

Digital Payments System: Trends, Challenges in India

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Abstract

Digital Payments System is the core of Indian Economy in present scenario. The growth of digital ecosystem in India has been driven by a number of factors, including the government's push towards digitalization, an increase in internet and smartphone penetration, and the rise of e-commerce. As the digital payments ecosystem becomes more advanced and interconnected, it also becomes more exposed to regulatory challenges, cross-border complexities, cybersecurity risks, and compliance hurdles. For India and other leading digital payment markets, 2025 is as much about governance and risk mitigation as it is about innovation. This study explores the future landscape of Digital marketing by examining emerging trends and key challenges associated with their growth in India. In the present study, an analysis of the growth of digital payment system in India and also explores India's role in shaping global payments landscape.

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Introduction

The use of digital payment transactions has increased significantly in India in recent years. This growth can be attributed to a number of factors such as government initiatives, technological advancements, and changing consumer behaviour. The shift towards digital payment systems has brought about significant changes in the Indian economy, particularly in the banking, retail, and ecommerce sectors. The COVID-19 pandemic has further accelerated this trend, with more people opting for digital payment methods to reduce physical contact.

The Payment and Settlement Act, 2007 has defined Digital Payments. As per this any "electronic funds transfer" means any transfer of funds which is initiated by a person by way of instruction, authorization or order to a bank to debit or credit an account maintained with that bank through electronic means and includes point of sale transfers; automated teller machine transactions, direct deposits or withdrawal of funds, transfers initiated by telephone, internet and, card payment. Digital payments, electronic payments or payments transfer happen between payment accounts electronically. This can be achieved through other digital channels and instruments, e.g., bank transfer, mobile payments, QR code, payment cards (credit, debit and pre-paid). Digital payments have

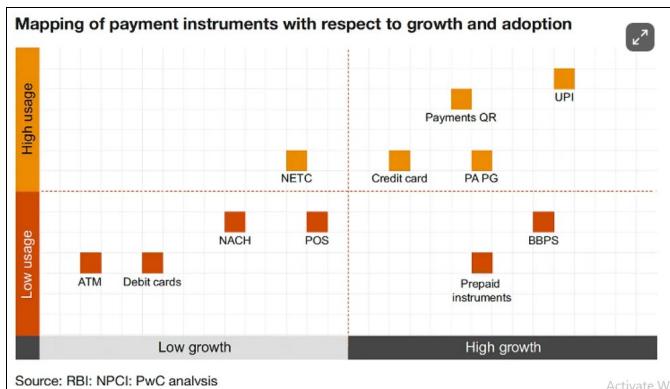
transformed the means of financial transactions-now money is transferred swiftly, safely and more convenient compared to physical cash-based payment methods. Digital payments, facilitated by technology, allow electronic transactions to be easily made by persons and businesses. For digital payment, bank account, online access to bank and a digital hand-set (smartphone) are required by the users. Payment providers (banks, fintech companies) mediate these transactions, security and on-the-spot execution. Digital payment in India includes a wide range of electronic transaction methods like Unified Payments Interface (UPI), mobile wallets, banking cards (debit/credit), mobile and internet banking, Aadhaar Enabled Payment System (AEPS), and USSD. The government's "Digital India" initiative has driven significant growth, with UPI emerging as the most popular platform, enabling instant, round-the-clock transactions and contributing to a major shift towards a cashless economy by making digital payments accessible even in rural areas. Innovations in the payments lifecycle are resulting in sustainable growth in industries such as education, transportation, healthcare, insurance, automobile, manufacturing, banking, e-commerce and aviation. The benefits of digital payments are enjoyed right from a small neighbourhood kirana shop to a large conglomerate handling

high-value complex receivables and payouts. Over the last five to seven years, as digital payments adoption increased with the introduction of new use cases and innovative products by payment service providers (PSPs), we have seen huge growth in most of the digital payment instruments. Digital payments in India have experienced massive growth, largely driven by the government's focus on financial inclusion and the widespread adoption of Unified Payments Interface (UPI), which accounts for most digital transactions and handles billions of real-time payments monthly, connecting millions of individuals and merchants across thousands of banks. This surge in digital transactions has transformed India's economy by increasing convenience and speed and fostering a shift towards a cashless society, with UPI also gaining international traction.

Growth of Digital Payments System in India

India's digital payments landscape has witnessed remarkable growth over the past eight years. The industry is projected to expand more than three times in volume, from 159 billion transactions in FY 2023-24 to 481 billion by FY 2028-29. In terms of value of payment transactions, the market is expected to grow double, from INR 265 trillion to INR 593 trillion over the same period (report by PwC). The growth of UPI payments has driven the overall growth story of digital payments in India and is expected to maintain its high growth trajectory, given the Reserve Bank of India (RBI) and National Payments Corporation of India's (NPCI's) sustained efforts to introduce innovative features. Acceptance of UPI has grown not only in India but across the globe, with various partnerships being forged.

During FY 2023-24, Indian payment platforms experienced exponential growth. The most significant expansion has been observed in Unified Payments Interface (UPI), which recorded more than 50% growth. Merchant acquiring solutions-including offline and online options like QRs, payment aggregators and payment gateways-also saw substantial growth of more than 25% due to regulatory push, high QR penetration and inclusion of new players. Additionally, the use of credit cards grew by approximately 20% due to increased demand from Gen-Zs and population in Tier II and below locations. Bharat Bill Payments Solution (BBPS) has witnessed a growth of 25%, largely driven by addition of new billers and increased payment options for customers by virtue of third-party application provider (TPAPs). National Electronic Toll Collection (NETC)-due to continued adoption of toll tags for new vehicles-has grown by more than 10%. The surge in digital payments in India is also a resultant of the developing start-ups ecosystem in India which are creating innovative solutions that cater to diverse customer needs (Fig 1)



The popularity of Indian payment products is increasing considerably, driven by new industry use cases, increased participation from banks, non-banking financial companies (NBFCs), and FinTech companies, seamless integration with digital ecosystems and marketplaces, and advanced security features. Both consumers and businesses are increasingly preferring these products for their ease of use, reliability, efficiency and cost-effectiveness. Additionally, the regulatory initiatives to promote digital payments and financial inclusion have created a conducive environment for innovation, expansion and adoption.

India's Role in Shaping Global Trends

Global Payments Landscape

The global payments landscape has undergone a significant transformation, driven by technological advancements and changing consumer behaviours. Once largely dependent on cash and checks, the focus has now shifted towards digital payment methods, including digital wallets with enhanced interoperability, cards featuring innovative integrations and use cases, and the increasing adoption of account-to-account (A2A) payments. This evolution not only promotes financial inclusion but also transforms the way businesses and consumers engage financially, creating a more connected and accessible payments ecosystem worldwide.

India's Role in Shaping Global Trends

Digital Wallets and UPI: Preferred Payment Method Worldwide: Digital wallets and UPI have become a leading force in global payment methods. This rapid growth is driven by factors such as the penetration of UPI, seamless integration of wallet solutions into multiple platforms, the rise of Fin Techs and super Apps, and the widespread adoption of interoperable QR codes. Together, these elements are accelerating the global adoption of digital wallets.

Credit Cards: Still Thriving, Alongside or Without Digital Wallets: Credit cards maintain a robust presence in global payments, while transaction values for credit cards have gradually increased both online and in-store, there is a noticeable shift as more card-based transactions occur within digital wallets. Additionally, the growing integration of credit cards with UPI and different ecosystems offers new opportunities.

Cash: Losing Ground to the Digital Payments Revolution: Cash is rapidly losing its share in global payments, this decline in cash usage in India over recent years is primarily due to the rapid adoption of digital payments. The Indian Government's strong financial inclusion has played a crucial role in this shift, making digital transactions more accessible and convenient for users across both urban and rural areas.

Trends in Digital Payments in India

Despite digital's dominance in volume, cash remains resilient. Approximately 60% of India's consumer expenditure is still conducted in cash, according to data from the Reserve Bank of India (RBI), especially in semi-urban and rural regions. As a result, India's payments ecosystem reflects a hybrid model: real-time, mobile-first payments coexist with cash, ATM withdrawals, and over-the-counter spending.

The Rise and Globalisation of RTPs

UPI remains the crown jewel of India's payment infrastructure. It has revolutionised person-to-person (P2P) and merchant payments with interoperability, zero merchant

fees, and 24/7 availability. From government subsidies to Kirana store QR codes, UPI has embedded itself into the daily economic fabric. Its integration with Aadhaar (India's biometric ID) and mobile numbers creates a powerful, inclusive foundation.

In 2024, India also joined Project Nexus, a cross-border payments initiative launched by the Bank for International Settlements (BIS). This move is expected to make UPI interoperable with RTP systems in Southeast Asia and beyond by 2025–2026. Additionally, UPI QR payments are already active in countries like Singapore, the UAE, Bhutan, France, and Sri Lanka.

Innovation in Payment Methods: Wallets, Credit, and AI

Payment experiences in India are undergoing a step change with new methods that merge convenience with intelligence, some of which are further elaborated on below:

Credit on UPI: UPI's enablement of credit-linked payments through RuPay credit cards has expanded average ticket sizes.

AI-powered Personalisation: Platforms are embedding generative AI and machine learning (ML) tools to help consumers manage their finances. Use cases include real-time budgeting, fraud alerts, and smart nudges for savings or spending control.

Unified Lending Interface (ULI): Rolled out by NPCI, ULI enables secure data sharing between lenders and borrowers, helping underbanked consumers access formal credit without traditional documents.

Cross-border Payment Developments

India is actively strengthening its cross-border payment ecosystem to support diaspora transactions, trade, and tourism through developments like Bharat BillPay internationalization and the India–Mauritius local currency settlement.

Bharat BillPay Internationalization: In 2022, BBPS enabled utility bill payments for NRIs, a service expected to channel over USD 10 billion in remittance-based transactions in the next three years.

India-Mauritius Local Currency Settlement: In 2025, India signed a MoU with Mauritius to settle cross-border trade in local currency, reducing reliance on the US dollar.

Ecommerce Trends: New Users, New Categories

India's ecommerce market reached USD 125 billion (INR 10.8 trillion) in FY2024 and is expected to reach USD 345 billion (INR 29.8 trillion) by FY2030, according to India Brand Equity Foundation (IBEF). Penetration beyond metros is reshaping the industry.

Policy and Regulation: Balancing Innovation and Stability
The Reserve Bank of India (RBI) and government regulators have remained proactive in managing the fast-evolving digital ecosystem, and several endeavours in this direction have become public.

In 2025, the RBI mandated higher run-off rates for digital deposit accounts to mitigate risks in high-growth fintech platforms. More so, FX regulations were simplified to promote cross-border trade and allow faster settlement in local currencies.

Looking Ahead: India's Digital Economy Towards 2030

India is on the track to become a USD 1 trillion digital economy by 2030 by Bessemer Venture Partners, with RTPs, AI-enabled services, and SME digitisation driving growth.

UPI transaction volumes are projected to surpass 120 billion annually, while wallet penetration could exceed 70% among mobile internet users. With its blend of innovation, inclusivity, and ambition, India is not just catching up with global digital leaders—it's setting new benchmarks for scale, interoperability, and impact.

Future of Digital Payments in India

India's digital payments landscape is transforming rapidly, becoming a global model for digital adoption. It is positioned for sustained growth, driven by tech innovation, infrastructure expansion, and supportive regulatory frameworks. This robust ecosystem is expected to unlock new revenue streams and expand financial inclusion, with key stakeholders poised to benefit.

India is rapidly transforming into a global leader in digital payments, driven by technological innovations and widespread adoption of platforms like UPI, RuPay, and FASTag.

If we look at the latest data, the transaction volumes have grown by 42% year-on-year (YoY) in FY 2023-24. A report by PwC predicts that transaction volumes are set to rise from 159 billion in FY23-24 to 481 billion by FY2028-29.

The key trends shaping the future of digital payments in the country.

Growth of Bharat Connect (BBPS) and B2B Payments

The Bharat Bill Payment System (BBPS) has been expanding rapidly, with over 22,000 billers already onboard. This number is expected to grow significantly, bringing in more billers and categories, along with a surge in transaction volumes. One of the key developments is the NBBL Bharat Connect platform, aimed at streamlining B2B payments and offering credit access to India's 6.3 crore MSMEs.

AI Solutions for Fraud Prevention

As digital payments continue to rise, security remains a critical concern. AI-powered solutions, including natural language processing (NLP), deep learning (DL), and machine learning (ML), are helping to prevent fraud, particularly in sectors like banking, finance, and e-commerce.

The role of UPI and impact on traditional payments

The Unified Payments Interface (UPI) has experienced growth, with a global reach extending to countries like Sri Lanka, Mauritius, and the UAE.

BNPL: Flexibility and Financial Responsibility

The growth of buy now, pay later (BNPL) services in India reflects a shift towards digital-first credit solutions. While BNPL offers short-term, interest-free credit for online purchases, Mahajan emphasises the importance of understanding the terms before opting for this payment method.

QR Code Payments Transforming Small Business Operations

QR code-based payments are playing a significant role in transforming small businesses, with person-to-merchant (P2M) transactions expected to represent 75% of all UPI transactions by 2025. The introduction of NBBL Bharat Connect QR, which enables billers to convert offline collections into digital payments, is a step towards further simplifying digital transactions.

Growth and Expansion

- **Overall Transaction Growth:** Digital payments saw a 42% YoY transactional volume growth in FY 23–24 and is expected to triple from 159 Bn transactions in FY 23–24 to 481 Bn by FY 28–29. The transaction value is Expected to double from Rs. 265 Tr to Rs. 593 Tr in the same period.
- **UPI Dominance:** UPI has grown by 57% YoY, with over 131 billion transactions in FY 23–24, projected to reach 439 billion by FY 28–29, constituting 91% of retail digital payments.
- **Credit Cards:** Over 16 million new credit cards were added in FY 23–24, taking the total to over 100 million. By FY 28–29, credit card usage is projected to reach 200 million.
- **Bharat Bill Payments System (BBPS):** Grew by 25%, supported by more billers and third-party app providers.
- **NETC (Toll Collection):** Over 10% growth, attributed to increased adoption of toll tags.

Challenges in Digital Payments in India

Regulations, Risks & Roadblocks

As the digital payments ecosystem becomes more advanced and interconnected, it also becomes more exposed to regulatory challenges, cross-border complexities, cybersecurity risks, and compliance hurdles. For India and other leading digital payment markets, 2025 is as much about governance and risk mitigation as it is about innovation.

- In India, the Reserve Bank of India (RBI) continues to shape the future of digital payments through progressive policies. The recent Draft Payment Vision 2025 focuses on increasing digital payment volume by more than threefold, pushing rural and tier-2 adoption, and enhancing security frameworks.
- India's data localisation rules now mandate that all payment data be stored only within the country. This regulation has affected how global players like Visa and Mastercard operate locally, forcing them to build or partner with Indian infrastructure providers. This shift is detailed in The Indian Payments Handbook by PwC.
- Cross-border digital payments remain a regulatory minefield. The G20 Roadmap for Enhancing Cross-border Payments lays out action items for global standardisation, but compliance remains uneven across jurisdictions, increasing the cost and complexity of international remittance and B2B flows.
- Increased reliance on digital channels has also amplified the risk of cyber threats. According to CERT-In, India reported over 13 lakh cybersecurity incidents in 2023, many of them targeting fintech apps, wallet services, and banking infrastructure.
- Fraud is evolving faster than ever. NPCI and RBI have both urged banks and fintechs to strengthen multi-factor authentication (MFA), introduce behaviour-based fraud detection, and comply with real-time alerts for UPI-based transactions.
- At a global level, 69% of fraud leaders believe criminals are now more sophisticated at using AI for financial crimes than the banks and payment companies trying to stop them, according to BioCatch.
- To navigate this, many firms are turning to RegTech-technology specifically designed to manage regulatory requirements through automation. In India, companies like Signzy and Perfios are helping banks accelerate

KYC, fraud prevention, and AML compliance using AI, biometrics, and machine learning.

- While innovation defines the promise of digital payments, it's regulation that will determine its scalability and long-term trust. India is fast emerging as a blueprint for responsible innovation, balancing exponential growth with strict governance in one of the world's largest digital ecosystems.

Conclusion

To achieve the nation's vision of transforming into a developed country by 2047, it is imperative that all citizens be brought under an organised financial ecosystem. Digital payments in India have been successful in making India a more financially inclusive country. With digital payments seeing rising adoption, India is becoming a less cash-dependent country. Digital payments are helping the growth of other industry sectors (both B2B and B2C) by eliminating the challenges involved in cash transactions. This has made it easier and faster to realise the transactions in the recipient's financial books. As a result, digital payments have been able to reduce the cost of funds required in these industries. The digital payments industry is the backbone of global commerce. By enabling seamless, traceable transactions through platforms like UPI, digital payments have created a robust financial footprint for individuals and businesses. These footprints serve as alternative data points for financial institutions, allowing them to assess creditworthiness even in the absence of traditional documentation. As a result, more people are able to access formal credit channels, which not only empowers economic participation but also brings more entities into the formal financial ecosystem. Digital platforms like UPI have enabled citizens including small vendors and rural users to accept digital payments, reducing cash dependency and increasing formal economic participation. Digital payments have quietly become the connective tissue of global commerce, enabling everything from late-night food orders to billion-dollar cross-border transactions. In 2025, this transformation is no longer about going "cashless"; it's about going frictionless, mobile-first, intelligent, and invisible.

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