



Growth of digital payments in India: Creating convenient paperless, faceless and cashless payment services

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Abstract

Digital payment methods are becoming popular with the customer in new cashless economy. It is expected that by 2025, digital payments are expected to grow from \$ 6.6 trillion to \$ 10.5 trillion by 2025. This was possible as different methods of digital payments are now available like debit card, credit card, NEFT, RTGS, UPI etc. The onset of COVID pandemic has also given push to digital payment system as people now want to move towards paperless economy particularly younger generation, who are more techno-savvy. There is growing perception that digital payments are not only safe but it is easier to use with efficiency, effectiveness, transparency, and accessibility. Against this background, in the present paper a modest attempt has been made to depict current status of digital payments in India. Further, the problems and future scope of digital payment system in India have also been highlighted.

Keywords: digital payment methods, Indian banking sector, information technology, paperless economy, the payment and settlement act, 2007

Introduction

At present, we are living in the 21st century, also known as the age of information technology. Over the past couple of decades, we have seen tremendous advances in the field of science & technology, and the internet is one of the results of such advancements. The internet widely called “the net” is a worldwide system of computer networks or we can say it is a network of networks. The revolution of the internet has brought significant changes in almost every aspect of society. By using internet services, we can perform various types of activities in just a few clicks from anywhere and at any time. These activities may include buying or selling goods and services, education, entertainment, communication and collaboration with people of similar interests, job search, online stock trading, file transfer, getting data for research work, advertising, etc. Digital payment is also an internet-based activity.

In India the most popular cashless payments are introduced three decades ago that is credit card and debit card. This adoption is still measured slow and steady due to the lack of infrastructure, connectivity and Point of sale machines. Demonetization interrupted the cash economy for a while with the rise in digital payments. Due to demonetization digital payments growth has been accelerated in past years. From there the cash is back by mobile payments which is being used twice as much, presently less than 5% of the transactions are cashless and there has been a strong push by the government for promoting mobile based payments like net banking, UPI and Aadhar based payments etc.

The main objective of digital banking is to make the payment system user friendly which result in customer purchase pattern. For this reason the mobile wallets like Paytm, google pay and PhonePe have become the key indicators by scanning QR code (Quick response code) or by entering seller cell phone number customer can settle the payments in addition to that the value added services like

bill payments, ticket booking provided by these wallets have made Indian consumer to opt digital payment option. When consumer are preferred this payment mode to exchange for their goods and services purchased they look for the another side of this payment that is security; the research says that the future of electronic payment lies in providing further simplified and secure user experience. In this search the banks are providing secure identification and payment by the one-time passwords generation to protect customers personal data and to enhance the confidence in it later voice recognition, face detection is also made a way to protect the customer privacy, even than the economy is hoping for the next level of technology in banking sector.

Review of Literature

Ravikumar *et al.* (2019) ^[9] in their study, analysed the impact of digital payments on economic growth in terms of real Gross Domestic Product (GDP). The authors reported that among the various digital payment modes, only retail electronic payment positively impacts the real GDP significantly in the short-run, but in the long run, retail electronic payments don't impact the real GDP. Further, digital payments at large and retail electronic payments don't contribute to economic growth in India directly in the long run. According to Richard Reisman (2019) ^[10], pricing is the most important challenge of digital media based business for the consumer market. The author noted that FairPay (Fair price) is a repeated game between buyer and seller. Moreover, Fairpay is a new logic to solve the issues because it makes better changes in modern Business to Consumer (B2C) market. Rajat Deb (2020) ^[3] studied the impact of using pre and post mobile-apps with household saving-spending behaviour. This study reported nearly 50 percent increase in saving and spending decisions in post-mobile-app use than the pre mobile-app use. Mondego and Gide (2020) evaluated the impact of consumers' trust on mobile payment systems in Australia.

The study was based on the answers of 200 respondents. The data were collected through the online questionnaire survey. They used SPSS and PLS-SEM programs to analyse the data. The finding of the study pointed out that trust is an essential factor for Australian consumers and it plays a significant role in mobile payment adoption. The majority of respondents believe that trust has a direct impact on their intention to adopt the mobile payment system in Australia.

Rahman, Ismail and Bahri (2020) examined the factors influencing the adoption of cashless payment in Malaysia. A total of 301 samples were collected through questionnaires to test the hypothesis. Analysis of a moment structure was applied to the data using structural equation modelling. The result stated that performance expectancy and facilitating conditions have the most significant influence on the adaptation of cashless payment.

Manoharam, Saravanan and Paneerselvam (2021) have investigated digital payment and its growth in the time of COVID-19 in India. The researchers have used the judgemental sampling technique to collect information from 271 respondents through a well-designed questionnaire and SPSS and AMOS programs were applied in the analysis of data. The research resulted that in a very short period of time the Indian payment landscape has witnessed the remarkable shift in an emerging economy known for cash transactions mainly adopt digital payment.

Siby (2021) has focused on the perception of consumers with regards to digital payment methods during the COVID-19 pandemic in their research paper. A total of 107 respondents were interviewed with a well-structured questionnaire and the correlation and ANOVA methods were used to test the hypothesis. The analyses revealed that factors such as age, gender, profession and monthly income haven't inserted any effect on the uses of the digital method in COVID-19 pandemic time but factors like digital literacy, deep mobile penetration and easy accessibility of the internet.

Many studies have also been conducted highlighting the advantage of using digital payment. According to Sharma *et al.* (2020) and Venkatesh *et al.* (2012), "major benefit is convenience because users can make payment transactions through smartphones with an Internet connection and no need to carry cash". The unified theory of acceptance and use of technology (UTAUT) model by Venkatesh *et al.* (2012) is a "technology acceptance model that aims to explain user intentions to use an information system and subsequent usage behavior". UTAUT model aims to determine user acceptance of new information technology, acceptance behavior of new information technology shown by users, and the effect of new information technology on most (Sivathanu, 2019). One of the factors is Performance expectancy, which is described as the extent to which an individual believes that the use of a system will help them achieve work (Patil *et al.*, 2020; Raza *et al.*, 2021; Venkatesh *et al.*, 2012). Previous research has found that performance expectancy significantly influences respondents' intentions to use digital payments (Venkatesh *et al.*, 2012). Someone will use a system if the system is able to provide benefits so that it can cause an intention to use the system or technology (Chayomchai *et al.*, 2020; Rosnidah *et al.*, 2019; Sivathanu, 2019). Similar observation was made by Chopdar *et al.*, (2018), Wu *et al.*, (2016), Sivathanu (2019) where they observed that effort expectancy affects user intentions in using digital payment.

Previous research has found that social influence has a significant effect on the intention to use digital payment (Sivathanu, 2019). People will feel more accepted in their interactions when using trending technology.

The Digital Payment System

Digital payments can be defined as the payments done through internet supported devices. The Payment and Settlement Act, 2007 states that digital payment or "Electronic Fund Transfer" means any transfer of funds that is initiated by a person by way of instruction, authorization or order to a bank to debit or credit an account maintained with the bank through electronic means and includes POS transfer, ATM, direct deposit or withdrawal of fund, transfer initiated by telephone, internet and card payment. Digital mode of payment system saves time and efforts of the consumer.

From Barter to Digital System, payment systems in the world have come a long way. The journey of digital payment services began in the mid-1990s along with internet development. In 1994, the standard federal credit union became the 1st institution that offered online internet banking services to all of its members. Then in 1997, Coca Cola introduced mobile payment services via text message, while in 1999, came into this segment and made digital payment both easy to implement and convenient for users.

It feels almost as if yesterday there was no concept of digital payments and cash was the king. It was beyond our imagination that any system could replace the cash system. But, changes in the technology sector, the introduction of E-commerce, and many other changes in the way we conduct business have led to the emergence of a more convenient and evolved system of cashless transactions (Parmar, 2016). Currently, the digital payment industry is creating a worldwide buzz. According to statista.com, the global digital payment sector was valued at \$ 6.6 trillion in 2021 and is expected to hit a \$ 7.8 trillion value in 2022. By 2025, it is projected to be worth \$ 10.7 trillion registering a CAGR of 10.88% from 2022 to 2025. Transactions were registered in 2020 in the country and it's accepted to touch a value of \$ 1 trillion by 2026.

The Indian Government has launched several initiatives to promote and encourage digital payment services and the digital India mission is one of them. The digital India programme is a flagship programme launched in 2015 with the vision to create a "Digitally Empowered" society that is making India's payment landscape "Faceless Paperless and Cashless". Throughout this journey, the Reserve Bank of India has played the role of catalyst and facilitator, regulator and supervisor, as the occasion demanded towards achieving its public policy to develop and promote a safe, secure, effective and efficient payment system (Ravi Shankar, 2021). In this chain, banking and non-banking players have embarked on numerous schemes (Digital Account Facilities, Digital Wallet Services, Cashback and Discount of Bill Payments) to increase awareness and attract people to adopt digital payment services. Such efforts have made digital payment systems "anytime and anywhere" payment systems.

Digital Payment Methods

To promote cashless transactions a good number of digital methods are available in our country *viz.*

Banking Card

A banking is typically a plastic card issued by a bank to a consumer against a depositary account. Banking cards facilitate consumers to withdraw money from ATMs, get an account statement or make payments of any bills. People use banking cards as an alternative to cash. Rather than any other payment method, it is the most secure, convenient and controlled payment system. ATM cards, Debit cards, credit cards and travel cards are examples of banking cards while Visa, American Express, Master Card and Rupay are some of the leading provider networks. In India, the first banking card was launched by the Central Bank of India in 1981.

Unified Payments Interface (UPI)

UPI is an instant payment system that lets users transfer fund between 2 bank accounts, payments at stores, bills payments through a mobile-based platform. UPI combines a variety of banking services and features under one roof. It powers to add multiple bank accounts into a single smartphone application. UPI is an initiative taken by the National Payment Corporation of India (NPCI) in 2016 with the help of RBI and the Indian Banking Association. Currently, UPI is the most favourite and preferred digital payment method among consumers.

Mobile Wallet

A mobile wallet or electronic wallet is just a digital version of a traditional or physical wallet. A mobile wallet is a way to carry cash in digital format on a Smartphone instead of in a pants pocket. A mobile wallet is used as an alternative to cash or card payment mode. A consumer can add money to their mobile wallet through debit or credit cards or UPI and that money can be used in making in-store payments, online shopping and payment of different online services. Most of the banks have their mobile wallet *al* long with many non-bank players who are also in this segment e.g., Paytm, Google Pay, I-Mobile pay, Yono by SBI, ICICI Pocket, Phone Pe.

Internet Banking

Internet banking or online banking or net banking is an electronic payment system that allows a user of a bank or a financial institution to conduct financial transactions via the Internet. Internet banking provides almost every type of service that is usually provided by a bank branch (e.g. fund transfer, account information and transaction details, payment of Bill; apply for a loan or debit or credit card or cheque book). Internet banking reduces the operational expenses of banks, saves the consumer time and lets the consumer perform banking service 24x7 from the comfort of their home.

Mobile Banking

Mobile banking services are provided by a bank or other financial institutions that offer its user to perform many of the same activities as internet banking provided, by using a mobile device such as a smartphone or table instead of a computer or a laptop.

Aadhaar Enabled Payment System (AEPS)

AEPS is a type of payment system that is based on the Unique Identification number and lets Aadhaar card holders seamlessly make financial transactions such as transfer funds, make payments, deposit cash, make withdrawals, make enquiries about bank balance through Aadhaar based authentication. The AEPS system was launched by NPCI in 2010.

USSD is a mobile-based banking service of NPCI. The service was launched to take banking services to every common man all over the country.

Unstructured Supplement Service Data (USSD)

USSD offers users to make financial transactions even without a smartphone or internet connection for enjoying the USSD services user have to dial *99#.

Physical POS

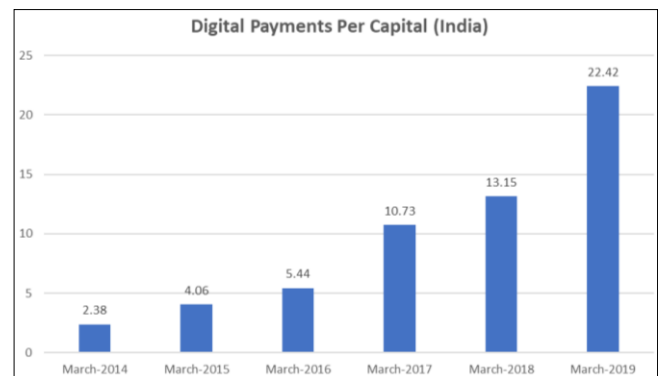
POS stands for point of sales. It is a hardware device that allows the merchant to accept payments from consumers through payment cards (e.g. Debit cards or Credit cards).

Current Status of Digital Payments in India

The Digital Payments ecosystem in India has made tremendous progress in recent years. This growth has been driven by the availability of payment services from the Government and banking sector. Additionally, digital payments have emerged as the means for receiving Government benefit payments and salaries in the organized sector. The committee on Deepening of Digital Payments (CDDP) notes that over the past 5 years, the utilization of digital payments has increased tenfold.

The Reserve Bank of India (RBI), as well as the Ministry of Electronics and Information Technology (Meity) collect and publish data pertaining to payment systems. Meity being the Nodal Agency for Digi Dhan Mission includes digital payment elements like RTGS, NEFT, NACH, IMPS, BHIM UPI, BHIM Aadhaar, NETC, AEPS, Credit Cards, Debit Cards, PPIs, Mobile Banking, Internet Banking, Closed System PPIs and Others.

The RBI collects data for the systems along with Paper Payment Systems [Cheque Truncation System (CTS), Express Cheque Clearing System (ECCS)]. With the data from these organizations, a simple metric can be utilized to measure India’s Per Capita Transaction Volumes.



Source: www.rbi.org.in

Fig 1

Seeing as the number of Digital Transactions Per Capita was 22 as of March 2019, India’s digital payment ecosystem is still in a relatively nascent stage. It is expected that the growth will continue an additional tenfold (10x) in the coming three years. This would increase per capita digital transactions from the current 22 to 220.

While India’s growth in this sector is impressive by itself, it stands to reason that we measure it with the growth of other countries as well. As can be seen in the table below, comparable Asian economics such as China and Indonesia have consistently been ahead of India in their digital payment adoption rates.

Table 1: Digital Transactions Per Capita Per Annum

No. of Cashless Transactions Per Capita			
Country	2015	2016	2017
Singapore	727.90	759.00	782.40
Sweden	428.80	481.40	497.90
USA	420.90	442.60	473.60
Euro Area	156.90	172.60	186.80
Russia	99.50	132.80	178.50
Brazil	137.60	139.40	148.50
China	48.90	70.40	96.70
South Africa	68.70	78.00	79.20
Indonesia	23.40	28.40	34.00

Source: www.npci.org.in

We wish to highlight the CDDP's recommended target metrics for the coming 3 years. The metrics and their respective targets can be seen below. These targets represent an ambitious but achievable set of goals for India's payments sector.

Table 2: 2021-2022 Year Targets

Metric	Target (3 Years)
Per Capita Digital Transactions (Correlates to digital transaction volume/ month)	10x [From 22 in March 2019 to 220 in March 2022]
Digital Transaction Value/GDP	2x [From 769% in 2018-19 to 1500% in 2021-22]
Number of digital payment users (Active in the month)	3x [From 100M to 300M in 3 Years]
CIC/GDP ratio	No specific target, However, CIC should grow slower than GDP+ inflation, As a result, in 5 years, this ratio should go down by 3-4% and tend towards the global average (7%)

Source: www.npci.org.in

Overall Growth of Digital Payments in India

Table 3 shows the overall growth of digital payments according to volume and value of transactions.

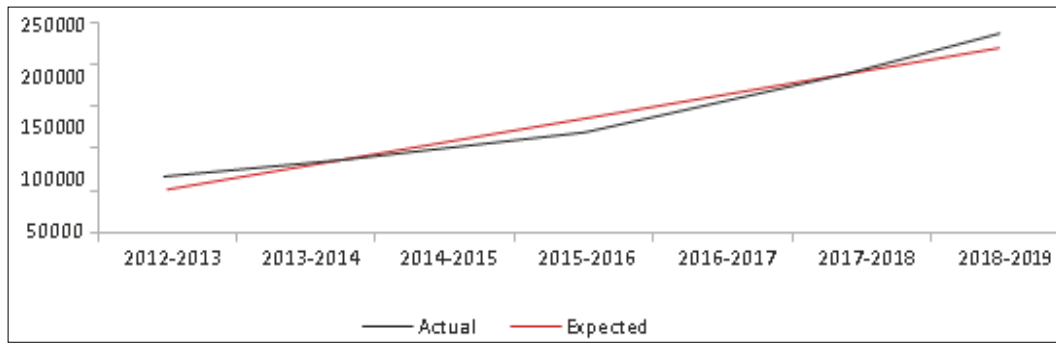
Table 3: Overall Growth of Digital Payments in India

Reference Period	Digital Payments in India	
	Volume of Transactions (in lakhs)	Value of Transactions (Rs. In crores)
2012-2013	65,812	553,51,198
2013-2014	80,353	640,61,822
2014-2015	98,695	724,00,501
2015-2016	120,593	802,26,850
2016-2017	157,412	959,12,592
2017-2018	190,858	1164,68,676
2018-2019	236,484	1329,05,595
2019-2020*	248,850	1397,59,460
2020-2021*	277,126	1526,51,924
Mean	135,744	881,89,605
CV (%)	45.82	32.18
CGR (%)	24.11	15.84
*Forecast		

Source: www.rbi.org.in

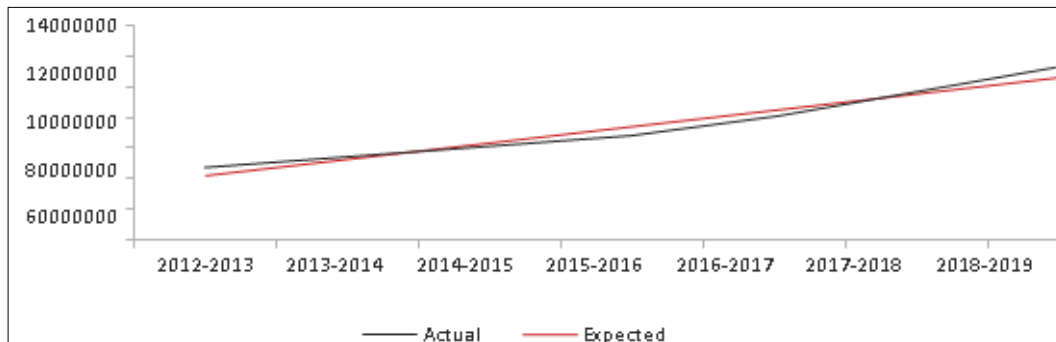
For year-on-year basis, Table 3 indicates that there is a gradually increasing trend of digital payments in India both in terms of volume and value of transactions. On an average, 135,744 lakhs volume of transactions (CV 45.82%) brings the digital payment value to INR 881,896.05 billion (CV 32.18%) per year across the study period. The Compound Growth Rate for the study period 2012-2013 to 2018-2019 indicates volume growth rate of transactions at 24.11% and value growth rate of transactions at 15.84% of the country's digital payment system. Moreover, the growth of digital payments is likely to be nearly 28,000 lakhs in terms of volume of transactions and INR 1526,519 billion in

terms of value of transactions in 2020-2021 with growth rate of 17.19 percent and 14.86 percent respectively over the year 2018-2019. The actual overall growth rate of digital payment transactions in terms of volume is lower than expected during the study period 2014-2015 to 2017-2018. It started an upward trend since 2018-19 (refer to Figure 2). The actual overall growth rate of digital payment transactions in terms of value of transactions was higher than expected during the periods 2012-13 and 2013-14, whereas it has seen an increasing trend since 2017-2018 (refer to Figure 3).



Source: www.rbi.org.in

Fig 2: Growth Movement in Volume of Transactions in Digital Payments



Source: www.rbi.org.in

Fig 3: Growth Movement in Value of Transactions in Digital Payments

Advantages of Digital Payment System

Digital technology helps to make paperless transaction. For the development of paperless banking system there should be a strong network of banking and India a hug banking network is available and it is rapidly increasing also. It is observed that mobile banking is appreciated by the customer due to easy use anytime anywhere.

Digital Payment system is advantages due to

- **Time Saving:** using digital payment system customer can pay to merchant transfer money quickly and no need to make payment by cheque and waiting for clearing. Because Digital Payment system take less time than traditional payment system.
- **Availabilities:** Digital payment system can use by customer from anywhere and anytime there is no need to go banks for every transaction.
- **Easy Purchasing:** The Digital payment system provides facility to user for purchasing by using ATM card Credit card and POS therefore it is easy for making transaction and no hard cash required to travel with us.
- **Use of Wallet:** The Digital Payment system includes digital wallets which make payment easy and with that wallet customer can get discount as well as cash back.
- **Written record:** We often forget to note down our cash spending. Or even if we note, it takes a lot of time. But, we do not need to note our spending every time with digital payments. These are automatically recorded in our passbook or inside our E-Wallet app. This helps to maintain our record, track our spending and budget planning.

- **Less Risk:** In digital Payment system it provides us securities for every transaction it require MPIN or OTP which can be avoid frauds in the system.

Barriers to Use Digital Payment

A few notable barriers to use Digital Payment are

- **People use of currency note money:** In India people are using currency in high level. People in rural area in India made nearly transaction 80% in cash because it is traditional and habitual to the people.
- **Computer Illiteracy:** There is only 6% people in India who are computer literate and near about 90% Indian people don't understand the computer and internet that's why they cannot use the digital payment system.
- **Use of ATM Card:** There are many digital payment systems but Indian People still using ATM cards for withdrawal and give money to other. They didn't use M. wallet and digital payment for money transfer.
- **Limited availability of POS:** According to the reports of RBI, there are 1.44 Million POS terminals installed by banks across locations at the end of July 2016 and it increased by 24% in 2018. There should be involvement of every trader.
- **Mobile Internet Penetrations Rate:** The use of mobile remains weak in rural India. For setting transaction digitally internet connection is requires but the connectivity are not available in the rural area.
- **Risk and Security:** The Indian people still don't believe in online transaction. They feel that the traditional system is good and faithful. They also not believe in Security of the transaction.

- **Training:** There is a communication gap between bank and their customer. It requires giving training about use of online payment system but banks do not provides any training to increase the digitalization.
- **Public Sector Banks:** There are 80% share of finance sector is occupied by public sector banks and the public sector banks started the digitalization from 1996. That's why it is in progressive trend. Private sector banks are ahead in digitalization to public sector banks.

Conclusion

India is at the cusp of a digital revolution which will fundamentally transform the way people live, work, communicate and socialize. The Government has provided the necessary thrust to people to shift to digital platforms to fulfil its vision of a digital economy. Initiative of the Indian Government such as Digital India will help provide the digital infrastructure that is required to transform India into a digitally empowered society and knowledge economy.

The Ministry of Electronics and Information Technology (Meity) envisions "Paperless, Faceless and Cashless" payments services across the country with a common e-governance infrastructure providing end-to-end transactional experiences for citizens, business and government. The foundation for the successful implementation of various services is now ready in the form of UID, Jan Dhan Accounts, mobile connections, digital wallets, payment banks, Bharat QR and unified payment interface among others.

Digital Payment system is easy to use to the customer as well as bank officers and there are several option are available in the financial system in India, but there are large amount of people in India don't know how to use the system. The Digital literacy of Indian people is low level, Therefore digital payment system is not pure developed and spread all over the India. The social and infrastructure barriers are there influences to use of digital payment system. But Now a day's mobile banking are becoming famous in the India because it is easy to use and anytime can use. It is also required to improve the digital literacy among the people. There are also issues relating to the risk and security.

Digital payment systems are the connective tissue of every economic system, including India. It facilitates purchase of goods and services (payment of utility bills, insurance premiums, etc.) and sending money to friends, family, and business partners as well. It enables Governments to collect taxes and disburse social payments, and suppliers to collect payments from buyers. The overall digital payment transactions recorded significant growth in both volume and value terms at a Compound Growth Rate of 24.11% and 15.84% respectively. In India, the government's focus on reducing cash in the economy has resulted in a robust payment system with ensures safety and efficiency. It has led to phenomenal growth, in particular, in IMPS, M-Wallet and PPI Cards during the study period in terms of both volume and value measures. These mediums have proved to be game changers in digital payments, online payment platforms and fund transfers. With digital payment transactions being inexpensive and convenient, economic activity is quickly shifting to cash-less society.

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