

# The Journey Of Digital India: An Unfinished Road

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## ARTICLE INFO

## ABSTRACT

The idea of digital payment is a recent adoption in the financial landscape of India. Advanced technology and economic prosperity have revolutionized the payment ecosystem in India from a paper-based to a less cash economy. This paper investigates India's digital economy journey since its inception to the present time. Using secondary data for the period 2011-12 to 2022-23, the present study attempts to examine the growth and status of digital payments and the underlying factors enhancing such growth in the country. Also examines the correlation among the volume of digital payments and the driven factors thereof. The findings of the study show that there has been significant growth of digital payments that clearly reflects how fast the scenarios of digital infrastructure and consumer choices and preferences have been changing. With technological advancements and upward economic mobility, India is moving towards a less cash or cashless economy.

**Keywords:** Digital Transactions, Cashless Economy, Technological Advancement, Unified Payments Interface (UPI), Financial Inclusion, Correlation Coefficient.

## 1. Introduction:

Financial system is an integral part of an economy. There are different components of a financial system. Among these, banking sector is at the heart of any growing economy. Cash plays a dominant role in banking transactions and monetary system. Cash has been in use for 2600 years. However, the use of such paper-based money has been steadily decreasing over a period of time and electronic mode is gaining popularity. The days of people relying on traditional payment methods like cash and cheques are pretty much gone. Inventions of computers, mobile phones and internets have transformed the way we live and work and manage our finances and transactions. Now-a-days, technological advancements have been significantly contributing towards digitalization of the financial sector and the economy with consequent benefits of efficiency, transparency and quality. There has a growing tendency among the across the globe about a cashless and digital economy for ensuring financial resources more accessible to every citizen possible.

The idea of digital India has come a long way since it was initially launched in the year 2015. The Indian Union Cabinet approved a blue print for digital India program which envisages all government services to be delivered electronically by 2018. However, the usage of digital modes of payments by the consumers and producers has increased largely in the recent times, especially after the 2016 demonetization drive by the Modi Government and the Covid-19 pandemic. Following demonetization and the ensuing problems associated with cash payments, the government made digital payments a priority. The Indian government has taken several steps to promote and support digital payment systems in India. The government has set a goal for the 'Digital India' initiative to establish a 'digitally empowered' ecosystem: Faceless, Paperless, and Cashless'. It has been almost a decade that India has striving for such an economy. This journey of India's adoption of digital ecosystem is an unfinished road towards a cashless economy. In this backdrop, in the present study, an attempt has been made to have an idea about how far India has reached her digital economy journey and also to identify the magnitude of factors that enable this journey. A clear roadmap will help to increase digital payment users, save costs, ensure financial inclusion and reduce dependence on cash transactions.

## 2. Review of Literature:

Having outlined the detailed research agenda, in this section we try to review the existing available literature related to the study. Sahul (2015) states that digital India and their initiative like National Digital Literacy

Mission (NDLM), penetration of mobile phone and broadband has raised in significant numbers and pattern of users has changed. As per the RBI Handbook of Statistics on Indian Economy, 2020, there have been 8.35 crore transactions on a daily basis for a value of Rs. 22,854 crores in December, 2020. This implies that the adoption of digital payment systems has exponentially increased in the last few years and it has become a preferred mode of small payments for a majority of the people. In this connection, Sundararajan (2016) explained on achievements and concerns about digital India. Similarly, Nilekani (2016) opined that integration of Aadhaar, Jan Dhan Yojana and Smart Phone, among other things are 'tipping point of changing the way the economy grows and share other advantage of digitalization. Arvind (2015) has expressed that the Digital India movement will play an important role in the effective delivery of services, monitoring performance, managing projects, and improving governance. According to Katakam (2018), the Digital India Program is a national campaign to transform India into a globally connected hub. It includes a mixture of proposals and incentives specified to companies together to have and oversea to invest in India and make the country a digital destination. Thus, from the available literature it can be inferred that the India's path of digitalization is a tool of transformation across various sectors of the economy and improve the way the government interacts with citizens.

### 3. Objectives and Research Questions:

Based on the review of literature, we have the following objectives:

- (i) To assess the growth and status of digital payments in India.
- (ii) To investigate the factors enhancing the growth of digital payments.
- (iii) To examine the correlation among the volume of digital payments and the driven factors thereof.

#### 3.1 Research Question:

One important research question motivating the study is -----

- (i) How far has the journey of India's digital payment ecosystem reached till now?

#### 3.2 Data Source and Methodology:

The study is based entirely on secondary data sources. Secondary data for the period 2011-12 to 2022-23 used in the study have been collected from Handbook of Statistics on Indian Economy, 2020, reports published by National Payments Corporation of India, 2021, Internet and Mobile Association of India (AIMAI) 2021, and per capita income data of Ministry of Statistics and Program Implementation (MOSPI) of the year 2022.

##### 3.2.1. Analytical Framework:

For objective (i), i.e to assess the growth and status of digital payments over time, various statistical tools such as averages, percentages, etc. have been used. For objective, (ii), exploratory methods have been applied. And lastly, for objective (iii), Karl Pearson's correlation coefficient method has been applied using SPSS.

### 4. Factors Enhancing Digital Payments in India:

The evolving digital payment ecosystem in India has crossed around fourteen years now since taken in the country. The main enhancing factors of digital payments can be broadly categorized as favourable demographics, vast expansion of the middle class, and digital behavior patterns. With an overarching technologies arriving at doorstep of every Indian citizen, the digital infrastructure is entering in many areas like agriculture, e-commerce, education, healthcare etc. of the economy. Let us now explore the enhancing factors of digital payments in India under the following points.

**(a) Favourable Digital Infrastructure:** With the adoption of several citizen-centric services by the Government like Aadhaar, Unified Payment Interface (UPI), Co-WIN, e-RUPI, TReDs etc. India's digital infrastructure has reached a global resonance. This has been possible because of the technological advancement in the country. Today, e-commerce platforms have spawned millions of small entrepreneurs to access the global marketplace. Technology has, in fact helped rapid delivery of payments at lower costs, with greater scalability and ease of access. In other words, technological development has helped in the adoption of digital or online transaction which ultimately leads towards a cashless economy and make financial resources more accessible to every citizen possible. For example, the increasing numbers of mobile phone and internet users give a boost to digital payment modes. Hence, creation of an improved digital infrastructure is considered as one of the most significant drivers of digital ecosystem in the country.

**(b) Financial Literacy and Consumer Awareness:** Higher financial literacy is an important tool for the expansion of digital payments in the country. The expansion of financial literacy coupled with social awareness /consumer awareness have a substantial impact on the utilization of digital payment system (Oktafian, 2022). Access to improved technology offers the individuals to be financially literate that enables easy access to various digital services bringing opportunities and challenges into their personal management. When payments are instant, they also reduce the risks associated with possible defaults.

**(c) Need for Secure and Convenient Payment Modes:** There have always been high social costs and insecurities like robbery in cash holdings and paper-based payment systems. For this reason, there is an urge for secure modes of payments. Compared to the traditional paper-based methods, digital payments are safer, simpler to process, and far less costly. Such associated benefits with the digital payment systems have influenced consumer behavior and hence resulted in transformation of the payment ecosystem in the country. However, there are also digital divide and hence security concerns associated with digital transactions. But it is important to have in place systems to prevent security breaches of digital payment mechanisms.

**(iv) Highly Rewarding Experience:** Sometimes, digital payments offer various great rewards like cash back, shopping coupons or points etc., on purchase to the users. Moreover, we also get facilities like *Shop Now Pay Later* in digital payment system. Digital payment options also provide credit facilities to the consumers when they lack cash. Thus, Consumers no more have to sacrifice their shopping needs due to lack of cash. All these have led to a robust growth of digital transactions in the country.

Thus in responses to the call for time and technological advancements in the country, the above factors have been transforming India's payments landscape to the benefit of its people and economy. The growing surge for digital payments in last few years is a move towards a less cash or cashless economy to meet the challenges of the present and expectations of the future.

Now, in the following section, we have outlined how different digital payment systems have come into existence and grow over time.

### 5. Digital Payment Journey in India: An Overview

In this section an attempt has been made to identify the direction and magnitude of digital payment in India over time. This has been tried to capture for understanding what distance the digital economy has walked till now. For the exercise of the purpose, we have presented the volume and value of digital transactions in India in the table-1 below:

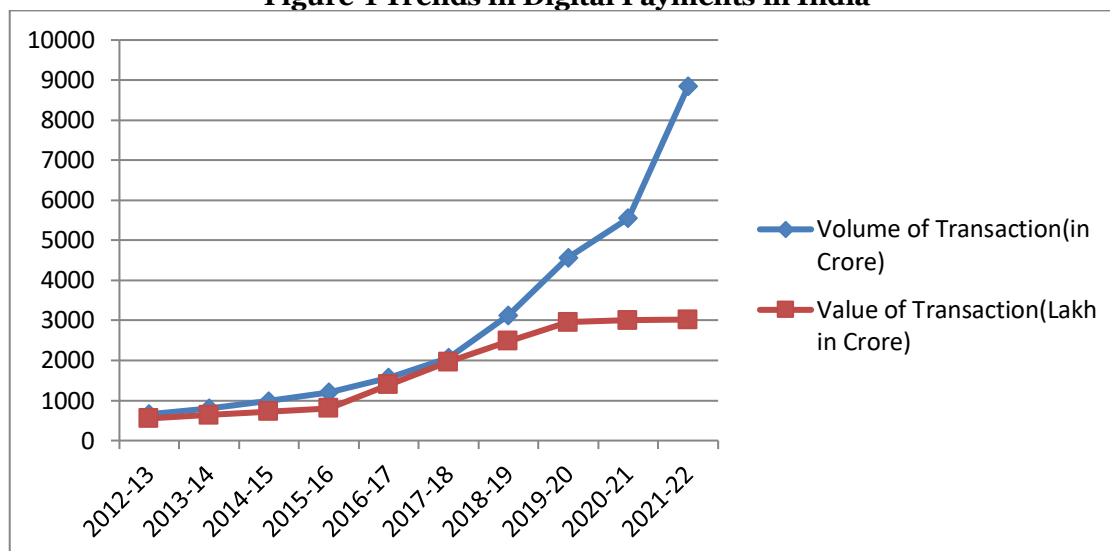
Table-1 Volume and Value of Digital Transactions in India

Year	Volume of Transaction(in Crore)	Value of Transaction(Lakh in Crore)
2012-13	658.12	553
2013-14	803.58	640
2014-15	986.95	724
2015-16	1205.93	802
2016-17	1574.12	1393
2017-18	2070.84	1962
2018-19	3134.36	2482
2019-20	4571.76	2953
2020-21	5554.33	3000
2021-22	8848.29	3021
<b>Mean</b>	<b>2940.828</b>	<b>1753</b>
<b>CV</b>	<b>0.9</b>	<b>0.56</b>

**Source: Reserve Bank of India (RBI), 2022. Handbook of Statistics on Indian Economy.**

From the above table-1, it is clearly observed that year-on-year basis, there have been increasing trends in both volume and value of digital transaction over time. If we compare between year 2012-2013 and 2021-22, it is seen that there are drastic rise in the volume of transaction from 658 crore to 8848 crore between the periods. Likewise, the values of transactions have also shown a rapid increase from 553 lakh crore to 3021 lakh crore during the same period. In other words, on an average, 2940 lakh volume transactions bring the digital payments value to 1753 lakh crore. A very high *Co-efficient of Variation* (CV) value of volume of transactions (0.90), reflects more fluctuation or increase in the transactions over the study period. The similar picture is also noticed in case of transaction values with CV equal to 0.56.

**Figure-1 Trends in Digital Payments in India**

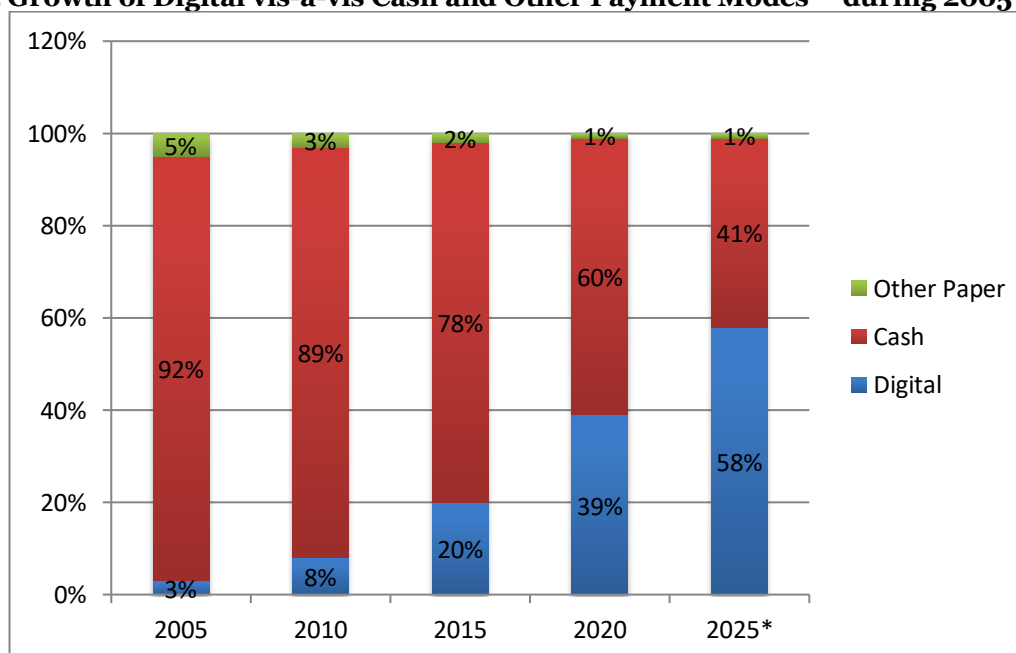


**Source: National Payments Corporation of India, 2022.**

It is evident from figure-1 that the growth rate of digital transaction has been significant, with highest jumps observed between 2016-17 and 2022-23 where the number of digital transaction have increased so rapidly. This steady and substantial increase in the usage of digital payments is an indication of the India’s unfinished journey to cashless economy. Such growth in digital economy empowers every individual and business to transact paperless and cashless.

Beginning from the early 2000s, there are many digital payment options evolved over the years. This journey is attributed to increased penetration of mobile phones and internet facilities in the country which helped in the quicker adoption of cashless transactions. Apart from the earlier online and periodic payment systems like Internet Banking, Electronic Clearing Service (ECS), National Automated Clearing House (NACH), National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Bharat Bill System (BBPS), Debit and Credit Cards, RuPay cards etc., there are many recent Fast Payment Apps that are most widely used currently. There are many Instant Iner-Bank Electronic Fund Transfer Service (IMPS) and Unified Payment Interface (UPI)- based Apps available to the consumers today. UPI is a system that empowers and knit multiple bank accounts into a single mobile application of any participating bank, merging several features, seamless fund routing and merchant payments into one hood (NPCI). The most common Apps are PhonePe, Google Pay, Paytm, CRED, BHIM, Amazon Pay etc. The growth journey of digital vis-à-vis cash and other payment modes is presented in the figure-2.

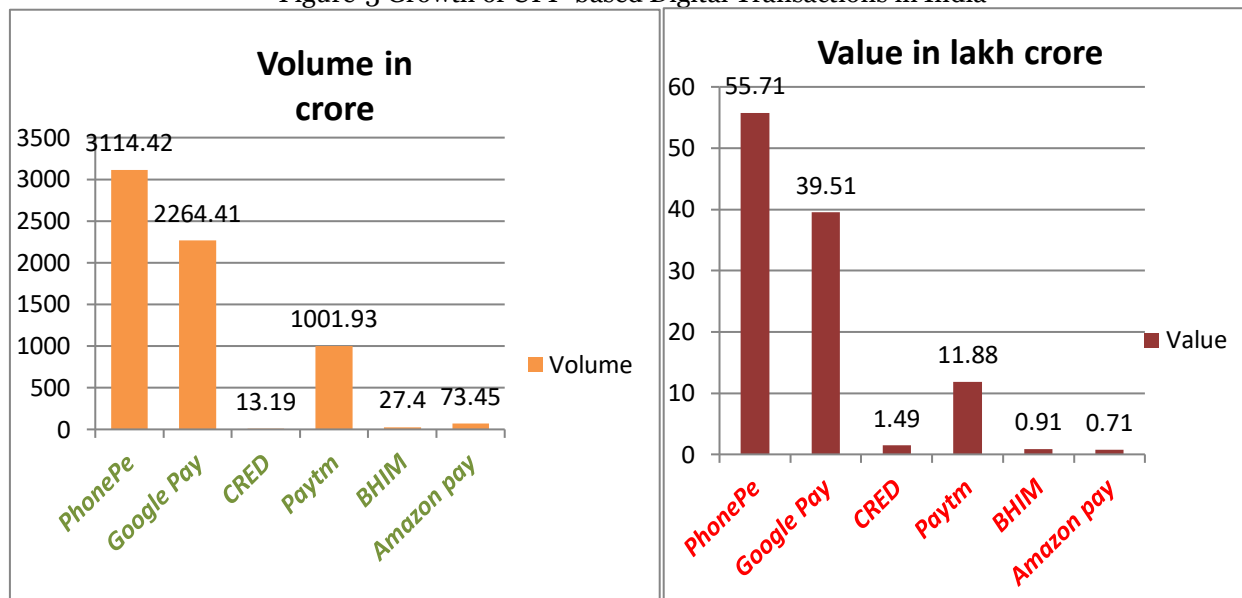
**Figure-2 Growth of Digital vis-à-vis Cash and Other Payment Modes during 2005 and 2020.**



**Source: National Payments Corporation of India, 2021.**

As it can be observed from figure-1, there has been a phenomenal growth in digital payment modes as compared to traditional paper-based transactions during the period 2005 and 2020. In 2005, a very negligible number (i.e. 3 percent) of transactions were in digital modes and maximum numbers of transactions were cash-based. However, over the years, India's transition to non-cash payments is prominent. There was 36 percent growth in digital payments during the same period. And at the same time, there had been a 28 percent decline in the cash-based transactions. Moreover, it is expected that in the year 2025\*, the digital payments will grow by 58 percent, contrary to a decline in the cash payments up to 41 percent. Again, the flourishing UPI-based digital payments Apps in India are presented below:

Figure-3 Growth of UPI- based Digital Transactions in India



Source: National Payments Corporation of India, 2022.

From the figure-3, it is observed that PhonePe, Google Pay and Paytm are at top of the UPI based payment Apps. Maximum number of transactions both in terms of volume and value are being made through these three Apps. Thus UPI has revolutionized the digital payments through interoperability and thus becoming the preferred mode of small payments for a majority of the people.

## 6. Correlation among the Driven Factors and Level of Digital payments:

We have studied the determinants and status of digital transactions in India in preceding section. We have identified many factors that give an enhancement in digital payment ecosystems in the country. In this backdrop, we will try to examine the correlation among the factors like *volume of transactions*, *value of transactions*, *number of internet users in the country* and *the per capita income*. The data pertaining to the volume and value of digital transactions are being collected from Handbook of Statistics on Indian Economy, 2022 of RBI, data on the number of internet users are collected from Internet and Mobile Association of India (AIMAI), and per capita income data of Ministry of Statistics and Program Implementation (MOSPI) are used of the year 2022 for the purpose of the study.

### Variable Descriptions:

**Volume of Transactions (Vol\_Trns):** The volume of transactions is the number of digital transactions made by the individuals for transfer of money or purchase of different goods and services during a particular financial year. Here it is calculated in crore rupees.

**Value of Transactions (Val\_Trns):** The value of transactions is the value of total money spends for digital payments during a specified period. It is calculated in rupees lakh crore.

**Number of Internet Users (Intrnt\_Usr):** Total number of individuals in the country who uses internet during a specified period.

**Per Capita Income (PCI):** Per capita income is the average income per person in a given area in a specified year. PCI data used are of the constant prices (2011-12 Prices).



The correlation coefficients among the above factors are presented in the following table-2.

Table-2 Results of the Karl Pearson Correlation Coefficient

		Vol_Trns	Val_Trns	Intrnt_Usr	PCI
Vol_Trns	Pearson Correlation	1	.872**	.885**	.918**
	Sig. (2-tailed)		.001	.001	.000
	N	10	10	10	10
Val_Trns	Pearson Correlation	.872**	1	.971**	.969**
	Sig. (2-tailed)	.001		.000	.000
	N	10	10	10	10
Intrnt_Usr	Pearson Correlation	.885**	.971**	1	.997**
	Sig. (2-tailed)	.001	.000		.000
	N	10	10	10	10
PCI	Pearson Correlation	.918**	.969**	.997**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	10	10	10	10

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The above table-2 gives the correlations among different factors i.e. volume of transactions, value of transactions, number of internet users in the country and the per capita income. It is observed that there is much interdependence among the factors under consideration. First of all, there are strong positive correlations between the volume and value of transactions. This is significant at 1% level of significance. This implies the obvious relation that when there is an increase in the volume of transactions, there is also simultaneous increase in the value of transactions. Furthermore, as expected, there has been a very high positive correlation (also significant at 1% level) between the internet users and both volume and value of digital transactions in the country. An increase in the number of internet users also causes corresponding increase in the level of digital transactions. Similarly, per capita income and the other three indicators are also strongly positively correlated. Thus, it can be concluded with that the economic mobility and technological advancement, there has been a growing move towards a more digitalized infrastructure and ecosystem in the country. This journey is an India's unfinished move towards a less cash or cash less Indian economy.

## 7. Conclusion:

Thus from the above discussion we may land to the conclusion that there has been an increasing trends, adoption and acceptance of digital payment ecosystems in the country. The significant growth of digital payments clearly reflects how fast the scenarios of digital infrastructure and consumer choices and preferences have been changing. Moreover, we also found that with technological advancements and upward economic mobility, India is moving towards a less cash or cashless economy. The UPI has revolutionized the digital payments through interoperability and thus becoming the preferred mode of small payments for a majority of the people. This journey of India's adoption of digital ecosystem is an unfinished road towards a cashless economy. A clear roadmap of the study will help to increase digital payment users, save costs, ensure financial inclusion, improve transparency, efficiency and reduce dependence on cash transactions.

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