



TRENDS AND PROSPECTS OF DIGITAL PAYMENTS IN INDIA

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Abstract

Digital payments in India have revolutionized the financial environment, providing a simple and quick means for individuals and businesses to conduct transactions. Digital payments have significantly changed the way transactions are handled across the country, beginning with the early days of Internet banking and continuing with the introduction of mobile wallets, the Unified Payments Interface and innovative technologies. The primary goal of this study is to determine the trends and future of digital payments in India. The current study only focuses on secondary data, which are gathered from websites and journals. The study's findings show that the overall number of digital payment transactions increased from 4,571.76 crores in the year 2019-2020 to 18,646.99 crores in the year 2024-2025. Bharat Interface for Money UPI has the highest volume of transactions and Real Time Gross Settlement has the lowest volume of transactions. The environment for digital payments in India has expanded dramatically, with Bharat Interface for Money UPI now accounting for the majority of transactions. Despite this expansion, issues such as system disconnections, high foreign transaction costs, and environmental effect persist. Future efforts should concentrate on improving platform interoperability, facilitating cross-border payments in real time and integrating sustainable technology in order to overcome these issues and pave the path for an entirely digital and inclusive economy.

Keywords: Trends, Digital, Payments, Transactions, Mode.

Introduction

India's digital payment ecosystem has seen incredible expansion and modification over the past twenty years. Digital payments have fundamentally changed the transactions conducted all over the nation, starting with the early days of Internet banking and continuing with the emergence of mobile wallets, the Unified Payments Interface (UPI) and innovative technologies like block chain. In addition to improving convenience, the transition from cash to digital has assisted in economic expansion and financial inclusion. The advent of electronic banking services, such as credit and debit card payments, marked the beginning of India's digital payments journey in the early 2000s. The initial Indian bank to launch Internet banking was ICICI Bank in 2000, and other banks soon followed. Interbank transfers became simpler with the introduction of several Inter net banking platforms over time, including Real Time Gross Settlement (RTGS) and National Electronic Funds Transfer (NEFT). The National Payments Corporation of India (NPCI) was established in 2005 to develop a powerful digital payment system. Card payments and Internet banking have grown in popularity by 2009, opening the door for greater advancements in the payment environment.

The Unified Payments Interface (UPI), a ground-breaking payment system created by NPCI, was introduced in 2016, marking a turning point in the industry. UPI enabled instantaneous peer-to-peer payments by connecting numerous bank accounts to an individual smartphone application. Digital payment acceptance accelerated after the Rs. 500 and Rs.1,000 currency notes were demonetized in November 2016, with UPI transactions expanding quickly. To make UPI-based payments available to a



wider range of people, particularly those living in rural and underdeveloped areas, the Government launched the Bharat Interface for Money (BHIM) app around the same time. After that, mobile wallets like Paytm, PhonePe, Google Pay, and Amazon Pay quickly gained popularity in 2017–2020 and became well-known throughout urban and semi-urban India. Cashless transactions are becoming commonplace because of the Digital India initiative's acceleration of the trend toward mobile wallets and QR code payments as well as the growing popularity of smartphones and reasonably priced data plans.

The digital payments industry started adopting cutting-edge technology like blockchain, biometric payments and artificial intelligence (AI) in 2020 to improve the security and efficiency of transactions. While blockchain technology started to be investigated for its potential to improve the security and transparency of payments, artificial intelligence (AI) was crucial in preventing fraud and providing individualized consumer experiences. Furthermore, Aadhaar-based biometric authentication which uses iris and fingerprint scans began to be incorporated into digital payment systems, making digital payment services accessible to those without smartphones.

In 2022, the Reserve Bank of India (RBI) began testing Central Bank Digital Currency (CBDC), commonly known as the digital rupee, with the objective to simplify Government transactions and popularize digital currency. The RBI also introduced UPI 2.0, which improved the payment system's functionality by adding sophisticated features like invoices in the inbox and the ability to overdraft. The Government's Digital Payments Mission 2024 seeks to establish cross-border UPI payments, create AI-powered payment systems and further accelerate UPI's growth. In India, digital payments have increased to previously unheard-of levels as of 2024. Over 125 billion UPI transactions have been made, totalling more than ₹200 trillion. With millions of consumers using services every day, mobile wallet services like Paytm, PhonePe, and Google Pay have experienced exponential growth. Small companies now find it simpler to take digital payments, particularly in rural areas, due to the growth of QR code payments. To ensure that nobody remains behind in the cashless revolution, digital payments are also growing more widely available through smartphones, phones with features, and biometric authentication.

The ecosystem for digital payments in India has changed dramatically as a result of Government initiatives, developing technology, and rising user adoption. India is positioned to lead the world in the adoption of digital payments with ongoing investments in infrastructures and security, providing a template for other nations to follow. A bright prospect for digital payments that is safe, inclusive, and driven by innovation is heralded by the widespread utilization of innovations like UPI, block chain technology and AI.

Review of Literature

Soegoto, H., et., (2024). "Payment System Development in Indonesia". This paper aims to shed light on Indonesia's payment system transformation. The data and analysis show that the number of digital payment users in Indonesia has been steadily increasing annually, with a move away from paper-based instruments to digital payments. This shift is in line with the development of information technology, changes in business models and new regulations and policies issued by the Indonesia Central Bank.

Putrevu, J., & Mertzanis, C. (2024). "The adoption of digital payments in emerging economies: challenges and policy responses". This article aims to provide a thorough analysis of the development and importance of digital payments, emphasizing how they affect competition and the necessity of legislative changes. The study focuses on how the development of digital payment systems has been fueled by technological advancements. The results highlight that to fully reap the rewards of adopting

digital payments, prudent implementation and end-user protection are crucial. Policymakers, private sector managers, and consumers can use the study's findings to better understand the implications of new digitalization trends and adjust their adoption strategies accordingly.

Daggubati, L. S. (2024). "Designing Digital Payment Experiences: The Crucial Role of User-Centered Design and Effective User Feedback Integration". This study examines the crucial role UCD plays in enhancing the digital product's payment experience and looks at how product managers may successfully incorporate user input into the development process. This article attempts to clarify the various advantages of UCD in payments by thoroughly reviewing the literature and case study analysis. It offers product managers useful advice on how to match user-centric principles with their plans. According to the findings, it is crucial to give consumer wants and preferences priority when designing payment products because doing so will ultimately improve user satisfaction and adoption rates.

Hasan, A., et al., (2024). "Determinants of behavioral intention to use digital payment among Indian youngsters". The goal of this research is to build an integrated model to identify different components and assess how these factors affect the behavioural intention of customers to use or not use particular M-wallets for payment. To achieve this, the researchers put forward and verified a conceptual model. A total of 600 surveys were sent out and 482 of the responses were found to be useful. The proposed model's stability was demonstrated and the study hypotheses were tested using structural equation modeling. Users were less inclined to use an M-wallet based on perceived enjoyment, but their sense of worth, faith, reliability and social status had been found to have a significant impact on behavioural intention. They also discovered that in the situation of M-payments, customers' behavioural intentions are more strongly influenced by trust, which is followed by compatibility. This study was limited to specific ages in one town and only comprised six M-wallets. Gaining consumer trust and increasing the frequency with which customers utilize M-wallets for M-payments can be achieved by M-wallet providers by having a thorough understanding of the many aspects of behavioural intention. The results indicate that as proactive measures for M-wallet intention, M-wallet suppliers should take into account and control all relevant factors. This approach can be used to develop a behavioural intention model between M-wallets and users, which will help businesses, manage the development of their users' behavioural intentions.

Objectives

- To assess India's digital payment volume and value between the FY 2017–18 and the FY 2024–2025.
- To understand the volume of modes of payment in India between the year 2019-2020 and 2024-2025.
- To explore the future of digital payments in India.
- To offer recommendations for enhancing the existing features of digital payment.

Research Methodology

The current study only focuses on secondary data, which were gathered from digital payments-related websites such as RBI, NPCI, digipay.gov.in and financialservices.gov.in. The reviews were gathered from several journals of research.

Data Analysis and Discussion

Table -1, Volume of digital payment transactions in India from the financial years 2017-18 to 2024-25

S. No.	Financial Year	Volume (in crores)
1.	2017-18	2,071
2.	2018-19	3,134
3.	2019-20	4,572
4.	2020-21	5,554
5.	2021-22	8,839
6.	2022-23	13,462
7.	2023-24	18,735
8.	2024-25 (Till 31 st Aug'24)	8,659

Source: Reserve Bank of India (RBI), National Payments Corporation of India (NPCI) & DIGIDHAN Portal

India has seen tremendous development in digital payments, with the volume of all digital payments rising from 2,071 crore in FY 2017–18 to 18,735 crore in FY 2023–24 at a 44% compound annual development Rate (CAGR). In addition, the transaction volume hit 8,659 crore in the first five months (April–August) of the current financial year 2024–25.

Table- 2, Value of digital payment transactions in India from the financial year 2017 – 18 to 2024 – 2025

S. No.	Financial Year	Value (in lakh crores)
1.	2017-18	1,962
2.	2018-19	2,482
3.	2019-20	2,953
4.	2020-21	3,000
5.	2021-22	3,021
6.	2022-23	3,355
7.	2023-24	3,659
8.	2024-25 (Till 31 st Aug'24)	1,669

Source: Reserve Bank of India (RBI), National Payments Corporation of India (NPCI) & DIGIDHAN Portal

Transactions value has increased from Rs.1,962 lakh crore to Rs.3,659 lakh crore at an 11% annual growth rate. In addition, the total transaction value for the first five months (April–August) of the present financial year 2024–25 has increased to an astounding Rs.1, 669 lakh crore.

Table- 3, Month wise Digital Payment Transactions from April'2024 to September'2024

	Apr'2024	May'2024	Jun'2024	Jul'2024	Aug'2024	Sep'2024
Volume (in crore)	1,684	1,762	1,738	1,783	1,768	1,767
Value (in lakh crore)	238	476	243	443	287	251

Source: <https://financialservices.gov.in>

The digital payment transactions volume has risen in the months of July and August and the transactions value has declined in the months of April, June and September in the year 2024.

Table- 4, Modes of Payment from the Year 2019-2020 to 2024-2025

Modes of Payment	2019 – 2020 Volume (In Cr.)	2020 – 2021 Volume (In Cr.)	2021 – 2022 Volume (In Cr.)	2022 – 2023 Volume (In Cr.)	2023 – 2024 Volume (In Cr.)	2024 – 2025 Volume (In Cr.)
RTGS	15.07 (0.33)	15.92 (0.29)	20.78 (0.23)	24.26 (0.18)	26.37 (0.14)	22.84 (0.12)
NEFT	274.45 (6.00)	309.28 (5.57)	404.07 (4.57)	528.47 (3.97)	711.14 (3.78)	669.50 (3.63)
Credit card	217.73 (4.76)	176.47 (3.18)	223.99 (2.53)	291.56 (2.19)	353.66 (1.88)	317.97 (1.72)
Debit card	512.39 (11.21)	411.49 (7.41)	394.77 (4.46)	341.95 (2.57)	232.02 (1.23)	174.02 (0.94)
PPI	533.18 (11.66)	493.90 (8.89)	658.12 (7.44)	746.67 (5.61)	799.63 (4.25)	699.05 (3.79)
BHIM UPI	1,251.76 (27.38)	2,232.96 (40.2)	4,596.63 (51.96)	8,324.04 (62.49)	13,096.04 (69.63)	12,553.70 (67.32)
IMPS	257.91 (5.64)	327.83 (5.9)	465.97 (5.27)	521.08 (21.08)	585.38 (3.11)	488.91 (2.62)
AePS	88.61 (1.94)	132.81 (2.39)	126.88 (1.43)	118.46 (0.89)	86.13 (0.46)	19.04 (0.1)
Mobile banking	126.39 (2.76)	99.41 (1.79)	143.26 (1.62)	139.98 (1.05)	157.11 (0.84)	33.19 (0.18)
Internet Banking	189.42 (4.14)	203.93 (3.67)	391.52 (4.43)	302.41 (2.27)	234.24 (1.25)	30.83 (0.17)
NACH	340.10 (7.44)	362.62 (6.53)	383.80 (4.34)	463.16 (3.48)	537.40 (2.86)	3,199.53 (17.16)
BHIM Aadhaar	0.91 (0.01)	1.61 (0.02)	2.27 (0.02)	2.14 (0.01)	1.43 (0.00)	1.81 (0.00)
Closed Loop Wallet	149.85 (3.28)	22.87 (0.41)	36.05 (0.41)	71.46 (0.54)	74.77 (0.4)	-
NETC	58.26 (1.27)	132.73 (2.39)	244.13 (2.76)	340.87 (2.56)	385.31 (2.05)	306.81 (1.65)
USSD	0.1 (0.00)	0.1 (0.00)	0.12 (0.00)	0.17 (0.00)	0.26 (0.00)	0.14 (0.00)
Others	555.64 (12.15)	630.39 (11.35)	753.42 (8.52)	1,103.20 (8.28)	1,526.23 (8.12)	110.88 (0.59)
Total	4,571.76	5,554.33	8,845.79	13,319.89	18,807.14	18,646.99

Source: <https://digipay.gov.in>

*Values within the brackets indicate percentage to total.

Total number of digital payment transactions has increased from 4,571.76 crores in the year 2019-2020 to 18,646.99 crores in the year 2024-2025. Among all other modes, BHIM UPI has the highest value in all years and USSD has the lowest value.

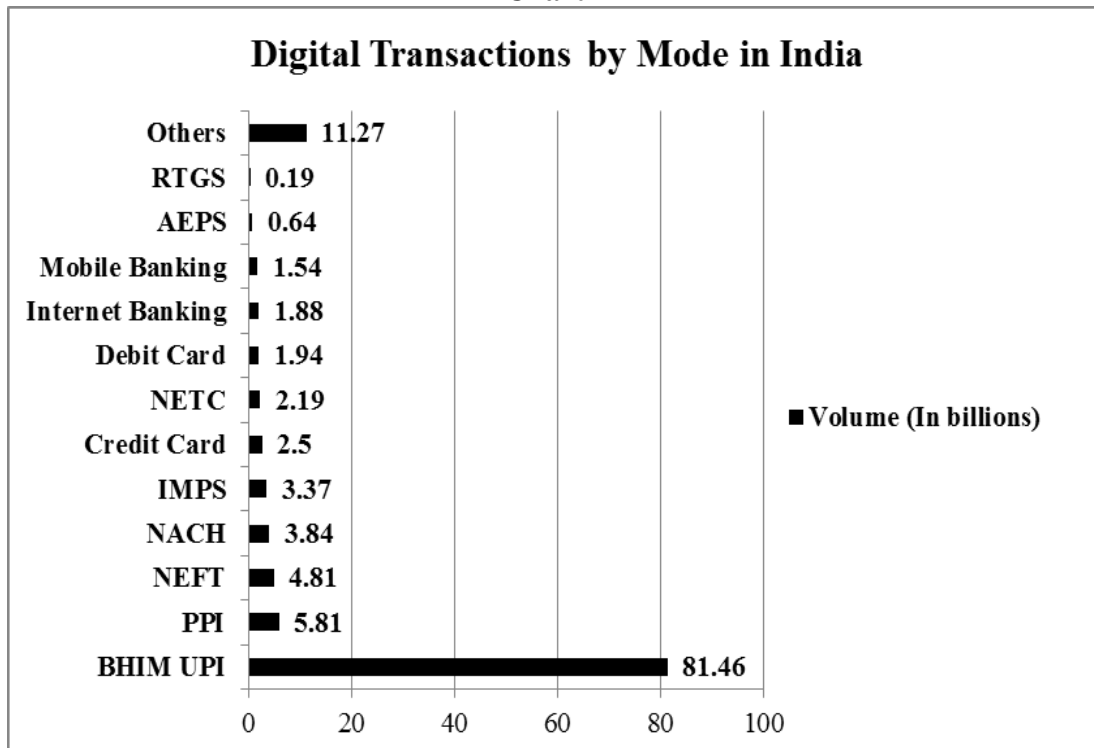
Table- 5, Volume of digital transactions in India in the financial year 2024, by mode (in billions)

Modes of Payment	Volume (In billions)
BHIM UPI	81.46
PPI	5.81
NEFT	4.81
NACH	3.84
IMPS	3.37
Credit Card	2.5
NETC	2.19
Debit Card	1.94
Internet Banking	1.88
Mobile Banking	1.54
AEPS	0.64
RTGS	0.19
Others	11.27

Source: <https://www.statista.com>

Among all the modes of payment, BHIM UPI has the highest volume of transaction with 81.46 (in billion) and the RTGS has the lowest volume of transaction with 0.19 (in billion).

Chart 1





The Future of Digital Payments in India UPI 2.0 and the Global Expansion of UPI

UPI has grown to include overdraft accounts, auto-pay regulations and the ability to link to RuPay credit cards. With partnerships in nations like the United Arab Emirates, Singapore, and France, UPI is also growing internationally, allowing Indian users to easily send money worldwide.

Central Bank Digital Currency (CBDC): Digital Rupee

The Reserve Bank of India's launch of the Digital Rupee (CBDC) would revolutionize the way digital payments function. With increased efficiency and lower transaction costs, the e-rupee seeks to provide a digital cash substitute supported by the Government.

Payments via Voice in Regional Languages

Voice-based payment systems have the potential to transform the way individuals conduct transactions, particularly in rural areas. Enabling voice commands in regional languages will promote accessibility because many people are unfamiliar with complex digital tools or English. AI's smooth integration with speech technology will improve user experience. This strategy includes people with low levels of tech proficiency and assists in closing the digital divide. Considering all these things, it will enable millions of new users to engage with the digital economy.

Data-driven and AI-powered customized payment solutions

Artificial intelligence will play a key role in developing user-specific payment experiences. AI will examine each person's spending patterns and habits to provide customized credit and loan options. By ensuring that fraud is detected and stopped instantly, predictive analytics will increase the security of digital payments. AI-driven insights will also assist users in managing their spending and enabling them to make better financial decisions. Payments will consequently become more individualized, user-friendly, and trustworthy.

Extension of Buy Now, Pay Later (BNPL)

The popularity of BNPL as a payment method is rising quickly, particularly among young Indians. It is anticipated that BNPL would drastically increase digital commerce and change consumer behavior with its flexible repayment arrangements and zero-interest offers.

Findings

- The volume of all digital payments has risen from 2,071 crore in FY 2017–18 to 18,737 crore in FY 2023–24 at a 44% compound annual development Rate (CAGR). In addition, the transaction volume hit 8,659 crore in the first five months (April–August) of the current financial year 2024–25.
- Transactions value has increased from Rs.1, 962 lakh crore to Rs.3, 659 lakh crore at 11% annual growth rate. In addition, the total transaction value for the first five months (April–August) of the present financial year 2024–25 has increased to an astounding Rs.1, 669 lakh crore.
- The digital payment transactions volume has risen in the months of July and August and the transactions value has declined in the months of April, June and September in the year 2024.
- Total number of digital payment transactions has been increasing from 4,571.76 in the year 2019-2020 to 18,646.99 in the year 2024-2025. Among all other modes, BHIM UPI has the highest value in all years and USSD has the lowest value.

- Among all the modes of payment, BHIM UPI has the highest volume of transaction with 81.46 (in billion) and the RTGS has the lowest volume of transaction with 0.19 (in billion).

Suggestions

- Digital payment apps need to concentrate on providing user-friendly and optimized interfaces for all users, irrespective of technical proficiency. Multilingual assistance may render the system more accessible, while minimalist designs with simple directions can streamline the transaction process. Wider user adoption can be achieved by incorporating accessibility features like voice commands for those with visual impairments and designs that accommodate both younger and older users. These enhancements will guarantee that digital payment platforms may be used confidently and easily even by people who are not tech-savvy.
- Even though there are a number of digital payment options, their inability to integrate seamlessly frequently results in inefficiency and irritation. Payment platforms should implement a global QR code standard to address this issue and guarantee that users can pay with any app or digital wallet without any limitations. In order to allow customers to send and receive money across various e-wallets, banking institutions, or even worldwide payment networks, payment systems should also aim for cross-platform interoperability. This compatibility will simplify the user experience and remove fragmentation in the ecosystem of digital payments.
- Digital payments made domestically are now comparatively smooth, but cross-border transactions are still expensive and time-consuming. It is essential to create technologies that enable cross-border payments in real-time without the hefty fees usually connected with doing business internationally. This would help people transmit money across borders, freelancers employing remote workers and companies involved in international trade. These transactions could be accelerated while lowering costs by interconnection with global payment networks or block chain-based solutions, making international digital payments more effective, affordable, and quick.
- As the use of digital payments develops, the environmental impact must also be considered. The environmental impact of physical paperwork will be decreased by promoting digital invoicing and paperless transactions, which will lessen the need for printed receipts. In order to encourage ecologically sustainable payment methods, such as encouraging eco-friendly e-wallets and promoting the adoption of energy-efficient technologies, financial institutions might collaborate with green organizations. In addition to cutting expenses, this would match the expansion of digital payments with international sustainability objectives.

Conclusion

The digital payments ecosystem in India has expanded dramatically, with transaction volumes rising from 2,071 crore in FY 2017-18 to 18,737 crore in FY 2023-24, indicating an increased preference for cashless purchases. While the total value of digital payments has steadily increased, BHIM UPI still leads in transaction volume. Notwithstanding these developments, issues including disconnected financial systems, expensive international transactions and environmental concerns still exist. Future initiatives should concentrate on improving platform interoperability, facilitating cross-border payments in real-time, and implementing more energy-efficient and sustainable technologies in order to address these issues. Digital payments can help India shift to a fully digital economy by emphasizing accessibility and inclusivity.



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