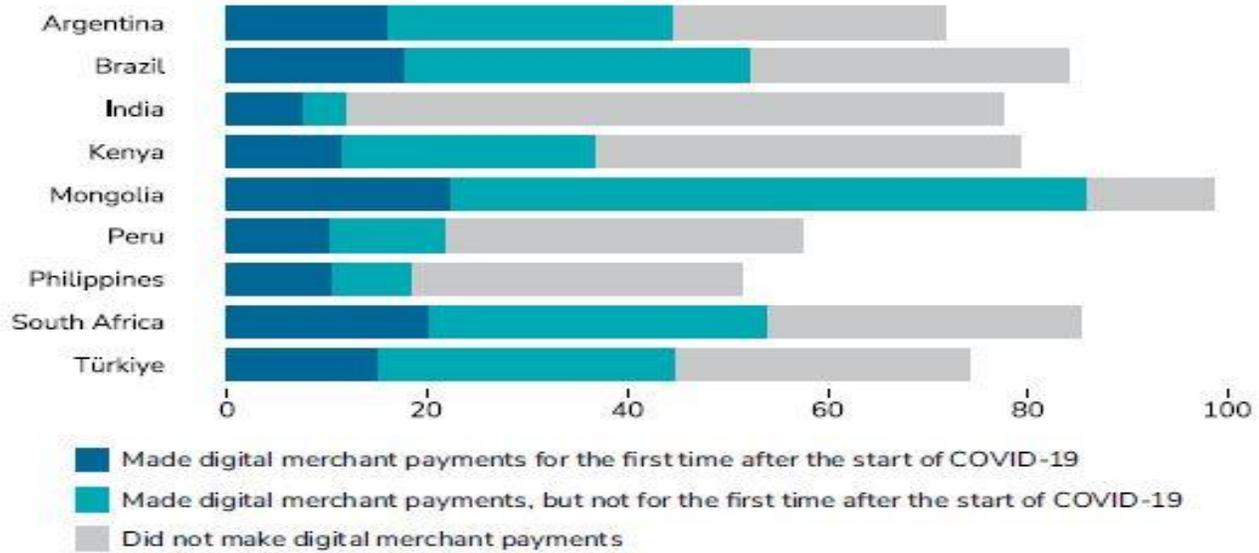
Adults with an account (%), 2021



Source: Source: Global Findex Database 2021.

Fig 1.15: In China, 8 in 10 adults made a digital merchant payment, whereas in other developing economies, 2 in 10 adults did so, including about 40 percent who did so for the first time after COVID-19 emerged.

Adults with an account (%), 2021



Source: *Source:* Global Findex Database 2021.

Fig 1.16: *The use and adoption of digital merchant payments during COVID-19 varied across developing economies.*

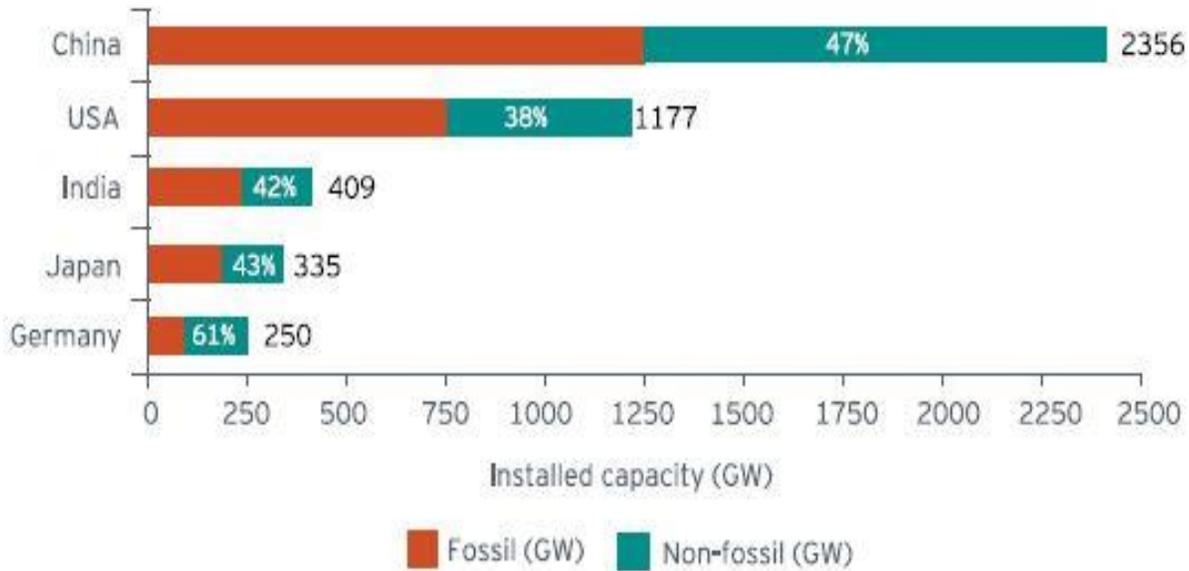
**Challenges in the adoption of digital payments**

- There is lack of financial literacy in both urban and rural population in India. As per RBI pan India survey on a score of 21, the average scored by both segments was merely 11.7.
- Fear of online fraud and cybercrimes. In the six APAC markets surveyed, in Experian’s Global Identity & Fraud report, consumers in China and India appeared to be vulnerable; around 29% of consumers in each country have been the victim of online fraud. As per the National Crime Record Bureau (NCRB) data, India reported an 11% jump in cybercrime in 2021 as compared to 2020.
- Disruption in digital payment due to bank downtime and poor internet. A downtime implies when the bank server is down. Particularly on weekends or bank holidays, a bank server may be down for some time and at that time if someone initiates an online transaction it may fail. According to NPCI, for November 2020,

SBI had the largest share of 26%. Despite of this, SBI is responsible for bringing down the industry average in term of declines. NPCI data shows that SBI reported 31 technical declines for every 1 lakh transactions, due to unavailability of server or network issues. Besides this, Indian tourism industry is also hampered by poor internet coverage in tourist spots mainly located in remote villages. Around 10% of the national income comes from the tourism sector. Despite this, tourists often faces issues while performing online transactions in tourist destinations located in rural hinterland far flung areas in Himalayan and north-eastern region of India.

- Power shortages in India affecting online transactions. An average Indian household receives 20.6 hours of electricity supply per day. According to FitchRatings, in 2022 the demand-supply mismatch of electricity is evident in the increase in the daily power deficit to around 1% from the average of around 0.3%. Citizens in rural areas were walking or spending their precious money to transport themselves from their villages to the nearest bank branch, then waiting (there) for hours simply because the bank did not have electricity all day and the computers could not work as mentioned by Mr. Raghuraman Chandrasekaran, founder and CEO of E-Hands Energy, Chennai.

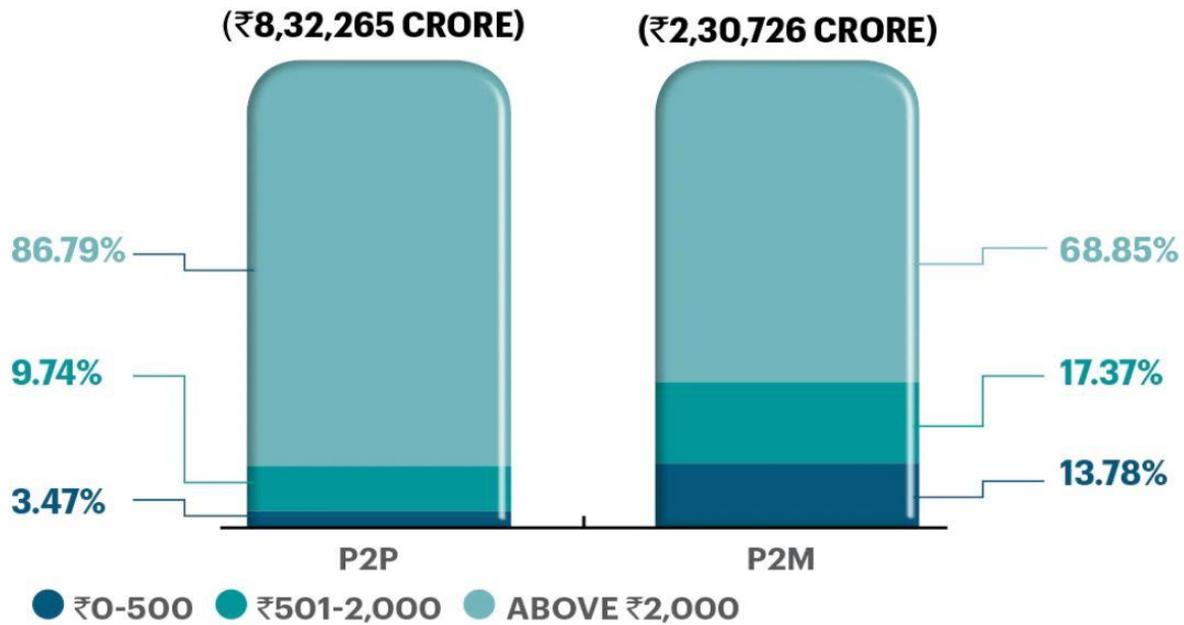
India's underdeveloped energy system and rapid economic growth have magnified and is worsening the problem of power shortages. Unlike neighbouring country China, India cannot make a national-level call to lower coal prices and stabilize supply, as explained by Mr. Qian Feng, Director of Research Department at the National Strategy Institute at Tsinghua University, China.



Source: USEIA, India CEA

Fig 1.17: Illustrating installed electricity generation capacity of top 5 economies in the world

- Huge convenience fee for making digital transactions hinders India’s cashless economy. The NPCI started to levy 1.1% charges on UPI transactions as interchange fee above Rs. 2000 from April 2023 on merchant using wallets or cards. The interchange fee will be applicable on UPI payments made to online merchants, large merchants and small offline merchants. This may refrain merchants to entertain online transactions.



Source: NPCI

Fig 1.18: indicating value of total transactions via UPI for July 2022.

- Rupay card (It is a product of NPCI, the umbrella organisation that powers retail payments in the country) have limited access. Rupay is only accepted at domestic payment systems. Whereas, VISA and MasterCard are being accepted globally in over 200 countries. Moreover transferring money to small merchants under Peer-2-Merchant (P2PM) category is not possible by Rupay credit card on UPI.
- Lack of multi lingual feature in UPI. While online payment platforms like UPI have picked up very rapidly in India, there is still a long way to go before there is adoption of UPI by people from all walks of life. In adopting a new payment technology, consumers have an additional sense of comfort, convenience and trust, if the language to conduct the transaction is in their native language. Apart from comfort, consumers may not also be literate enough in other languages to conduct a payment transaction. Whereas in ATMs besides Hindi and English language, native language of the region is also provided, this makes Automated Teller Machines easier to operate for all ages of people.

Gender disparity in digital financial inclusion. Digital financial services will expand opportunities for millions of unbanked women in India. Financial services are instantly been facilitated through mobile phones, and there is a persistent gender gap in access to phones, Internet and energy. In some nations, such as Ethiopia and India, the gender gap is approximately twice this size. The interconnection between the gender gaps in ownership of financial accounts and mobile phones is significantly positive. Even when they have these modern day technologies and access to digital financial services, women often lack the combined digital skills and financial capability to use them fully and lag men in use of mobile money according to data from Global Findex 69 women fear the risk of losing their funds while using a new technology or sending them to the wrong party.

### ***Benefits of Digital Transactions***

Government of India is committed to expand digital transactions in the Indian economy, and thereby leaving no stone unturned to enhance the quality and strength of the financial sector, as well as ease of living for its people across all ages and every walk of life.

- **Instant and convenient mode of payment:** Unlike cash, money can be transferred almost instantly to the beneficiary account using digital modes like BHIM-UPI and IMPS. BHIM-UPI has enabled access to multiple bank accounts in a single mobile app, facilitating ease of doing payments. For both customer and seller, an online payment is a boon saving a lot of time. People don't have to wait in lines, take time to write checks. For sellers, it saves a great deal of their business hours since they don't have to waste time in printing and mailing bills.

- **Enhanced financial inclusion:** Digital payments offer 24\*7 accesses to accounts anywhere, thus making it convenient for people to receive payments in their bank accounts and to also make transactions using their phone. People residing in urban, semi-urban and rural locations who may have been unwilling

thinking about travelling cost, and time required in physically accessing a bank branch for transactions can now conveniently access the bank account digitally and get various benefits of being part of the formal banking system and becoming financially included.

- **Preventing Street robbery and snatching:** This reduced the risk of loss of cash due to theft and eliminated the stress of carrying too much cash in pockets especially for aged people.
- **Increased transparency:** There is no danger of counterfeit money because money is sent and received from and to the banks directly. Moreover payments are directly transferred to target beneficiary (direct benefit transfer) account through digital modes of payments. All digital transactions can be tracked very easily, which creates fear in the mind of people with wrongful motives. This discourages black money and other illegal transactions to a great extent.
- **Utility Bill payment:** Bharat Bill Payment System (BBPS) provides an interoperable and easily accessible bill payment service for online electricity bill payment, mobile recharges etc to consumers via multiple channels like Internet banking, mobile banking, mobile apps, BHIM-UPI, GPay, PhonePe, PayTm etc.
- **Reduce Tax evasion:** Since transactions under a cashless economy are done through organised channels, it is impossible to evade tax. And as a result, the government gets more tax revenue.
- **Cash back earned on performing online transactions:** cash back works in such a manner that once you have transacted, you receive a portion of the transaction amount or a fixed amount back into your mobile wallet balance or a direct credit to your bank account. The growth in UPI payments over the years was fueled by cash backs and other benefits as a means to acquire more users.
- **Women's Economic empowerment:** Digital banking services can potentially reduce the physical and social distance between women and financial services. It can provide a more private, efficient experience of financial transactions. The advent of digital payment system such as that that uses mobile phones or the internet to conduct financial transactions from anywhere and anytime is empowering women on a massive

scale in India, bringing unbanked women under financial inclusion and further reducing digital gender gap in India.

- **Promoting Eco-friendly banking:** According to the WWF, around 40% of all industrial wood goes into the paper industry and for production of materials like paper and cardboard. When done unsustainably, the process can have devastating impacts on the planet and contribute to deforestation.

Some financial institutions are already taking steps to digitise their documents and reduce paper waste. During Covid 19 pandemic a huge chunk of Bank customers raced for digital banking and now many aren't going back to their traditional way of banking. By embracing digital banking services, banks can improve operational efficiency while making their business operations green and sustainable.

### *Future prospects of Digital Payment in India*

The near total digitization of payment transactions is a certainty. It is estimated that India's digital payments industry will grow to more than 300% of its present size by 2025, with hard currency changing hands only once in every five transactions people make. India has placed itself at the center of digital payment innovation, driven by e-commerce, consumer behavior, progressive government approaches, demonitisation and the Covid 19 global pandemic. According to the data by the government of India, digital transactions grew by about 90% in just three years starting from FY19 to FY21. This steep rise in digital payments is made possible with the inclusion of extremely large pool of unbanked and financially illiterate consumers in India.

Considering the future course of digital payment in India, there are several trends that are shaping up to be the likely driving factors of the digital payments landscape which are further propelled by popularity of Buy Now Pay Later payment option. As bilateral trade between nations and international supply chains gets stronger, the numbers of cross-border and cross-currency payments are likely to go up even further.

In 2019 India recorded the highest Fintech adoption rate in the world. There are countless Fintechs in the country at present, and over 50 of them are valued at over \$100m. India is at the forefront of digital payment innovation and recent moves toward tokenization to maximize security are boosting the country's status as a

digital forerunner. An alternative to encryption, the token, containing none of the original, sensitive data, just serves as a representative of the original data, making it entirely uninteresting for fraudsters.

The RBI's timely introduction of tokenization regulations and the government's commitment to digital technologies has cemented India as a promoter of digital innovation. At the same time, the government of India is driving financial inclusion, in a country with the world's second-largest unbanked population. A holistic payments system will be key to India's economic success, with innovations that provide optimal customer experiences ensuring sustainable digital transformation of the economy.

### **Conclusion**

In coming years near total digitalisation of payment transactions is certain in India. People's inclination towards easier to use digital payment systems will not only be limited to provide commoditized solutions but also near future cutting edge digital solutions will facilitate change in life style of the people.

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