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RESEARCH ARTICLE

FinTech and UPI: Transforming India's Digital Payment Ecosystem

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Abstract

Financial technology (FinTech) has emerged as a major force in transforming the financial services sector by integrating technology with banking, payments, lending, investment, insurance and wealth management. Among the various FinTech innovations in India, the Unified Payments Interface (UPI) has become one of the most significant developments in digital payments. UPI enables instant bank-to-bank transactions through mobile applications using simple identifiers such as mobile numbers, virtual payment addresses and QR codes. Its rapid adoption has changed consumer payment behaviour, supported small businesses, encouraged financial inclusion and created new opportunities for FinTech companies. In FY 2025–26, UPI processed approximately 24,161.69 crore transactions valued at ₹314 lakh crore, demonstrating its enormous scale. This paper examines the relationship between FinTech and UPI, its contribution to digital financial transformation, benefits, challenges and future prospects in India.

Keywords: FinTech, UPI, Digital Payments, Financial Inclusion, Digital Banking, Mobile Payments, Innovation

1. Introduction

Financial technology, commonly known as FinTech, refers to the use of digital technologies to provide innovative, efficient and accessible financial services. The growth of smartphones, internet connectivity, cloud computing, artificial intelligence and digital payment infrastructure has significantly changed the way individuals and businesses access financial services. India has become one of the leading markets for FinTech innovation because of its large population, expanding digital infrastructure and supportive regulatory environment.

A major achievement of India's FinTech ecosystem is the development of the Unified Payments Interface (UPI). Introduced in 2016 by the National Payments Corporation of India (NPCI) under the regulatory framework of the Reserve Bank of India (RBI), UPI enables real-time payments

between bank accounts. It has simplified digital transactions by allowing users to make payments through mobile applications without repeatedly entering bank account details.

The scale of UPI demonstrates its importance to India's digital economy. In FY 2025–26, UPI recorded 24,161.69 crore transactions with a total value of approximately ₹314 lakh crore. The platform had 703 banks live on UPI as of March 2026. UPI has therefore moved beyond being merely a payment mechanism and has become an important component of India's broader FinTech ecosystem.

2. FinTech and the Emergence of UPI

FinTech has encouraged financial institutions and technology companies to develop faster, cheaper and more convenient financial services. Traditional banking generally required customers to visit branches or use cards and banking terminals. FinTech has shifted many of these activities to smartphones and digital platforms.

UPI represents an important example of this transformation. It provides an interoperable payment infrastructure through which customers of different banks and payment applications can transfer money. Users can make payments using UPI IDs, QR codes, mobile numbers and other supported mechanisms.

The growth of UPI has also encouraged competition among banks and FinTech companies. Applications such as PhonePe, Google Pay and Paytm have developed user-friendly interfaces around the UPI infrastructure. NPCI data demonstrates the extensive participation of banks and payment applications in the ecosystem.

Thus, UPI and FinTech have developed a mutually reinforcing relationship. UPI provides the underlying payment infrastructure, while FinTech companies develop applications, services and customer experiences around that infrastructure.

3. Impact of UPI on Digital Payments

UPI has substantially changed the behaviour of Indian consumers. Small-value transactions that were traditionally conducted using cash can now be completed digitally within seconds. QR-code payments have become particularly important for small merchants, street vendors, restaurants, retailers and service providers.

Government data indicates that UPI accounted for 81% of retail digital payment transactions in FY 2024–25. This indicates the central role of UPI in India's retail payment ecosystem.

The increasing adoption of UPI has also contributed to the formalisation of economic activity.

Digital transactions create electronic records, which can potentially improve business transparency and facilitate access to formal financial services. For small businesses, digital payment acceptance can reduce dependence on cash handling and provide convenient transaction records.

4. Contribution to Financial Inclusion

One of the most important contributions of FinTech and UPI is financial inclusion. Financial inclusion involves providing affordable and convenient financial services to individuals and businesses that may have limited access to traditional banking.

UPI reduces several barriers associated with digital payments. Customers do not necessarily need sophisticated banking knowledge to make a transaction. A smartphone, bank account and suitable payment application can provide access to real-time payments.

As of June 2026, approximately 55.49 crore users had been onboarded onto the UPI platform, according to government information. The expansion of digital payment infrastructure can therefore help connect a large population with formal financial services.

UPI also benefits micro and small enterprises. Merchants can accept payments through QR codes without requiring expensive point-of-sale infrastructure. This is particularly useful for small retailers and informal businesses transitioning towards digital transactions.

5. Benefits of FinTech and UPI

Several advantages explain the rapid adoption of UPI.

First, convenience: UPI enables payments at any time without requiring customers to visit banks or ATMs.

Second, speed: Transactions are generally processed in real time, making UPI suitable for both person-to-person and merchant payments.

Third, interoperability: UPI allows customers using different banks and payment applications to transact with one another.

Fourth, lower transaction barriers: QR codes and mobile-based payment systems make digital payment acceptance easier for small merchants.

Fifth, innovation: FinTech companies can build additional services around digital payment infrastructure, including personal finance tools, credit products, merchant services and automated financial solutions.

Sixth, transparency: Digital transactions generate electronic records, which can improve transaction

tracking and financial management.

The RBI has highlighted how technological development and digital payment infrastructure have contributed to greater convenience, lower transaction costs and financial inclusion in India.

6. Challenges Associated with UPI and FinTech

Despite its success, the FinTech and UPI ecosystem faces several challenges.

Cybersecurity and fraud are major concerns. Phishing, fake payment requests, social engineering and fraudulent applications can result in financial losses. Increasing digital adoption requires continuous improvement in security systems and consumer awareness.

Digital literacy is another challenge. Some users, particularly those with limited technological familiarity, may find digital payments difficult or may become vulnerable to fraud.

Internet and technological dependence can create problems in areas with weak connectivity or limited access to smartphones.

Privacy concerns are also important because digital financial transactions generate substantial amounts of transactional data. Effective data protection and responsible use of customer information are essential for maintaining trust.

Another challenge concerns the business sustainability of payment platforms. UPI has achieved enormous transaction volumes, but the economics of maintaining payment infrastructure and providing free or low-cost transactions require sustainable models. Changes to merchant pricing arrangements may therefore become part of the future evolution of the ecosystem.

7. Future Prospects

The future of FinTech and UPI is likely to involve greater integration with artificial intelligence, machine learning, digital lending, financial management and cross-border payments. UPI's international expansion may also increase its importance for international travellers, remittances and cross-border commerce.

The platform has already demonstrated considerable international potential. Government information indicates that UPI has been accepted in several countries, while its international linkages continue to develop.

Artificial intelligence can further improve fraud detection by identifying unusual transaction patterns. FinTech companies may also use data-driven technologies to develop personalised financial services. UPI could increasingly become a gateway through which consumers access a

broader range of financial products.

The next phase of development should focus not only on increasing transaction volume but also on improving reliability, security, accessibility and customer protection. The success of India's digital payment ecosystem will depend on maintaining a balance between innovation, competition, regulation and consumer welfare.

8. Conclusion

FinTech and UPI have fundamentally transformed India's financial services landscape. UPI has simplified payments, increased digital transaction adoption, supported merchants and contributed to financial inclusion. Its enormous transaction volume demonstrates that digital payments have become an integral part of everyday economic activity.

The combination of UPI's interoperable infrastructure and FinTech innovation has created opportunities for banks, technology companies, merchants and consumers. At the same time, cybersecurity, digital literacy, privacy, fraud prevention and sustainable business models remain important challenges.

UPI's development over the past decade demonstrates the potential of technology-driven financial innovation. Going forward, continued investment in digital infrastructure, cybersecurity, consumer education and responsible innovation will be essential. FinTech and UPI are therefore likely to remain major drivers of India's transition toward a more accessible, efficient and digitally connected financial economy.

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