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GLOBAL FINTECH FEST

The Indian Payments Handbook 2026–2031

September 2026



Preface

Dear readers,

We are pleased to present the seventh edition of The Indian Payments Handbook for the period 2026–2031. This edition builds upon the foundation laid by our previous reports and offers a detailed and comprehensive view of India's rapidly evolving digital payments ecosystem.

Over the past year, the payments industry in India has witnessed quite a few transformative developments, ranging from regulatory reforms and infrastructure enhancements to the emergence of new players and adoption of next-gen technologies such as agentic AI. This report captures these shifts, providing deep insights into:

- The growth trajectory of digital payments in both volume and value over the next five years along with key factors that will be responsible for this growth
- The evolving role and features of different payment modes in shaping consumer behaviours and trends
- The expanding use cases of payment products, i.e. Unified Payments Interface (UPI), cards, Bharat Connect, FASTag, and prepaid payment instruments (PPIs)
- Strategic innovations in agentic AI, biometric authentication, and cross-border UPI

The handbook also reflects on how the payments ecosystem is becoming more connected and interoperable, while placing greater emphasis on security, customer experience, and sustainable growth.

This year, our analysis is further supported by a market survey conducted with industry leaders and veterans from the banking, payments, and FinTech space in India. The findings from the survey have helped validate and solidify our point of view on the overall growth of the digital payments space in the country.

We hope this handbook serves as a valuable resource for stakeholders across the ecosystem, helping them anticipate trends, adapt to change, and seize emerging opportunities.

India continues to lead the global digital payments revolution, and we are excited to be part of this journey.

Warm regards,
Mihir Gandhi
Partner, Financial Services Advisory, and Leader, Payments Transformation and FinTech
PwC India

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Executive summary

India's digital payments ecosystem enters FY27 at greater scale, with payment behaviour increasingly concentrated around digital rails and the industry moving from **digital adoption to digital depth**. Transaction volumes reached approximately **266 billion[1] in FY26**, with value at around **₹362 trillion.[2]** By FY31, we project approximately **702 billion transactions worth over ₹1,086 trillion**. This makes the next five years less about bringing payments online and more about building a **trusted, connected, global, and inclusive ecosystem**.

Five calls define this edition:

- **Unified Payments Interface (UPI) growth is becoming a merchant-led story.** UPI processed **241.6 billion[3] transactions worth ₹314.2 trillion[4] in FY26**, with person-to-merchant (P2M) accounting for 63% of volume. As domestic person-to-person (P2P) matures, growth will increasingly come from deeper merchant penetration, greater usage beyond tier-1 cities, and new use cases such as credit-on-UPI, AutoPay, transit, and international linkages.
- **Payment economics are moving to the centre of the debate.** It is important to have economic viability for all stakeholders in UPI to ensure equitable distribution of processing costs and ensure that the debate around differentiated pricing for larger merchants is bringing commercial sustainability into sharper focus. Emerging discussions around applying nominal MDR charges to select large-merchant transactions above a ₹2,000 threshold highlight the industry's search for a sustainable commercial model. This approach to UPI pricing could materially reshape industry economics through FY31.
- **Credit is becoming the second growth engine.** Credit-card transaction volume and value are projected to grow at a CAGR of approximately **24% through FY31**, driven increasingly by transaction frequency rather than ticket-size expansion. RuPay credit cards on UPI are also blurring traditional boundaries between card and account-to-account payment rails, while potential NBFC participation could widen access further.
- **Trust and intelligence are becoming core payment infrastructure.** As fraud shifts towards social engineering, synthetic identities, and AI-enabled impersonation, the ecosystem is moving towards behavioural analytics, adaptive authentication, biometrics, passkeys, and real-time risk controls. At the same time, AI is becoming embedded across servicing, underwriting, operations, and fraud prevention, with governance increasingly scaling alongside adoption.
- **Payments are becoming more connected, global, and inclusive.** Interoperability is bringing UPI, cards, credit, and commerce closer together, while international UPI linkages and emerging cross-border models are extending India's payment infrastructure globally. Multilingual initiatives such as Banking BHASHINI, deeper tier 2–4 penetration, and alternative data-led credit models can help translate this infrastructure into wider financial participation.

The opportunity through FY31 is therefore to convert India's payments scale into impact by building systems that are trusted enough to sustain adoption, connected enough to reduce friction, global enough to extend India's payment capabilities across borders, and inclusive enough to broaden access to finance and create value for stakeholders.

1. https://www.rbi.org.in/Scripts/PSIUserView.aspx?Id=58 (last accessed on 21 August 2026)
2. Ibid.
3. https://www.npci.org.in/product/upi/product-statistics (last accessed on 21 August 2026)
4. Ibid.



01

Evolution of the Indian payments landscape

The Indian digital payments landscape continued its strong growth trajectory in FY26, supported by deeper adoption, expanding merchant acceptance, and continued innovation across the ecosystem. Transaction volumes across major retail payment instruments reached approximately 266 billion, with transaction value at around ₹362 trillion.

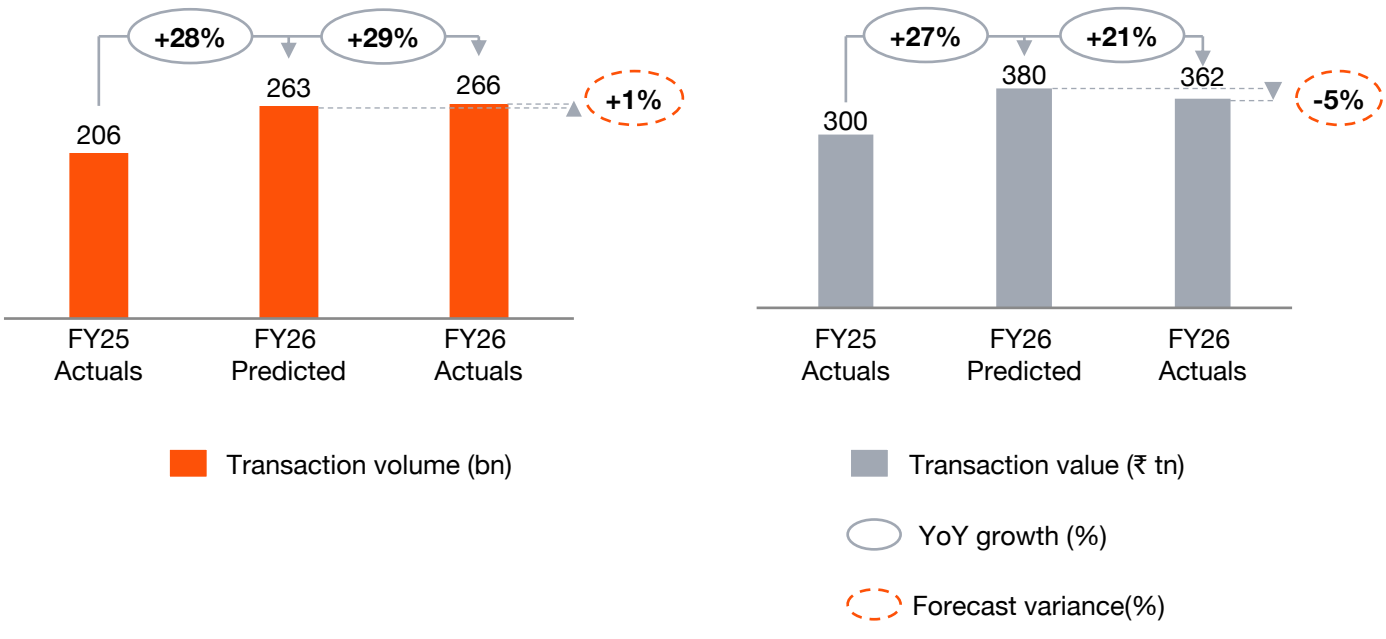
1.1 A look at the year gone by—FY25–26

Each year, we hold ourselves to the same standard we ask of the industry: measurable outcomes. Before presenting our 2026–31 outlook, we assess our projections in last edition's 2025-2030 against reported actuals.

Performance against our outlook

Our previous edition projected 263 billion transactions and ₹380 trillion in value. Actual volume was within ~1% of our estimate, while value was ~5% lower, reflecting a faster-than-expected shift towards lower-ticket transactions

Figure 1: Total volume and value of digital payment* transactions (FY26 predicted/estimated vs actuals)



Source: RBI Payment System Indicators, PwC analysis based on information available online

*Includes UPI, credit and debit cards, Bharat Connect, NETC and PPIs

While the market forecast was relatively accurate, performance across individual payment methods was more varied:

- UPI and credit cards performed broadly in line with expectations
- Prepaid instruments materially outperformed our forecast
- While Bharat Connect, and debit cards saw actual transaction volumes lower than our earlier projections

This highlights that more significantly, it was not the pace of growth that changed but rather the source of that growth and the way consumers were using the various payment methods.

1.2 How the year unfolded

The most noticeable change was a move towards more frequent, smaller-scale digital payments. UPI carried out about 242 billion transactions amounting to ₹314 trillion, and payments made by individuals to merchants gained a larger share than had been expected. Credit cards showed a comparable change in behaviour: While the number of transactions stayed strong, the average transaction value dropped to approximately ₹3,899. Further, RuPay credit cards have also seen wide spread adoption for small value, day-to-day payments. Taken together, these developments indicate that the growth in digital payments is now mainly due to the frequency of use rather than higher transaction values.

At the same time, payment instruments are becoming more specialised in the ways they function. Debit cards are the clearest example of this. Although the number of card holders has continued to rise and now exceeds one billion, payment activity has fallen and the average amount per transaction has increased to about ₹3,480. Everyday transactions involving smaller amounts are moving to UPI, which means that debit cards are now mainly useful for account access, authentication, cash withdrawal, and for making a few higher-value payments.

The same kind of difference between the number of transactions and their value can be seen in infrastructure-driven platforms. National Electronic Toll Collection (NETC) handled about 4.4 billion transactions having a total value of ₹0.83 trillion. Although the frequency of transactions was low, the value per transaction was high. Bharat Connect carried out roughly 3.1 billion transactions amounting to ₹15.5 trillion, since the weaker activity in the more established categories was offset by higher-value payments such as electricity bills, credit card bills, and insurance. These platforms are now showing that maturity does not always imply a decrease in relevance. It may instead mean a shift towards different types of transactions and to higher-value activities.

PPIs offer a different perspective: Transaction volume amounted to about 9.9 billion and the value reached ₹2.9 trillion, exceeding our previous assumptions. However, most of the increase was due to wallet activity linked to a particular issuer rather than indicating a widespread revival throughout the category. This serves as an important reminder that overall growth can at times conceal very different underlying dynamics.

What FY26 shows is that India’s payments market is moving into a more mature stage. Although scale is still important, volume on its own is becoming an incomplete indicator of progress. Instead, it is increasingly the transaction frequency, ticket size, payment mix, specialisation for different use cases, and level of concentration that determine how value flows through the ecosystem.

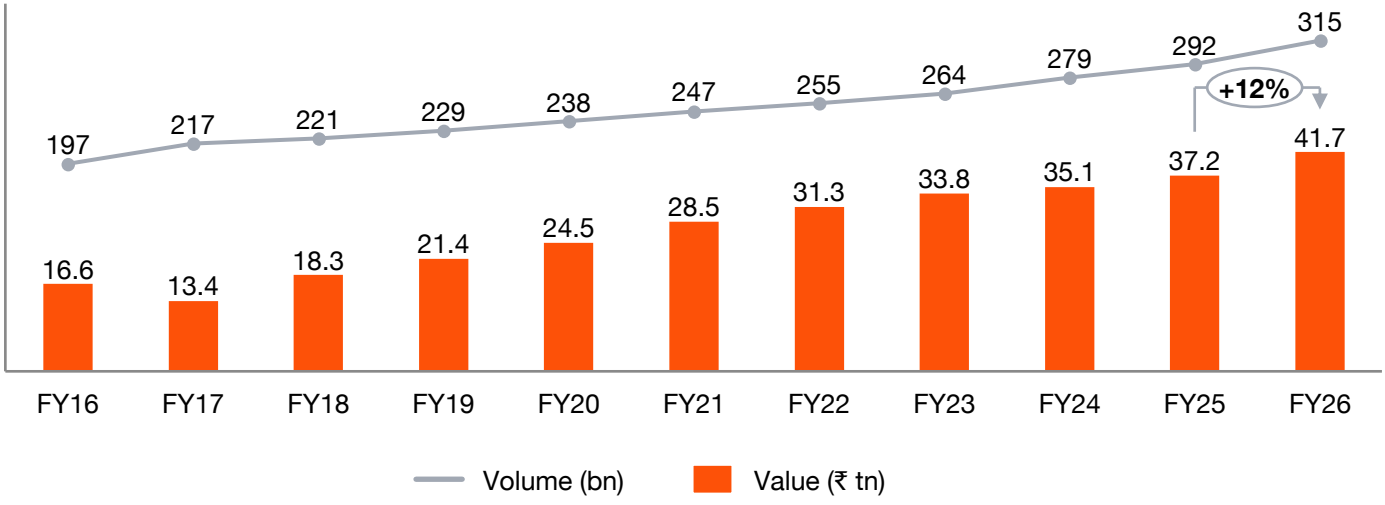
The next phase in terms of payments growth will therefore be less concerned with all the different instruments developing together and more about each one assuming the role in which it has the greatest relevance—be that in everyday payments, credit, mobility, recurring collections, or specialised financial use cases.

1.3 Trends shaping the digital payments industry

1.3.1 Changing role of cash in a digital-first economy

Cash and digital payments are increasingly serving distinct roles in India's payments ecosystem. Currency in circulation rose approximately **12% YoY to a record ₹41.7 trillion in FY26,**[5] even as its relevance relative to the size of the economy and digital transaction activity continued to decline.

Figure 2: Currency in circulation



Source: RBI

- Digital payments are increasingly becoming the preferred mode for everyday, high-frequency transactions, while **cash continues to play a distinct role** across precautionary savings, liquidity needs, selected sectors, regional markets, and government-linked transfers.
- Rather than moving uniformly from cash to digital, **India's payments ecosystem is evolving into a hybrid, role-based model** in which the two serve different purposes.
- Digital payments are gaining share in frequent, low-value commerce because of their convenience and expanding acceptance, while **cash remains relevant in parts of rural and informal commerce** and in categories where physical currency continues to be preferred.

5. https://www.rbi.org.in/Scripts/BS_CurrencyCirculationDetails.aspx?id=4948 (last accessed on 21 August 2026)

Table 1: Understanding the pockets of cash dependence

<table>
<tr><th>Factors</th><th colspan="2">Data</th><th>Impact</th></tr>
<tr><td rowspan="5">Age group[6]</td><td>Age group</td><td>Cash preference</td><td rowspan="5">Users in the age group of 40+ years have higher cash reliance, reflecting lower digital comfort and trust; cash therefore remains a familiar payment option while also serving as the fallback when UPI is unavailable.</td></tr>
<tr><td>18–25</td><td>32%</td></tr>
<tr><td>26–40</td><td>33%</td></tr>
<tr><td>40+</td><td>44%</td></tr>
<tr><td colspan="2">~76% would prefer cash if UPI is not available</td></tr>
<tr><td rowspan="5">Geography[7]</td><td>States</td><td>YoY cash dispensed/ATM</td><td rowspan="5">Higher cash demand reflects deeper consumption in these states and continued reliance on physical cash across semi-urban/rural markets. Also, 62% of the revenue of one of leading cash management companies comes from tier-3+ cities.</td></tr>
<tr><td>Bihar</td><td>+8%</td></tr>
<tr><td>Delhi</td><td>+4%</td></tr>
<tr><td>UP</td><td>+4%</td></tr>
<tr><td>Himachal Pradesh</td><td>+3%</td></tr>
</table>

The next phase of payments growth will therefore be shaped by reducing the circumstances in which consumers and businesses continue to depend on cash rather than simply replacing it.

India is moving from '**cash versus digital'** to '**cash for specific needs, UPI for everyday transactions'.** UPI is becoming the default payment rail, while cash is increasingly concentrated in liquidity-led, high-value, regional, and behavioural use cases.

6. https://financialservices.gov.in/beta/sites/default/files/socio-economic-impact-incentive-scheme.pdf (last accessed on 19 August 2026)
7. https://www.business-standard.com/finance/personal-finance/cash-is-king-in-north-india-rs-1-3-cr-per-atm-withdrawn-in-fy25-125050600601_1.html (last accessed on 19 August 2026)

1.3.2 Key AI developments shaping the future of payments

As digital payments become the default for everyday transactions, the next phase of growth will depend on expanding payment rails and making them more intelligent, accessible, and secure. AI is increasingly emerging as that enabling layer across financial services and payments.

With digital rails now at scale, AI adoption has moved from isolated pilots to embedded capabilities across onboarding, customer engagement, underwriting, operations, and risk management.

From pilots to embedded use cases

In FY25–26, AI moved from pilot to embedded infrastructure across India's financial services industry, underwritten by the same Digital Public Infrastructure (DPI) that powers UPI and Aadhar.[8]

Figure 3: Use of AI in payments

90%	20.8%	35%
of Indian financial institutions count AI/GenAI among their core technology priorities[9]	of regulated entities already deploy AI; a further 67% are exploring additional use cases[10]	Banking, financial services, and insurance (BFSI) ranks highest among other sectors in responsible AI (RAI) maturity[11]

AI is creating value across financial services and payments

1. **Improving risk and decision-making**
   i. A leading NBFC leveraged AI to analyse its customer calls and improve its loan disbursement in a single quarter alongside substantial efficiency gains in tech.
   ii. Major institutions have leveraged real-time AI decision engines to automate core operations like instant loan underwriting, live fraud prevention, and risk monitoring
2. **Enhancing customer experience**
   i. A leading public sector bank became the first to roll out a government-backed multilingual AI banking assistant as part of a broader push across all scheduled languages.

8. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2260497&reg=3&lang=1(last accessed on 16 August 2026)
9. https://www.pwc.in/assets/pdfs/mapping-the-fintech-innovation-landscape-in-india.pdf (last accessed on 16 August 2026)
10. https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/FREEAIR130820250A24FF2D4578453F824C72ED9F5D5851.PDF (last accessed on 16 August 2026)
11. https://cfo.economictimes.indiatimes.com/news/cfo-tech/nearly-60-of-indian-businesses-confident-in-scaling-ai-responsibly-have-mature-frameworks-nasscom-report/127129661 (last accessed on 16 August 2026)

Governance is scaling alongside adoption:

As AI adoption expands across financial services, regulatory frameworks are evolving in parallel.

- Together with Securities and Exchange Board of India's (SEBI's) AI/ML accountability requirements, the Insurance Regulatory and Development Authority of India's (IRDAI's) emerging sector framework, and the Digital Personal Data Protection (DPDP) obligations, the Reserve Bank of India's (RBI's) FREE-AI framework is placing greater emphasis on model governance, accountability, transparency, and responsible use of customer data.

Ecosystem enablers

India's broader digital and AI infrastructure is creating the foundations for financial institutions to scale AI adoption through shared compute, data, talent, and supervised experimentation.

Figure 4: The ecosystem enablers

India AI Mission Over ₹10,300 crore committed, with shared compute and data infrastructure supporting broader AI adoption[12]	**RBI Regulatory Sandbox** Continues to provide a supervised environment for FinTechs to test AI-linked products and use cases	**Mission Digital ShramSetu** Proposes AI-enabled skilling and social-protection infrastructure for India's large informal workforce
Alternative data and digital lending infrastructure Alternative data underwriting and ULI have 64 lenders live across 136+ data services, bringing in borrowers that were previously excluded outright[13]	**MSME credit digitisation** Digital footprint credit models supported 0.3 mn+ LSME loan sanctions amounting to **₹523+ bn in MSME sanctions (Apr–Dec 2025)**	**Multilingual banking and financial inclusion** Banking BHASHINI intends to reduce language barriers through support in 22 scheduled languages[14]

With the core rails already established, AI is becoming the intelligence layer on top of India's payments stack by expanding access, improving risk decisions, and enabling more intuitive customer journeys, while making governance and trust increasingly critical to scale. It is expected that the central operator will soon launch a Universal Agent Protocol (UAP) which will deliver use cases for agentic payments for various transaction types.

12. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2260497&reg=3&lang=1
13. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2260497&reg=3&lang=1 (last accessed on 16 August 2026)
14. Ibid.

1.3.3 Trust and fraud are becoming central to digital payments growth

As digital payments become more deeply embedded in everyday transactions, fraud and security have become central industry considerations. The growth in users, merchants, use cases, and real-time transaction volumes has expanded the surface area for fraud, while the nature of attacks is also becoming more sophisticated and increasingly focused on manipulating customers rather than compromising payment infrastructure.

Fraud trends in India's banking and payments ecosystem

FY26 reflects this changing risk landscape with reported fraud cases having declined in some categories, even as the value and sophistication of fraud have increased.

In FY26, 5,997 digital payment fraud cases worth ₹358.6 million were reported, although actual fraud incidence may be significantly higher as many low-value scams are not formally reported.[15]

Table 2: How the fraud landscape is changing

1. Social engineering	2. AI-enabled fraud	3. New risk surfaces
Fraud is increasingly targeting people rather than systems. • Phishing, fake customer care, QR manipulation, screen sharing, and SIM-swap scams are becoming more common. • **Generative AI (GenAI) is making these attacks more personalised, convincing, and scalable.**	**GenAI is creating new vectors across three areas:** • **Impersonation**: Voice cloning, deepfakes, and fake executives/support agents • **Social engineering**: Personalised phishing, multilingual scams, and AI-led conversations • **Identity manipulation**: Synthetic identities, forged documents, and KYC manipulation	**New payment journeys increase the number of points that need to be secured.** • Innovations such as Credit-on-UPI, delegated payments, cross-border payments, and embedded finance are creating new ways to transact, requiring continued focus on consent, access, authentication, and beneficiary verification.
Bank and vendor response: • Banks are strengthening customer protection through **scam awareness programmes**, transaction verification controls, and secure digital channels to reduce social engineering fraud. • Banks are enhancing digital onboarding with **AI-powered identity verification**, **liveness detection,** and fraud analytics to counter deepfakes and synthetic identities. • Identity and KYC providers are deploying **AI-driven document forensics**, video KYC, and behavioural risk-scoring capabilities to detect fraud at onboarding and throughout the customer lifecycle.		

15. https://sansad.in/getFile/lsapps/loksabhaquestions/annex/188/AU2432_dgiqQb.pdf?source=lsapps (last accessed on 16 August 2026)

Developments in UPI fraud prevention

- P2P collect requests discontinued: NPCI removed P2P collect requests across banks and UPI apps, frequently misused for fake payment requests and impersonation scams. Merchant collect requests remain unaffected.[16]
- Mandatory stronger authentication: RBI's Authentication Mechanisms for Digital Payment Transactions Directions, 2025, mandates two-factor authentication, including at least one dynamic factor, for all domestic digital payment transactions from 1 April 2026.[17]
- Shared fraud intelligence as a critical layer of payment security: A central fraud intelligence utility is being developed to enable near real-time sharing of fraud alerts, mule-account indicators, and transaction-risk signals across participating institutions. By combining ecosystem-wide intelligence with AI-led analytics, the utility is expected to help identify emerging fraud patterns earlier, enable faster intervention, and strengthen coordinated action across banks, payment providers, and law-enforcement agencies.

Evolution of MuleHunter.ai

MuleHunter.ai, developed by the RBI Innovation Hub (RBIH), is an AI/ML-powered solution that helps banks identify mule accounts used to receive, layer, and transfer proceeds of cyber fraud. By analysing transaction patterns, account behaviour, and network linkages, it enables early detection of suspicious fund flows and fraud networks than traditional rule-based systems, strengthening banks' fraud prevention and anti-money laundering (AML) capabilities.

The solution was developed in response to the rapid rise in cyber fraud and digital payments, which exposed the limitations of fragmented, rule-based monitoring systems that generated high false positives and struggled to detect increasingly sophisticated mule account networks.[18]

- **2024:** Launched following successful pilots with public sector banks, using AI/ML models trained on mule account behavioural patterns identified in collaboration with banks.
- **2025:** Scaled across more than 20 banks, enabling large-scale transaction monitoring and detecting approximately **20,000 mule accounts per month** with a reported accuracy of 85–90%.[19]
- **2026:** Evolved into an ecosystem-wide fraud detection platform, integrated with banks' fraud-risk and AML systems, enhanced through intelligence sharing with Indian Cyber Crime Coordination Centre (I4C), and expanded to 26 banks.

16. https://timesofindia.indiatimes.com/business/india-business/upi-fraud-clampdown-npci-to-end-p2p-collect-requests-from-october-1-banks-apps-told-to-block-pull-transactions-permanently/articleshow/123309612.cms (last accessed on 16 August 2026)
17. https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12898&Mode=0 (last accessed on 16 August 2026)
18. https://docs.rbihub.in/mule-hunter (last accessed on 16 August 2026)
19. https://www.financialexpress.com/business/banking-finance-rbis-mulehunter-detects-20000-mule-accounts-every-month-4048721/(last accessed on 16 August 2026)

Implications for industry participants

Fraud prevention is becoming a shared ecosystem responsibility, with each participant expected to strengthen controls at the point where it has the most visibility and influence.

Table 3: Implications of fraud prevention on various industry participants

Entity	Implications	Industry examples
Banks and issuers	Shift from static OTP/PIN-based controls to adaptive authentication and intelligence-led fraud prevention, leveraging behavioural signals, device intelligence, biometrics, transaction context, beneficiary-risk indicators, and mule account detection to stop suspicious activity before funds leave customer accounts.	A leading private sector bank has implemented an AI-based fraud engine that monitors customer transactions in real time, detects unusual payment behaviour, flags suspicious activity, and proactively identifies mule accounts. A leading private sector bank is leveraging AI-driven behavioural and network analytics to identify fraud rings, detect mule-account networks, and trigger preventive controls before fraudulent funds leave the banking system.
Payment system providers (PSPs) and third-party application providers (TPAPs)	Embed risk-based interventions directly within payment journeys, using transaction context, beneficiary risk intelligence, and behavioural analytics to deliver contextual warnings, step up authentication and real-time fraud prevention before payment authorisation.	A leading third-party application provider leverages transaction context, beneficiary risk profiles, and customer behaviour patterns to dynamically display step-up verification prompts, helping users identify and avoid scams before authorising payments. A leading digital payments platform uses behavioural and transaction-risk analytics to trigger in-app warnings for suspicious QR-code payments and collect requests and first-time transfers, enabling proactive fraud prevention at the point of payment.
Payment aggregators and merchants	Deploy real-time monitoring and anomaly detection to identify abnormal merchant behaviour, unusual transaction spikes, suspicious fund flows, and emerging fraud patterns before settlement or onward movement of funds.	A leading payment aggregator uses real-time transaction monitoring to detect unusual spikes in transaction volumes, abnormal merchant behaviour, and suspicious fund flows, enabling early identification of potential fraud and mule-account activity.

Entity	Implications	Industry examples
FinTechs	Build privacy-by-design fraud prevention capabilities, combining AI-driven behavioural analytics, tokenisation, and encryption to enable proactive fraud detection while minimising exposure of customer data.	A leading FinTech has adopted a privacy-by-design architecture that minimises collection of sensitive customer data, applies tokenisation and encryption across payment journeys, and uses AI-driven fraud models to detect suspicious activity without exposing customer information.
Regulators and law enforcement[20]	Strengthen shared fraud intelligence and coordinated response mechanisms through ecosystem-wide intelligence sharing, collaborative investigations, mule-account detection initiatives, and rapid fund-freezing capabilities to improve fraud prevention and recovery outcomes.	Authorities have implemented coordinated fund-freezing mechanisms that allow banks, payment providers, and law enforcement agencies to rapidly trace and freeze suspected fraudulent proceeds, increasing the probability of customer fund recovery. Industry initiatives such as the Indian Digital Payment Intelligence Corporation (IDPIC), Digital Payments Intelligence Platform (DPIP), and MuleHunter.ai are enabling ecosystem-wide intelligence sharing, real-time fraud surveillance, and AI-driven detection of suspicious transactions and coordinated action against mule accounts and emerging fraud patterns.

The **next phase** of digital payments growth will depend on driving adoption and innovation as well as maintaining customer trust by **staying ahead** of increasingly sophisticated and **AI-enabled fraud threats.**

1.4 Regulatory updates and policy developments

The past year was defined by fewer new payment products. Instead, there was a greater focus on rewriting the rules that underlie these products. Seven regulatory developments stand out for their long-run consequences.

As India's payments ecosystem continue to evolve, the RBI has introduced several regulatory and policy initiatives in 2026 aimed at enhancing security, improving customer convenience, strengthening compliance, and fostering innovation.

This year has seen significant reforms across the payments value chain, including enhanced governance and compliance requirements for payment aggregators and payment system operators, a consolidated framework for recurring digital payments via e-mandates, guidelines on cross-border inward remittances, and updated guidelines on PPIs. The RBI has been proactive in introducing initiatives to streamline KYC processes and strengthen risk management practices, enabling trust and accountability across the digital payments system.

In this section, we summarise the key policy updates and regulatory changes that are influencing the next phase of India's digital payments journey.

20. https://timesofindia.indiatimes.com/business/india-business/rbi-overhauls-digital-payment-security-new-risk-based-authentication-for-safer-transactions-heres-all-you-need-to-know/articleshow/124332552.cms (last accessed on 16 August 2026)

Figure 5: Regulatory updates and important developments

Regulatory updates	Major developments	Implications (entity—impact)
Master Directions on Payment Aggregators	• RBI authorisation mandatory for non-bank payment aggregators • Enhanced merchant onboarding and due diligence requirements • Strengthened escrow account and settlement controls • Standardised customer grievance redressal requirements	• **Payment aggregators**—higher compliance, governance, and KYC obligations • **Merchants**—stricter onboarding and ongoing monitoring requirements • **Acquiring banks**—enhanced oversight of aggregator partnerships and settlements
Digital Payments – E-Mandate Framework	• E-mandates enabled across cards, UPI, and PPIs • AFA mandatory during mandate registration • Pre-debit notifications required for recurring payments • Customers allowed to modify, pause or revoke mandates digitally	• **Banks/card issuers**—enhanced mandate management and notification capabilities • **Merchants**—higher recurring payment success rate • **PPI/UPI participants**—standardised recurring payment processes
CKYCR – Mobile Based KYC Search for reporting entities	• Mobile number introduced as KYC search identifier • KYC records accessible via API, screen-based, and bulk-search channels	• **Banks**—faster onboarding and KYC verification • **Customers**—reduced repetitive KYC submissions
Master Direction on Authorization to operate a Payment Systems	• Perpetual authorisation introduced for eligible PSOs • Defined governance, fit-and-proper, and eligibility criteria • Formal framework for surrender and revocation of authorization	• **PSOs**—reduced renewal uncertainty and better operational certainty • **Partner banks**—enhanced due diligence responsibilities • **New entrants**—clear authorisation pathway and expectations
Guidelines to facilitate faster cross border inward payments	• Near real-time reconciliation of inward remittances • Quicker credit to beneficiary accounts • Enhanced digital tracking of remittance status	• **Beneficiaries**—faster receipt of funds • **Banks**—faster remittance processing and recon • **Remittance ecosystem**—enhanced speed and transparency

Regulatory updates	Major developments	Implications (entity—impact)
Guidelines on Regulatory Principles for Model Risk Management	• Governance framework extended to AI/ML and traditional models • Mandatory model inventory and risk classification • Independent model validation requirements introduced.	• **Banks/NBFCs**—strong model governance and control frameworks • **Customers**—reliable AI-driven decision making
Draft PPI Master Directions	• Consolidates existing PPI regulations into a single framework • Defines PPI categories, KYC usage, conditions, and limits • Mandates grievance redressal and nodal officer appointment.	• **PPI Issuers**—higher KYC, governance and compliance obligations • **Merchants**—clarity on PPI acceptance and usage rules • **Partner banks**—strong oversight of PPI programs • **Customer**—enhanced wallet security and grievance redressal protections

Source: RBI[21]



21. https://www.rbi.org.in/Scripts/BS_ViewMasDirections.aspx?id=12896(last accessed on 16 August 2026)
https://www.rbi.org.in/Scripts/BS_ViewMasDirections.aspx?id=13374(last accessed on 16 August 2026)
https://www.ckycindia.in/ckyc/?r=notification(last accessed on 16 August 2026)
https://rbi.org.in/scripts/BS_ViewMasDirections.aspx?id=13502(last accessed on 16 August 2026)
https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=13367&Mode=0(last accessed on 16 August 2026)
https://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=5089(last accessed on 16 August 2026)
https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=4987(last accessed on 16 August 2026)

02

Digital payments ecosystem: Value and volume of transactions

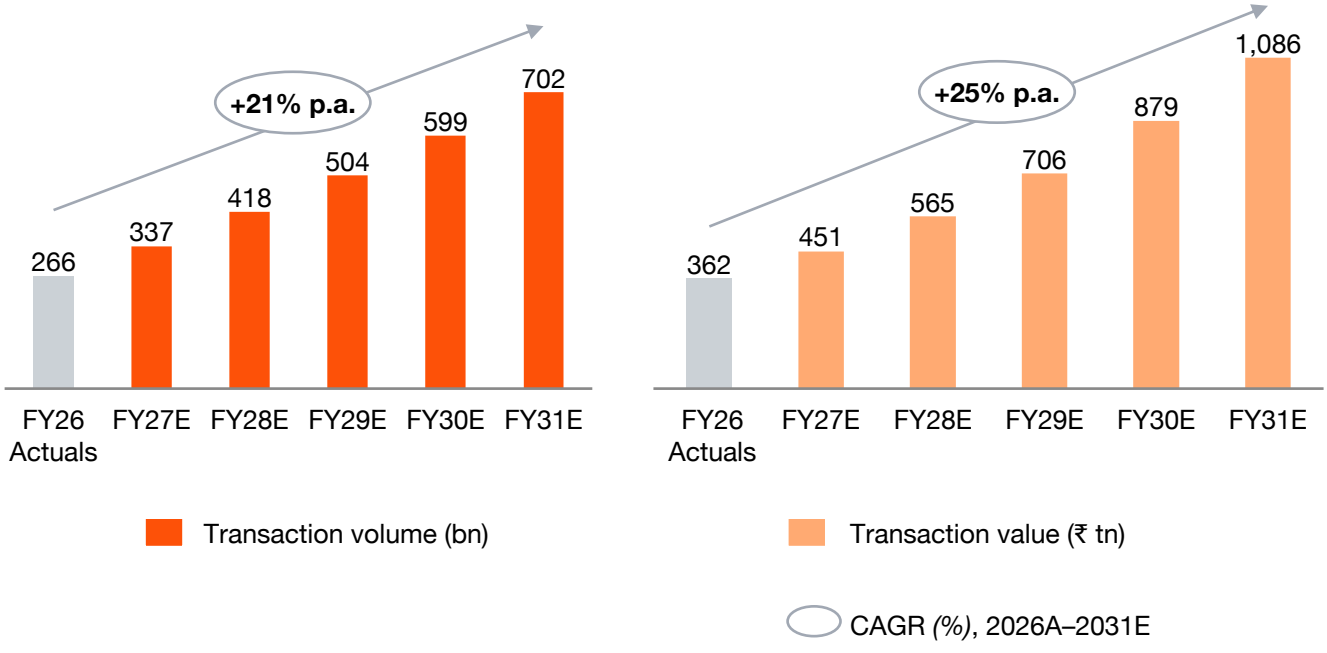
2.1 Future outlook of the top payment instruments in India

The payments landscape has moved considerably since our last edition, and this outlook has been updated to reflect it. In preparing the 2026–31 projections, we evaluated each development of the past year for its likely impact on volumes, values, and revenue pools, rather than extending prior growth rates forward. Specifically, this edition factors in:

1. Forecasts using FY26 actuals and evolving payment-mix shifts, including stronger UPI adoption, rising credit-on-UPI usage, debit-card additional use cases, and substitution and revised trajectories for Bharat Connect and NETC
2. Updated assumptions for structural growth drivers and constraints, including deeper merchant penetration, new payment use cases, cross-border expansion, regulatory changes, fraud and security requirements, and evolving payment economics

By FY31, transactions are projected to increase to approximately **702 billion and over ₹1,085 trillion in volume and value respectively**, **representing more than a 2.5x increase in volume over the next five years**.

Figure 6: Total volume and value of digital payment* transactions (growth outlook)



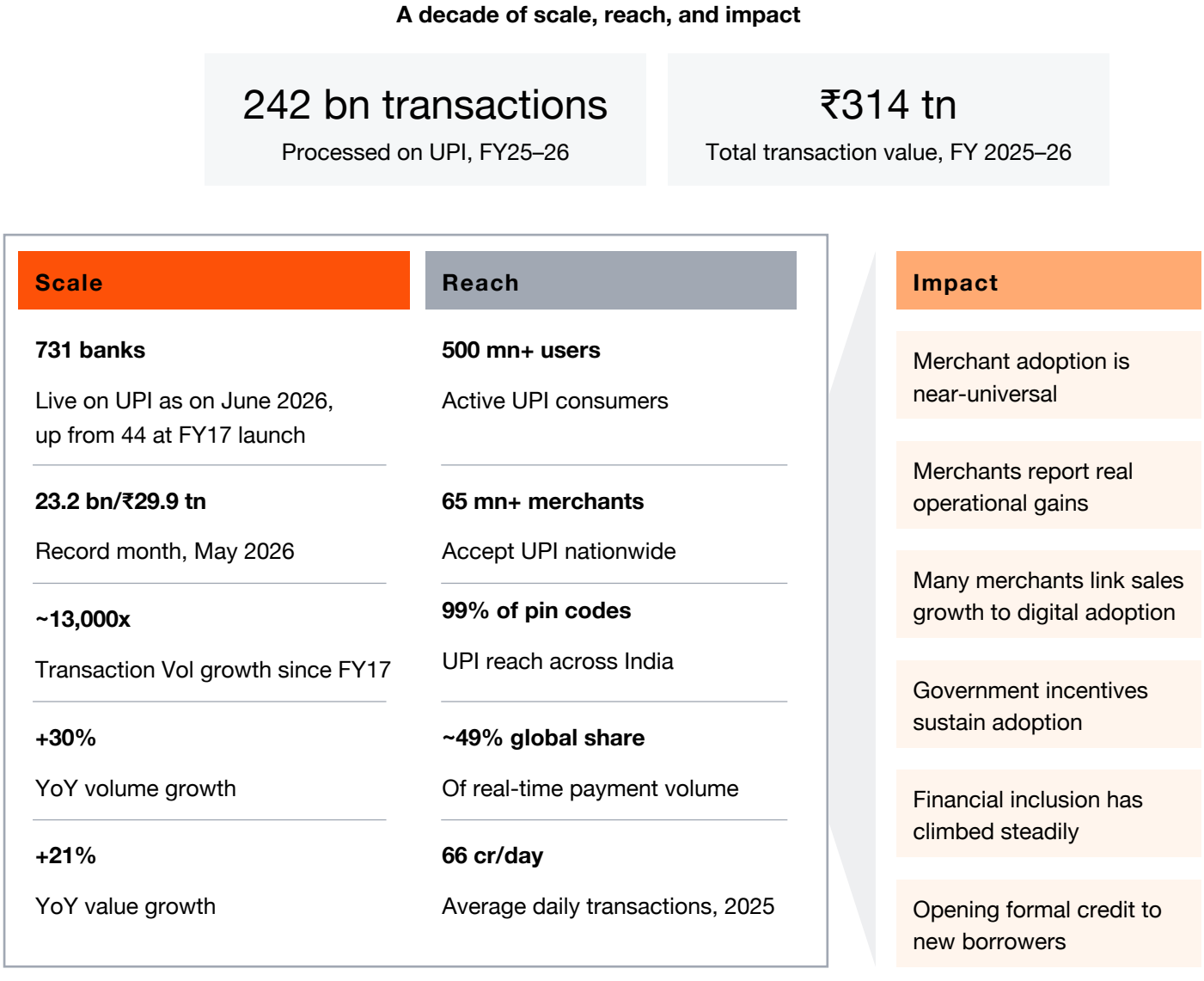
Source: RBI, PwC analysis based on information available online based on information available online

*Includes UPI, credit and debit cards, Bharat Connect, NETC, and PPIs

2.1.1 UPI

UPI processed 241.6 billion transactions worth ₹314.2 trillion in FY 2025–26, reinforcing its position as the backbone of India's retail payments ecosystem. FY26 also marked a decade since UPI's launch on 11 April 2016.[22] The UPI ecosystem also expanded during the year, with the number of live banks increasing from 668 in April 2025 to 731 by June 2026.[23] In May 2026, UPI recorded an all-time high of 23.2 billion transactions valued at ₹29.9 trillion.

Figure 7: UPI in the last decade



Source: PIB, NPCI, PwC analysis based on information available online based on information available online

22. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2257087&reg=3&lang=1 (last accessed on 16 August 2026)
23. https://www.npci.org.in/product/upi/product-statistics (last accessed on 16 August 2026)

Foundations of UPI's scale

Ten years on, UPI's dominance rests on a small set of compounding design choices rather than any single breakthrough:

Table 4: Key tenets for UPI dominance

Federated, bank-agnostic architecture:	Zero-MDR adoption incentive:	Interoperability by design:	Continuous feature layering:	Industry co-investment:
Any bank or licensed non-bank can join the same rail, enabling competition at the app layer.	Zero MDR removed a key barrier to digital payment adoption among small merchants.	A UPI ID works seamlessly across apps and banks, unlike closed-loop wallets.	UPI 2.0, AutoPay, Lite, Circle, credit-on-UPI, and international linkages have all been added onto the same rail.	In May 2026, UPI recorded an all-time high of 23.2 billion transactions valued at ₹29.9 trillion.

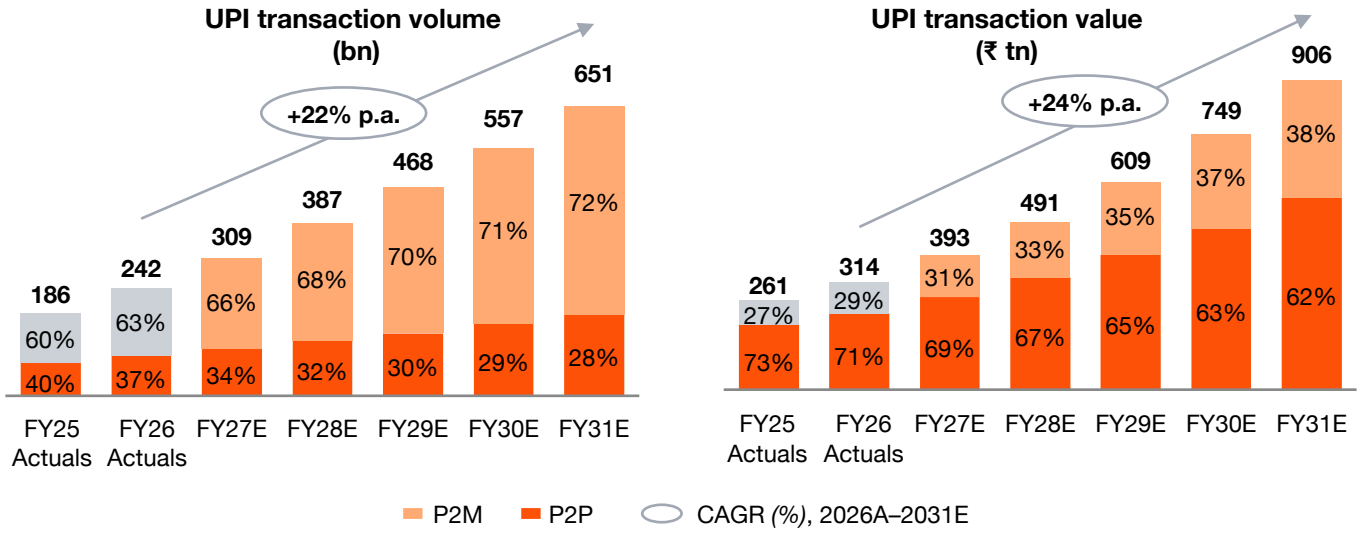
Chief among the above is interoperability which lets any bank-backed app plug into a shared rail. However, the openness which exists at the infrastructure level has not resulted in a similar level of diversity at the application level, since the top ten TPAPs still handle nearly 80% of the nation's transaction volumes, showing that scale is still concentrated among a small number of players.[24]

Growth outlook

Our 2026–31 outlook reflects both continued UPI adoption and a structural shift in the transaction mix, deeper merchant penetration, and expansion into new payment occasions.

- Peer-to-merchant (P2M) transactions may account for 72% of the total UPI volume, reflecting extensive use for high-frequency, low-value retail payments by FY31.
- In transaction value, however, P2P transactions may dominate at 62% by FY31, reflecting their continued use for higher-ticket transfers between individuals.[25]

Figure 8: UPI transaction volume and value growth outlook



Source: NPCI, PwC analysis based on information available online

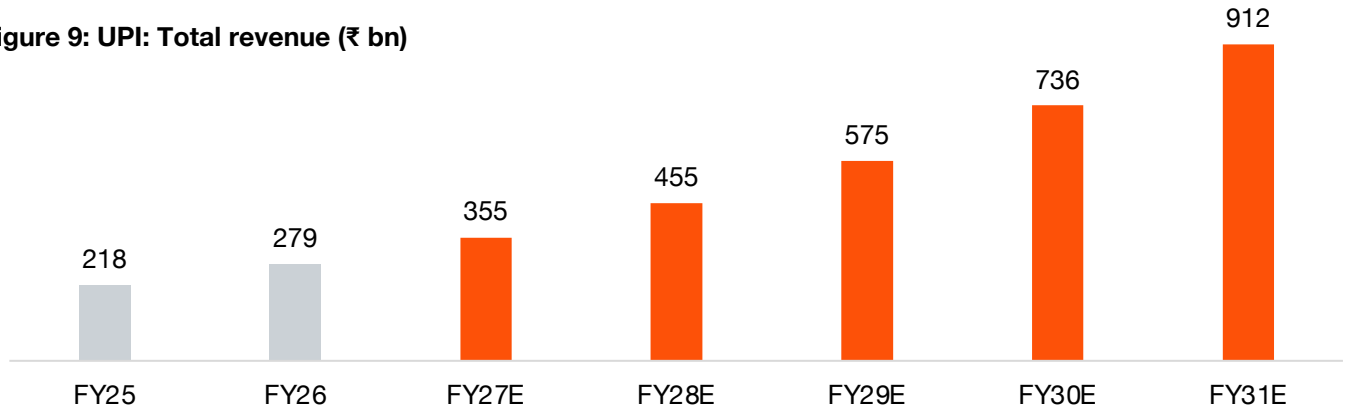
24. https://www.npci.org.in/product/upi/product-statistics (last accessed on 16 August 2026)
25. https://www.npci.org.in/product/ecosystem-statistics/upi (last accessed on 16 August 2026)

Even with UPI aiming to achieve 1 billion transactions in the next few years, its growth is slowing as the ecosystem matures, highlighting the need for innovative use cases to drive the next phase of expansion.

Revenue lines for UPI

- MDR
- Interchange income

Figure 9: UPI: Total revenue (₹ bn)



Source: NPCI, PwC analysis based on information available online based on information available online

Key drivers shaping this growth outlook:

UPI is expected to sustain its growth trajectory through a combination of continued ecosystem expansion, new use cases, and policy support:

- **Ecosystem expansion:** Beyond the bank additions noted above, 20 new TPAP licences were issued in 2024, bringing new entrants. Further, the user base has scaled past 500 million in FY2025–26,[26] up from 390 million in the previous year.
- **Merchant base and terminalisation:** India's current merchant base is 65 million merchants,[27] with deeper QR penetration in unorganised retail.



26. https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154912&ModuleId=3&reg=48&lang=2 (last accessed on 16 August 2026)
27. Ibid.

Table 5: Potential use cases that shall drive growth

UPI Circle:	UPI AutoPay:	UPI for Transit:	UPI ATM:	RuPay credit cards on UPI:	UPI Lite and Lite X:
It will unlock a youth segment of over 250 million potential users (9–18 years) through delegated payments.	It will continue fuelling the subscription economy, namely OTT, SIPs, insurance, and EMIs.	It will expand through NCMC integration into metro and bus payments.	It will scale further as cardless cash withdrawal goes live across major banks.	It will keep scaling, while linkages for other card networks remain pending.	It will keep driving offline and micro-payment adoption, helped by the raising of the balance limit to ₹5,000.

Source: UNICEF,[28] HT,[29] Moneycontrol,[30] PIB,[31] PwC analysis

- **Emerging technology:**
  - NPCI piloted the UPI One World wallet for international delegates attending the India AI Impact Summit, enabling seamless QR-based UPI payments across India without the need for cash or currency exchange.[32]
  - NPCI continues to pilot IoT-based UPI payments for smart devices and is preparing conversational ('Hello UPI') and biometric authentication features, alongside exploring credit lines on UPI.
- **International expansion:** UPI is now live in ten countries (Greece, Singapore, United Arab Emirates, France, Mauritius, Nepal, Bhutan, Qatar, Sri Lanka, and Cambodia).[33] Israel became UPI's eleventh market in February 2026, while integration with Indonesia's Quick Response Code Indonesian Standard (QRIS) payment system is targeted by the end of 2026.[34] RBI and NPCI International are working towards a target of 20 countries by FY28-29.[35]
- **Geographical expansion:** Growth is expected to shift from metro user acquisition to increasing usage and merchant acceptance in populous but underpenetrated states such as Bihar, Madhya Pradesh, and Rajasthan.

These growth drivers are expected to increase transaction volume, reaching a billion transactions a day by FY28.

28. https://www.unicef.org/india/what-we-do/adolescent-development-participation (last accessed on 16 August 2026)
29. https://www.hindustantimes.com/india-news/rbi-increases-upi-lite-wallet-limit-to-5-000-transaction-cap-to-1000-101733321538988.html(last accessed on 16 August 2026)
30. https://www.moneycontrol.com/news/business/personal-finance/how-to-use-your-credit-or-debit-card-to-make-upi-payments-in-india-12995735.html(last accessed on 16 August 2026)
31. https://www.pib.gov.in/FactsheetDetails.aspx?id=150962&NoteId=150962&ModuleId=16&reg=48&lang=1 (last accessed on 16 August 2026)
32. https://www.thehindu.com/business/Industry/npci-extends-upi-one-world-wallet-service-to-visitors-from-40-countries-to-ai-summit/article70639061.ece (last accessed on 16 August 2026)
33. https://www.firstpost.com/business/upi-launches-in-greece-expands-indias-global-digital-payments-network-to-10-countries-14027758.html (last accessed on 16 August 2026)
34. https://fintechnews.id/110259/payments/indonesia-india-qris-upi-payment-linkage/(last accessed on 16 August 2026)
35. https://www.indiatoday.in/business/story/india-israel-sign-mous-to-link-upi-systems-boost-digital-payment-ties-2874935-2026-02-26(last accessed on 16 August 2026)

Upcoming developments in UPI

1. **UPI B2B payments:** EPFO 3.0 will enable members to withdraw up to 75% of their EPF balance via UPI, enhancing quick access to funds for various needs.[36]
2. **AI developments**
   - **AI-powered payments:** NPCI's Finance Model for India (FiMI), an in-house, India-specific language model, now powers the UPI Help Assistant for disputes, mandate management, and grievance redressal. It is live in English, Hindi, Telegu, and Bengali.
   - **Conversational payments**: 'Hello UPI', NPCI's voice-led interface (10 languages), extends UPI to citizens facing language and digital-literacy barriers.[37]
   - **Early agentic commerce pilots:**
     - Initial experiments are now indicating that AI agents could go beyond helping customers and start carrying out transactions on their behalf. Several companies are currently running pilot schemes involving conversational payment processes in which an AI agent is able to make a purchase or start and keep track of a UPI payment during the same interaction.
     - Small-scale pilots mark the earliest instances of machines transacting on behalf of users and indicate a wider change in the payments ecosystem. However, the next stage of payments innovation will depend not only on what AI agents are able to do, but also on the limits within which they are permitted to act.
3. **UPI pricing and MDR restructuring**

In August 2026, the parliament passed a bill to let the government notify which payment modes may carry a charge, bringing UPI pricing and MDR back into active policy discussion. While the bill itself sets no rate, the Finance Ministry has since clarified that consumers and all P2P UPI transfers will remain free.[38] Any MDR under discussion would apply only to P2M transaction above ₹2,000 at large merchants, at a nominal **at a nominal fraction of** the transaction value.[39]

36. https://www.livemint.com/money/personal-finance/epfo-3-0-portal-upgrade-services-what-change-updated-withdrawal-rules-limits-online-access-cites-new-features-explained-11783944988776.html(last accessed on 16 August 2026)
37. https://bfsi.economictimes.indiatimes.com/articles/npci-unveils-fimi-indias-first-ai-language-model-tailored-for-payments/128455754 (last accessed on 16 August 2026)
38. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2296594&reg=48&lang=1 (last accessed on 16 August 2026)
39. https://economictimes.indiatimes.com/industry/banking/finance/upi-mdr-explained-what-potential-charges-above-rs-2000-on-paytm-gpay-other-payment-apps-mean-for-you-and-merchants/articleshow/132903354.cms?from=mdr (last accessed on 16 August 2026)

Table 6: Potential impact on stakeholders:

Stakeholder	Likely impact
Consumers	Continue to enjoy free UPI payments as there is no impact of MDR on end customers
Small merchants	Remain exempt from MDR, preserving low-cost digital payment acceptance
Large merchants*	May face a proposed MDR above ₹2,000
Banks and TSPs (PSP/TPAP apps)	Gain a sustainable revenue stream for running and maintaining the infrastructure powering UPI payments

*Merchants with an annual turnover of more than ₹1.5 crore[40]

UPI's first decade proved it could scale. Its second will test whether it can keep growing while its economics stay solvent. With MDR likely to be introduced, the question is no longer whether charges return but how, the pace, the threshold, and the type of transactions the tiered structure touches. Beyond pricing, UPI's transaction history is becoming its own asset, powering more granular credit underwriting and expanding lending to thin-file borrowers. 2026-31 is the period UPI stops being free by default and becomes both a choice and a data source.

Survey responses:

Industry leaders view **cross-border payment corridor remittances and merchant transactions (31%) and credit-led UPI propositions such as revolving credit, EMI financing, and buy now pay later (BNPL) solutions (23%)** as key drivers in the next phase of UPI growth and user adoption.



40. https://www.newindianexpress.com/business/2026/Aug/16/upi-mdr-benefits-will-depend-on-merchant-mix-transaction-value (last accessed on 16 August 2026)

2..1.2. Credit cards

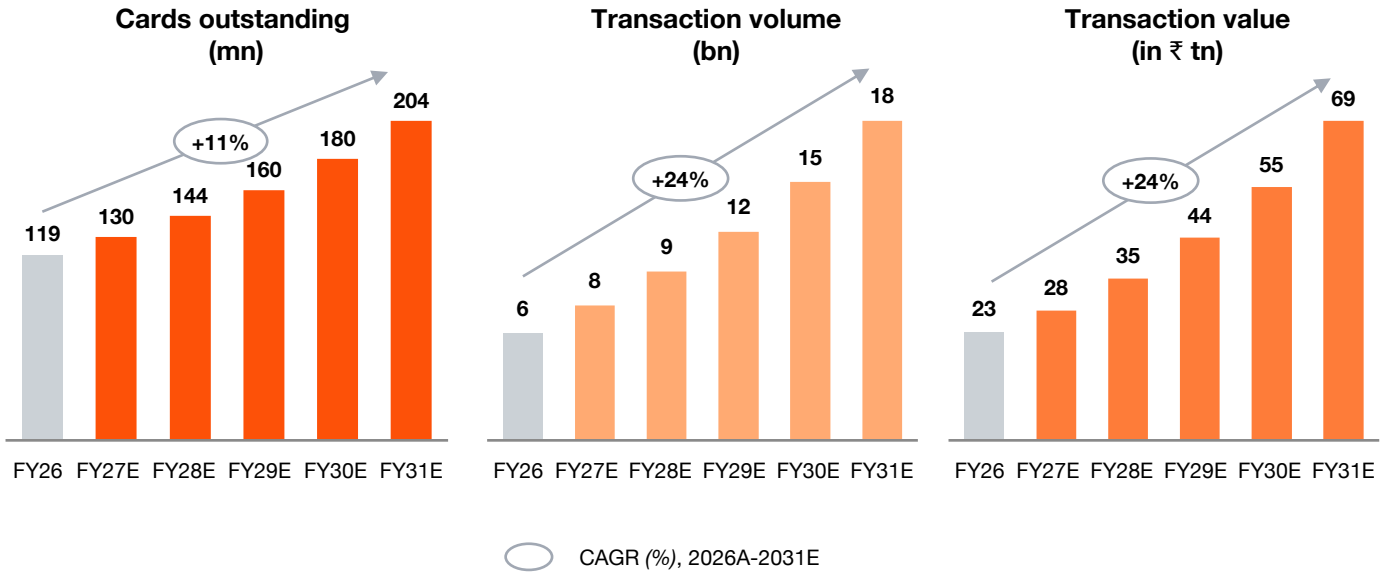
India's credit card market continues to exhibit strong growth, underpinned by rising consumption, deeper digital adoption, and evolving product innovation. Private sector banks remain the dominant issuers, with eight of the top ten players belonging to this segment.

Figure 10: Credit cards—key figures

~70%	75–77%	~118.6 million
Share of cards outstanding held by the top four issuers as of March 2026	Share of transaction volume and value held by the top four issuers	Credit cards outstanding as of March 2026

Source: RBI, PwC analysis based on information available online based on information available online

Figure 11: Credit cards: Outstanding, volume, and value



Source: RBI; PwC analysis based on information available online

Growth outlook

Over the past few years, the industry has sustained robust growth across key metrics:

- Building on a base of ~118.6 million cards in FY26, the number of outstanding credit cards is projected to reach ~204 million by FY31, implying a steady growth trajectory at a CAGR of ~11%. Growth is expected to be further augmented by regulatory evolution, particularly if NBFCs are permitted to issue credit cards independently. Such a shift would reduce reliance on bank partnerships, enhance speed-to-market, and enable issuers to monetise their captive customer bases more effectively, potentially expanding overall market penetration by an incremental 10–15%.
- Transaction behaviour is witnessing a more pronounced transformation. Credit card transaction volumes are expected to grow from ~6.0 billion in FY26 to ~17.9 billion by FY31, reflecting a strong CAGR of ~24%, while transaction values are projected to increase from ~₹ 23 trillion to ~₹ 69 trillion over the same period (~24% CAGR).
- This growth is driven less by ticket size expansion and more by increasing frequency of usage. The average number of transactions per card is expected to rise significantly from ~51 transactions annually in FY26 to ~88 by FY31, while annual spending per card is projected to grow from ~₹ 198,000 to ~₹ 338,000.

Behavioural shifts

A notable trend shaping these dynamics is the gradual decline and subsequent stabilisation of average ticket size (ATS), which is expected to reduce from ~₹ 3,899 in FY26 to ~₹ 3,700 in the near term before stabilising at ~₹ 3,850 by FY31.

This trend reflects a structural shift toward lower-value, high-frequency transactions, driven primarily by the increasing adoption of UPI-linked RuPay credit cards. RuPay credit cards now account for ~18% of the overall base and contribute ~40% of new issuances, highlighting their growing relevance. The integration with UPI has significantly enhanced acceptance and usage, particularly for everyday transactions, albeit at lower ticket sizes.

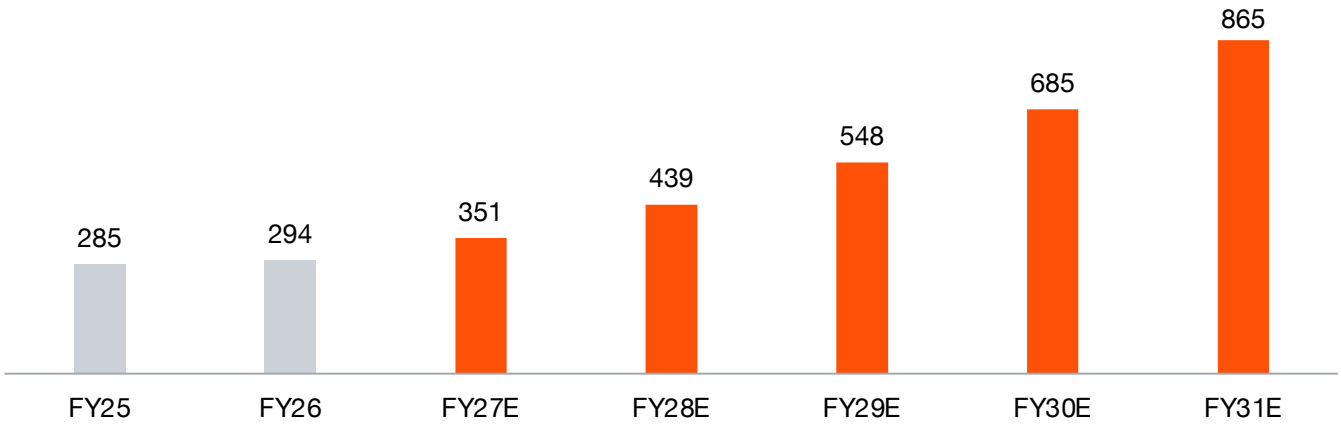
Channel dynamics are also evolving, with e-commerce continuing to gain prominence. E-commerce now accounts for ~50–65% of total transaction volumes and values, supported by the proliferation of digital commerce and co-branded credit card offerings. At the same time, point-of-sale (POS) transactions remain resilient, contributing meaningfully to overall growth. The shift toward digital channels has reinforced the trend of higher transaction frequency, even as ticket sizes moderate.

Looking ahead, the Indian credit card ecosystem is poised for sustained expansion, with growth increasingly driven by behavioural shifts rather than mere base expansion. Innovations such as RuPay-UPI linkage, the potential entry of NBFC issuers, and continued digital commerce adoption are expected to further deepen market penetration. However, maintaining asset quality, managing risk amid rapid growth, and balancing profitability with customer acquisition will remain critical priorities for issuers as the market matures.

Revenue lines for credit cards

- Interest income
- Interchange income
- Fees and charges
- Partnership and ancillary income

Figure 12: Credit card revenue (₹ bn)



Source: PwC analysis based on information available online

Trends in the credit card market

1. Economic growth

Overview

India's sustained economic growth—underpinned by improving geopolitical stability, strong domestic consumption, and ongoing formalisation—is expected to significantly expand purchasing power across both urban and emerging segments. A more stable global environment is likely to revive investment flows and trade, further strengthening income growth and credit demand, thereby accelerating credit card adoption, usage, and spend across geographies.

Key drivers and impact

- Expected geopolitical stability—boosts global trade, investment flows, and economic confidence
- Rising incomes—higher discretionary spends (travel, lifestyle, electronics)
- Formalisation (GST, digital trails)—enables new-to-credit underwriting
- Tier-2/3 growth—expands card penetration beyond metros
- Drives: Broader adoption, higher lifestyle usage, increase in ticket sizes

2. RuPay credit cards on UPI

Overview

RuPay credit cards on UPI are structurally expanding credit card acceptance by leveraging UPI's ubiquitous QR infrastructure. This enables credit usage for low-value, high-frequency transactions, effectively embedding credit cards into everyday payments and accelerating usage among digitally active consumers.

Key drivers and impact

- UPI merchant base—instant acceptance expansion without POS
- Shift to micro-credit—cards used for daily spends (grocery, local retail)
- Rewards on UPI—incentivises migration from savings/debit to credit
- Drives: Higher adoption, surge in transactions, volume-led spend growth

3. Higher transactions per card

Overview

Issuers are increasingly focused on maximising wallet share from existing customers by driving higher transaction frequency per card. This is supported by spend-based incentives, rationalised benefits, and seamless digital integrations, shifting growth from card acquisition to deeper engagement.

Key drivers and impact

- Spend thresholds—push higher card utilisation
- Benefit rationalisation—usage-linked privileges
- Tokenisation and card-on-file—increase repeat digital transactions
- Drives: Limited new adoption, higher usage frequency, increased per-card spend

4. Banks targeting the 'right customers'

Overview

Banks are refining customer acquisition strategies to prioritise high-quality, high-value segments using data-driven underwriting. This shift aims to optimise profitability and reduce credit risk while increasing lifecycle value through better targeting and cross-selling amid tighter RBI norms discouraging aggressive acquisition and low-quality sourcing.

Key drivers and impact

- Alternative data (UPI, GST, bureau)—sharper underwriting
- Existing customer base—pre-approved, cross-sell opportunities
- Focus on affluent segments—higher spend, lower delinquency
- RBI guidelines—reduced aggressive acquisition, limited FinTech/co-branded shortcuts, inactive-card cleanup, focus on compliant, activated, lower-risk cards (cards outstanding still growing)
- Drives: Selective adoption, stronger engagement, higher per-card spend

5. Emergence of new credit card issuers

Overview

Credit card issuance is expected to broaden as eligible NBFCs increasingly pursue card partnerships or direct issuance opportunities, while public sector undertaking (PSU) banks and small finance banks (SFBs) strengthen their card businesses to improve customer engagement and diversify revenue. Leveraging large customer bases, regional reach, and access to underserved segments, these issuers could help expand credit card penetration beyond traditional urban and affluent markets.

Key drivers and impact

- Growing focus on underpenetrated and new-to-credit segments
- Strong branch-led and ecosystem-based distribution reach
- Expansion of issuer base beyond leading private banks
- Greater use of customer transaction and relationship data in underwriting
- Drives: Higher card penetration and spend growth across emerging customer segments

6. Corporate, co-branded, and FD-linked secured credit cards

Overview

Credit card growth is increasingly driven by specialised propositions that address business payments, ecosystem-led customer acquisition, and credit inclusion. Corporate cards support expense digitisation and working capital management; co-branded cards drive engagement through partner ecosystems; and FD-linked secured cards expand access to formal credit for underserved segments.

Key drivers and impact

- Business payment digitisation: Corporate cards replacing cash-based expenses, supported by SME formalisation and digital accounting adoption
- ERP integration and virtual cards: Automated reconciliation, spend controls, and secure vendor/procurement payments improving operational efficiency.
- Co-branded ecosystem partnerships: E-commerce, travel, retail, fuel, and FinTech alliances accelerating customer acquisition and card usage
- Rewards-led engagement: Personalised benefits and loyalty programmes driving higher spend, retention, and customer lifetime value
- FD-linked secured cards: Enabling new-to-credit customers to access formal credit and build credit history with lower issuer risk
- Drives: Expanded card penetration, broader customer reach, higher transaction volumes, and increased spend per active card across consumer and business segments.

Market insights:

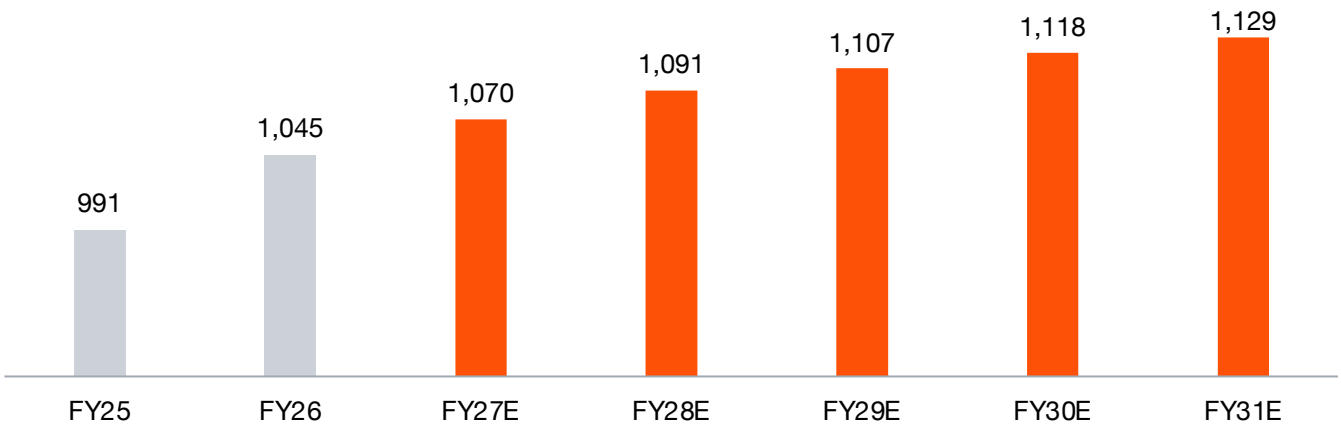
- **27% of industry leaders** see credit cards becoming increasingly embedded within digital ecosystems, with payments seamlessly integrated into customer journeys.
- **23% of leaders** identify co-branded credit card offerings as a key avenue for future growth, supported by ecosystem-led distribution and differentiated value propositions.
- **19% of industry leaders** believe the next phase of innovation in credit cards will be driven by virtual cards and agentic AI-powered payments.
- The RBI's proposed interoperable card ecosystem will reshape competitive dynamics, driving greater competition among issuers, card networks, and FinTechs while placing pressure on traditional revenue models.

2.1.3 Debit cards

India's debit card market continues to reflect a structural shift in consumer payment preferences, with usage steadily declining despite a growing card base. The number of debit cards in circulation has continued to increase modestly, reaching over 1.04 billion in FY26 and projected to grow to ~1.13 billion by FY31 at a low single-digit CAGR of ~1–2%. This growth is largely driven by the issuance of debit cards linked to **new savings and current accounts**, which remain a key source of low-cost deposits for banks. Consequently, while issuance remains resilient, **debit cards** are increasingly becoming a **passive instrument** in the payments ecosystem.

Despite the concentration of large banks, all major issuers have witnessed a sustained decline in transaction volumes over recent years, reflecting a systemic shift away from debit card usage.

Figure 13: Number of debit cards outstanding (in mn)



Source: RBI, PwC analysis based on information available online

Figure 14: Debit card key figures

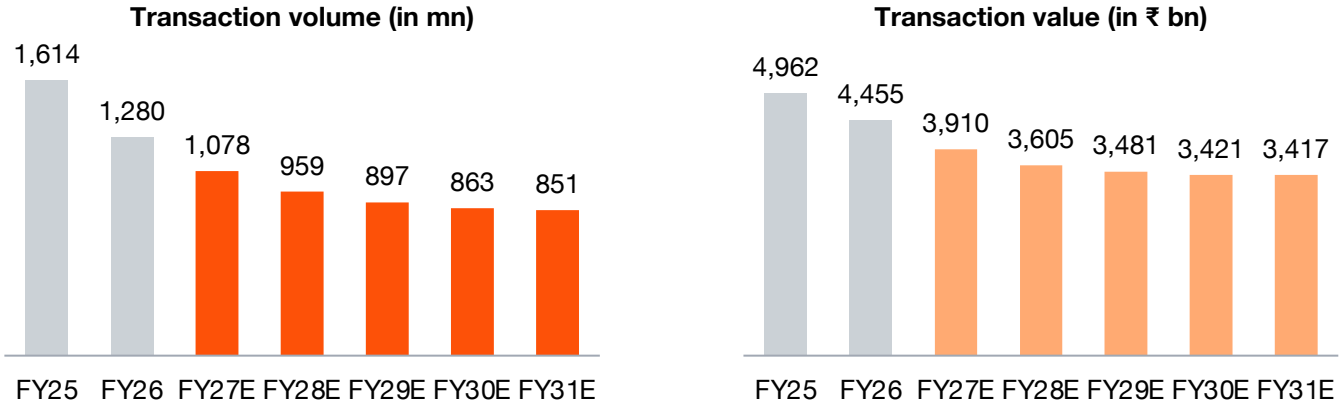
~66%	~60% of volumes	~68% of value
Top ten issuers	Top five banks	Top five banks

Source: RBI, PwC analysis based on information available online

Transaction behaviour has deteriorated sharply, driven primarily by the rapid adoption of alternative payment instruments such as UPI and credit cards.

- Over the past three years, debit card transaction volumes have declined at a CAGR of ~26–28%, and this trend is expected to persist, with volumes projected to fall further from ~1.28 billion in FY26 to ~0.85 billion by FY31, implying a continued annual decline.
- Similarly, transaction values are expected to decline from ~₹ 4.5 trillion to ~₹ 3.4 trillion over the same period, albeit at a slower pace, indicating a shift toward relatively higher-value transactions.
- This divergence between volume and value is reflected in the consistent increase in average ticket size (ATS), which has risen from ~₹ 1,647 in FY21 to ~₹ 3,480 in FY26 and is projected to reach ~₹ 4,000 by FY31, growing at a CAGR of ~2–4% in the forecast period.
- The rise in ATS is indicative of debit cards being increasingly used for higher-value, necessity-driven transactions, while lower-value, high-frequency payments have largely migrated to UPI.
- Correspondingly, the average number of transactions per card has declined significantly from ~4.5 in FY21 to ~1.2 in FY26 and is expected to fall further to ~0.8 by FY30–31. Annual spending per card has also reduced from ~₹ 4,200 levels in FY26 to ~₹ 3,000 by FY31.

Figure 15: Debit card transaction volume and value



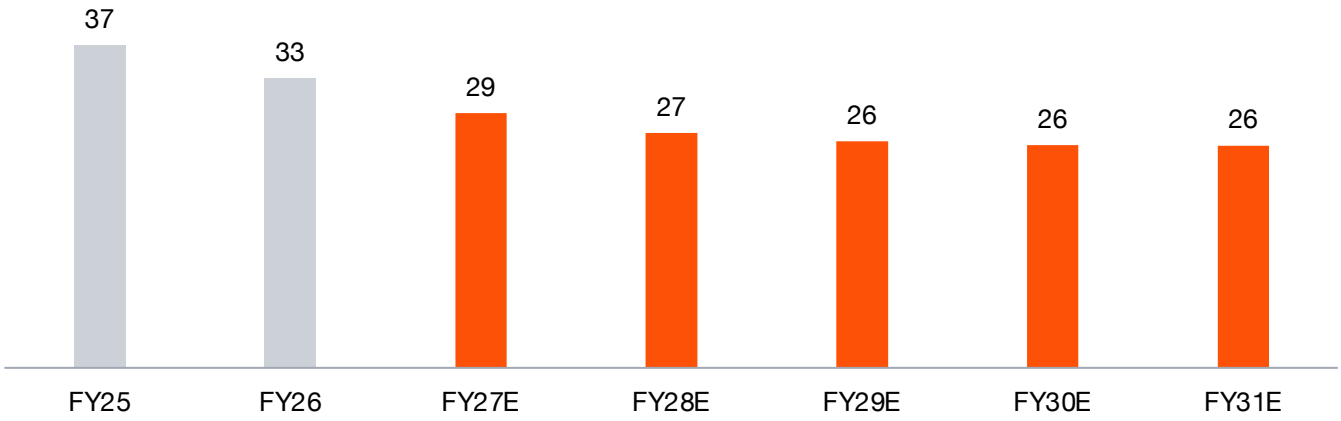
Source: RBI, PwC analysis based on information available online

From a strategic standpoint, this evolution underscores a broader repositioning of debit cards within the payments ecosystem, from a primary transaction instrument to a secondary, support-oriented product.

Revenue lines for debit cards

- Interchange income
- Card fees
- ATM and service charges
- Partnership and ancillary income

Figure 16: Debit card revenue (₹ bn)



Source: PwC analysis based on information available online

Key trends shaping this outlook:

1. Rapid growth of UPI displacing debit cards

Overview

UPI has emerged as the dominant retail payment rail in India, driven by zero MDR, seamless UX, and near-universal merchant acceptance. It is structurally replacing debit cards for low-value transactions. As UPI expands into credit, autopay, and recurring use cases, debit cards may be considered as secondary or backup instruments, particularly in urban and digitally mature segments.

Key drivers and impact

- Zero UPI MDR—strong merchant preference vs card acceptance
- Superior UX—QR-based, mobile-first, no need for card details
- Expansion of UPI use cases—credit-on-UPI, mandates, subscriptions
- Government/NPCI push—rapid scale and adoption
- Drives: Decline in debit card transaction volumes, limited relevance in mass retail payments

2. Debit cards for ATM withdrawal being replaced by UPI

Overview

UPI-enabled cardless cash withdrawals are reducing dependence on debit cards for ATM access. With interoperable cardless cash withdrawal (ICCW) gaining traction, the traditional role of debit cards as a cash access tool is weakening.

Key drivers and impact

- UPI-based cardless withdrawal—eliminates need for physical cards
- ICCW rollout—cross-bank interoperability
- Declining ATM usage—shift toward digital payments
- Mobile-first behaviour—app-based authentication preferred
- Drives: Slow decline in debit card usage for ATM transactions, erosion of core utility

3. Online and behavioural preferences (security + credit aversion)

Overview

Debit cards continue to see usage in specific customer segments driven by security considerations and behavioural preferences. Users often prefer debit cards for online transactions to limit risk exposure or avoid the repayment discipline associated with credit cards, particularly among conservative or new-to-credit users.

Key drivers and impact

- Security concerns—avoid exposing credit card details online
- Tokenisation and 2FA—safer debit card usage
- Credit aversion—preference for pay now vs pay later
- Low credit penetration—reliance in semi-urban/rural segments
- Drives: Stable but narrow usage in e-commerce and conservative customer cohorts

4. Use in higher ATS transactions

Overview

Debit cards retain relevance for higher-value transactions where consumers prefer direct account debit or face UPI transaction limits. They are commonly used in categories requiring larger payment sizes and higher trust, such as travel, electronics, and organised retail.

Key drivers and impact

- UPI limits—constraint on large-value transactions
- POS infrastructure—continued merchant acceptance
- Consumer preference—direct debit for high-value spends
- Drives: Relatively higher share of transaction value despite declining volumes

5. Rise of virtual (digital) debit cards

Overview

Virtual debit cards are becoming the default form factor as banks digitise issuance and reduce costs. They support instant onboarding, enhance security through tokenisation, and align with India's mobile-first banking ecosystem.

Key drivers and impact

- Cost optimisation—no physical issuance/logistics
- Instant issuance—real-time availability post account opening
- Tokenisation—improved online transaction security
- Drives: Continued growth in issuance; shift away from physical plastic cards

6. Use of debit cards for international transactions

Overview

Debit cards maintain relevance for international transactions, especially among users without credit cards or those preferring controlled spending. Rising outbound travel and cross-border e-commerce are sustaining this niche use case.

Key drivers and impact

- Growth in international travel—increased forex usage
- Cross-border e-commerce—rising global transactions
- Forex-enabled debit products—ease of usage abroad
- Drives: Sustained use in the niche, high-value transaction segment

7. Debit card requirement for UPI activation and net banking/mobile banking

Overview

While debit card usage for payments has steadily declined due to the rapid adoption of UPI, they continue to serve as a critical authentication instrument within the digital banking ecosystem. For many banks, debit card credentials remain the primary method for activating UPI, setting or resetting UPI PINs, registering for mobile banking, and onboarding customers to net banking services. As a result, debit card issuance continues to grow even as transaction volumes and spends on cards stagnate or decline.

Key drivers and impact

- Bank account prerequisite for UPI—drives account-linked card issuance
- Default debit card issuance—bundled with most savings accounts
- Mandatory for UPI PIN setup—critical onboarding enabler
- Financial inclusion—large base of first-time banking users
- Drives: Sustained growth in debit card issuance, decoupled from transaction usage

8. RBI regulatory changes (2025 Directions)

Overview

RBI's 2025 guidelines have reduced friction in debit card issuance and enabled innovation across form factors. The framework supports virtual cards, wearables, and co-branded products while strengthening consumer protection and transparency, thereby improving trust and enabling product innovation.

Key drivers and impact

- Removal of approval requirements—faster issuance and product launches
- Support for alternate form factors—wearables, tokenised cards
- Enhanced consumer protection—transparency and dispute resolution
- Drives: Innovation-led growth in niche segments and improved consumer confidence

9. Declining relevance of debit cards for ATM cash withdrawals

Overview

ATM cash withdrawals using debit cards are showing a gradual softening in both value and volume, reflecting the broader shift towards digital payments and emerging cardless cash access options. While debit cards have traditionally been central to ATM usage, their role is becoming relatively less prominent as consumers slowly reduce reliance on cash and adopt UPI-based alternatives.

- Gradual decline in ATM usage: Withdrawal volumes have reduced meaningfully (~11% over March 2023 to March 2026), with steady YoY softening, while value decline has been more moderate, suggesting fewer but relatively higher-value transactions.
- Broad-based moderation across banks: Most large banks are seeing consistent declines, indicating an industry-wide shift rather than bank-specific trends.
- Growing preference for digital payments: Increasing adoption of UPI and other digital modes is gradually reducing reliance on cash withdrawals, especially in urban and semi-urban markets.

2.1.4 NETC

The NETC system has established itself as the backbone of digital toll collection in India, with electronic toll collection accounting for about 98% of total fee collection.[41] With adoption now firmly in place, the focus is shifting towards enhancing the customer experience through barrier-less tolling and continued infrastructure upgrades that make highway travel faster and more seamless.

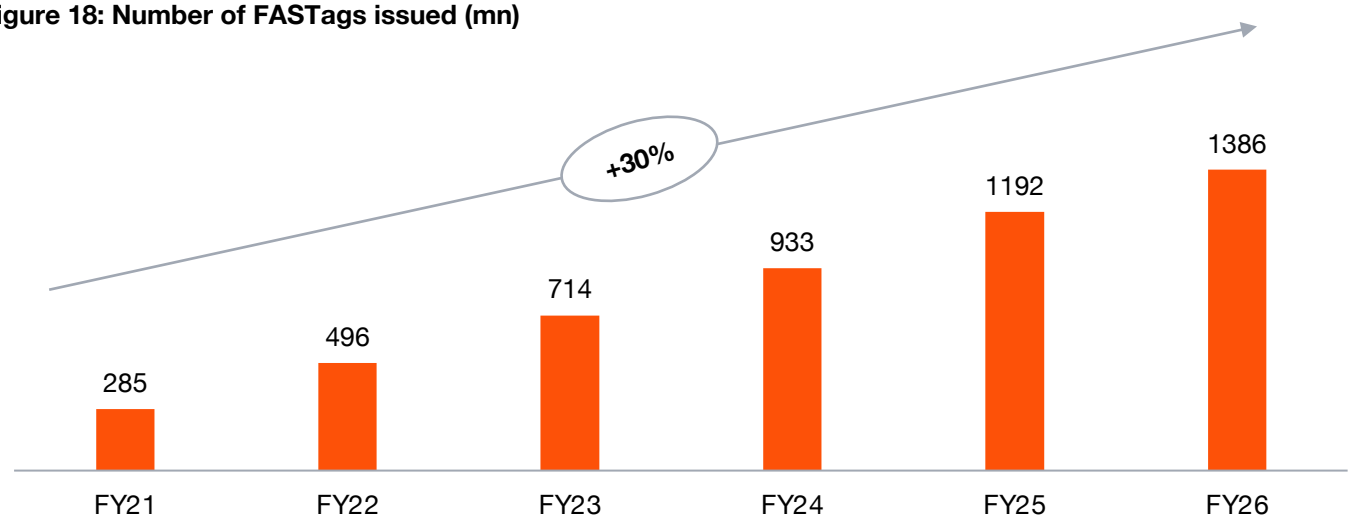
Figure 17: NETC Key figures

11	41	1852+
Live acquirer banks	Live issuing banks	Toll plazas accepting FASTag

Source: NPCI, NHAI

As reported by NPCI, the number of toll plazas accepting FASTag has grown to 1,852,[42] alongside continued expansion of the national highway network to 146,560 km.[43] A total of 1.38 billion FASTags have been issued across banks and non-bank issuers, with the number of tags issued increasing 16% over the year.[44] The average daily collection via FASTag on the national highway fee plaza is around ~2.27 billion as reported by NPCI, and the same numbers are also reported by the Indian Highways Management Company Limited (IHMCL).

Figure 18: Number of FASTags issued (mn)

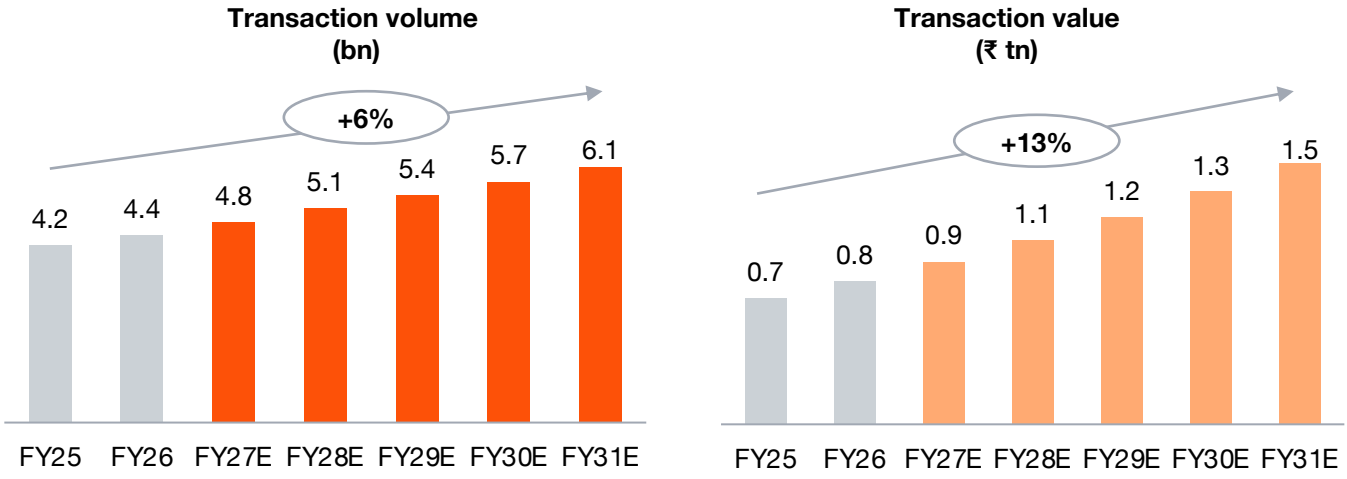


Source: RBI, NPCI, PwC analysis based on information available online

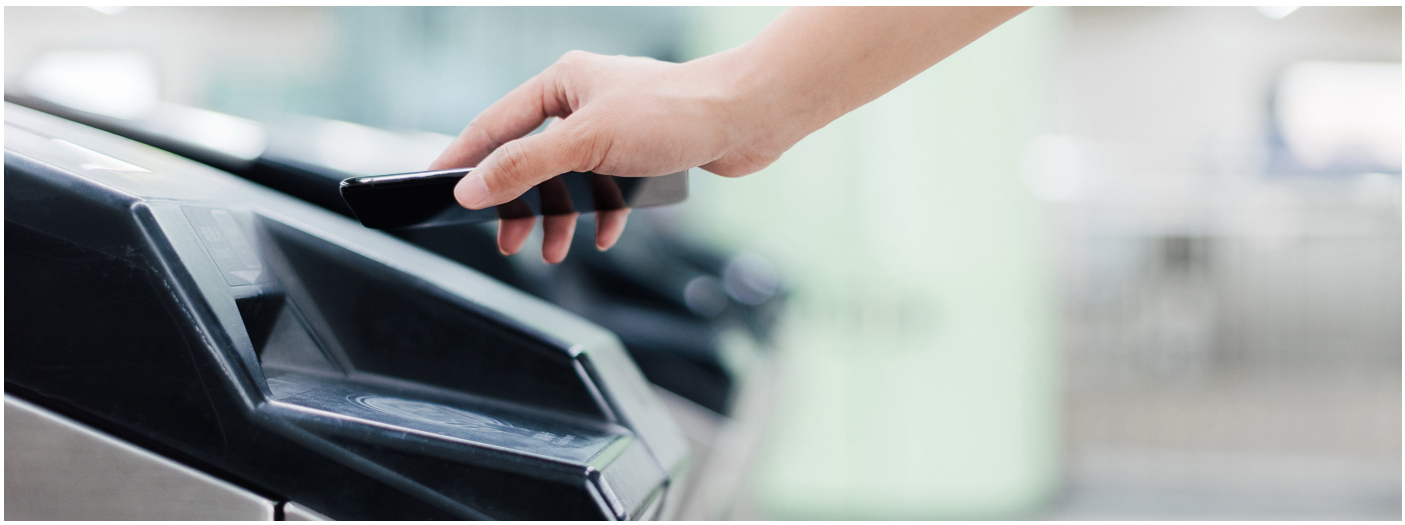
41. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2220128&reg=48&lang=2 (last accessed on 16 August 2026)
42.https://ihmcl.co.in/etc-transaction-reports/# (last accessed on 16 August 2026)
43. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2209837&reg=3&lang=2 (last accessed on 16 August 2026)
44. https://www.npci.org.in/product/netc/product-statistics (last accessed on 16 August 2026)

NETC transaction volume and value grew by 6% and 14% respectively, reaching 4.4 billion transactions and ₹ 0.8 trillion in FY26, with average ticket size rising from ₹173 to ₹ 186. Volume growth has moderated as a result of the rising uptake of annual passes. Over 4.2 million passes have been activated, facilitating more than 0.2 billion transactions[45] alongside EV toll exemptions and subsidies, the expansion of dedicated rail freight corridors, government efforts to bring logistics costs down to around 9%,[46] and the impact of geopolitical tensions and fuel price hikes on freight movement. Value growth, by contrast, has been supported by higher fuel consumption, with diesel sales in FY26 increasing 16.2% over FY25,[47] lifting the per-trip toll value even as trip frequency softens.

Figure 19: NETC transactions volume and value



Source: NPCI, RBI, PwC analysis



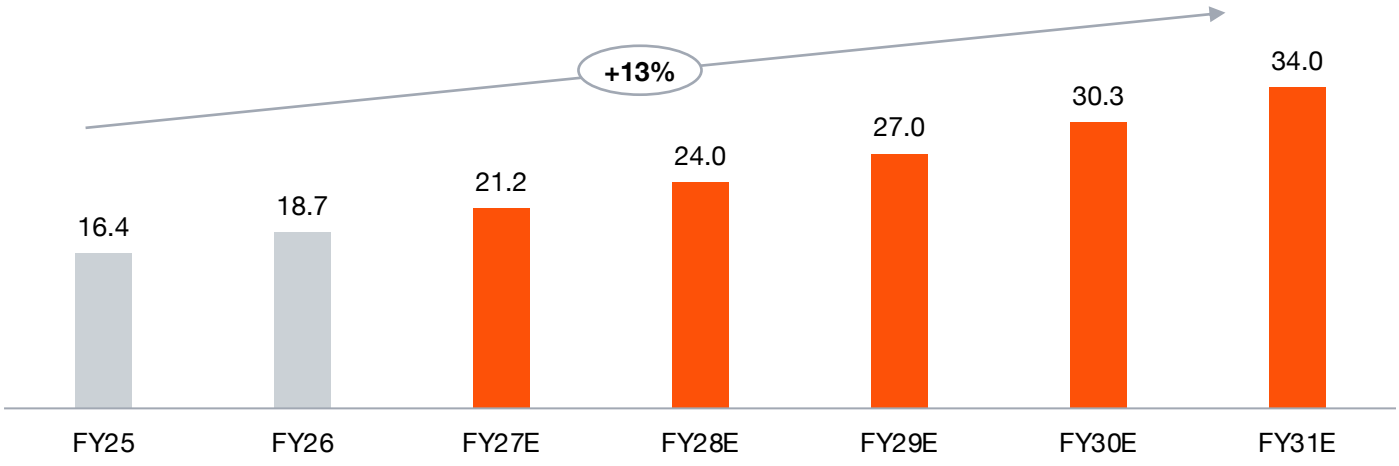
45. https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=2220128&reg=3&lang=2 (last accessed on 16 August 2026)
46. https://economictimes.indiatimes.com/small-biz/trade/exports/logistics/indias-logistics-costs-have-come-down-to-9-says-nitin-gadkari/articleshow/125890316.cms?from=mdr (last accessed on 16 August 2026)
47. https://ppac.gov.in/consumption/products-wise (last accessed on 16 August 2026)

Over the next five years, NETC transaction volume is expected to grow at a CAGR of approximately 6%, reaching 6.1 billion transactions by FY31. On the other hand, transaction value is projected to grow faster at 13% to reach ₹1.5 trillion, with ATS rising to ₹249. Value growth will continue to be driven by regular NHAI toll rate hikes of ₹5–15,[48] the zero-cash tolling regime that raises charges for non-FASTag users, and the gradual expansion of national highways and high-speed corridors. Supporting trends include four-wheeler vehicle sales growth of 8.8% YoY along with a 15.6% rise in registered vehicles in FY26[49] and toll collections growing ~16% YoY during January–September 2025 on the back of a 12% increase in traffic volume.[50] E-way bill generation grew by 19.5% in FY26,[51] signalling higher freight movement and indicating sustained growth in highway traffic and continued FASTag expansion.

Revenue lines for NETC (FASTag)

- Tag issuance
- MDR
- Float income

Figure 20: NETC revenue (₹ bn)



Source: NPCI, RBI, PwC analysis

48. https://timesofindia.indiatimes.com/city/bengaluru/national-highway-toll-up-pay-rs-5-15-more-on-swift-drives-from-april-1/articleshow/129910300.cms (last accessed on 16 August 2026)
49. https://www.siam.in/news-&-updates/press-releases/auto-industry-performance-of-q4-jan--march-2026-fy-2025-26/605 (last accessed on 16 August 2026)
50. https://infra.economictimes.indiatimes.com/news/roads-highways/indias-highway-toll-revenue-jumps-16-in-2025-on-robust-freight-traffic-fee-revisions/124874627(last accessed on 16 August 2026)
51. https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf (last accessed on 16 August 2026)

The shift towards free-flow tolling

The shift to barrier-less Multi-Lane Free Flow (MLFF) tolling is the most significant structural evolution supported by steady expansion of the highway networks. The first MLFF plaza was launched at Choriyasi (NH-48, Gujarat), followed by Delhi (UER-II: Mundka–Bakkarwala corridor), with IHMCL planning rollout to 200 plazas by FY27.[52] The system removes physical toll barriers, enabling seamless passage while Automatic Number Plate Recognition (ANPR) cameras and FASTag systems automatically deduct tolls. The government has awarded MLFF projects at 16 toll plazas across India. According to the Economic Survey 2025-26, MLFF is planned to be implemented on all four-lane-and-above highways and expressways by FY29.[53]

By integrating FASTag with ANPR, MLFF reinforces FASTag as the core tolling backbone even as distance-based pricing evolves. Continuous vehicle flow is expected to cut emissions at toll points by ~81,000 tonnes annually and deliver ₹60–70 billion in savings through reduced manpower and maintenance, strengthening the long-term economic case for nationwide adoption.[54]

Beyond tolling: The next layer of relevance

FASTag's use beyond tolling remains limited and is led largely by parking at malls, airports, metro stations, and large public events, with fuel and EV charging payments progressing more gradually. The more substantial opportunity lies in extending the FASTag credential to two-wheelers, which dominate the traffic on state highways, district, and urban roads, where parking and fuel, rather than tolling, are the relevant payment occasions. However, these remain outside the current base built around four-wheeler and commercial categories. Enabling two-wheeler tags for parking and fuel payments represents a significant opportunity to scale both the user base and the transaction footprint of the rail.

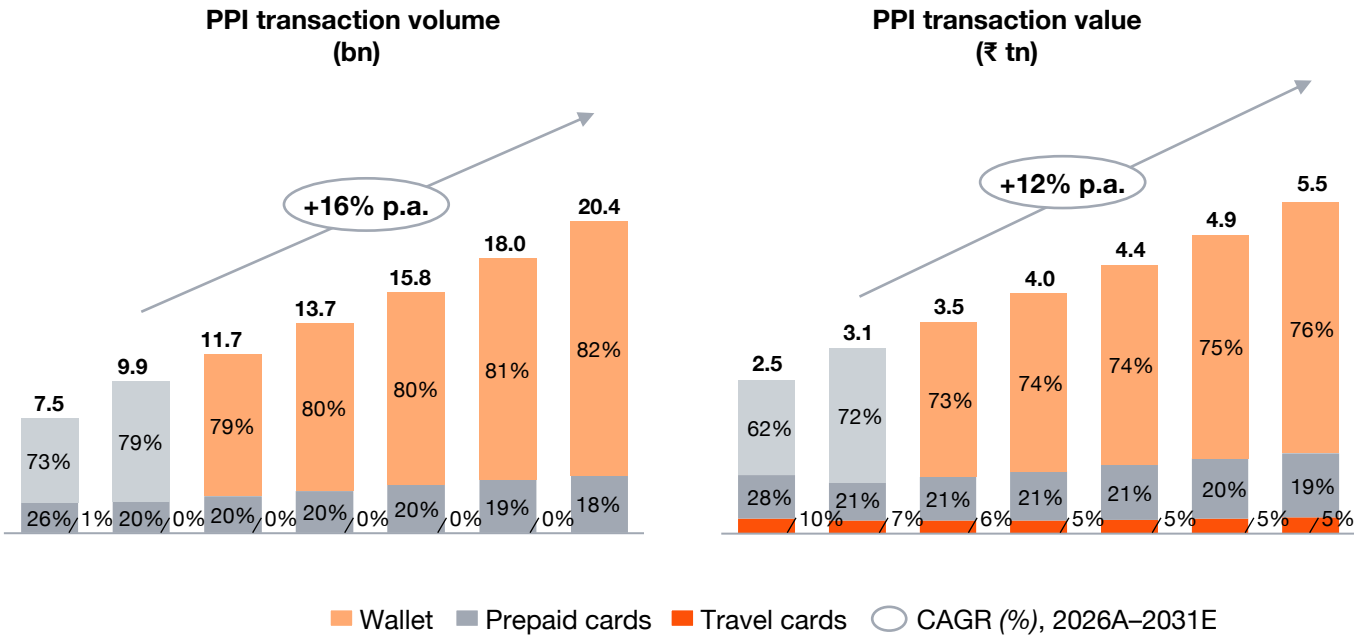
2.1.5 PPIs

PPIs rebounded strongly in FY25–26 after the FY24-25 downturn, with combined transaction volume growing 40% and value growing 28% year-on-year.

- This rebound was led by wallets which grew 49% in volume and 45% in value, while prepaid cards grew steadily by 16% in volume and travel/forex cards contracted further by 3.5% in volume and 10.3% in value.
- The wallet rebound was concentrated almost entirely in a single quarter and single issuer.
- A leading payment entity's share of monthly wallet transaction volumes rose from around 3% between April and July 2025 to 20–23% between August and December, before easing to 11–13% by March 2026.
- Stripping this entity out of the base entirely, the rest of the wallet ecosystem spanning bank-led wallets, FinTech-led wallets, and NBFC-backed instruments, grew at a far steadier, low single-digit pace across the year.
- The gift card market remains split between closed-loop and open-loop instruments with closed-loop cards holding a roughly 62% share.[55] Corporates continue to lean on prepaid cards for employee rewards and recognition, and credit card issuers increasingly use prepaid cards as a milestone-based engagement tool to build loyalty.

52. https://infra.economictimes.indiatimes.com/news/roads-highways/ihmcl-to-launch-barrier-less-tolling-system-at-200-national-highways-fee-plazas-by-fy27/129127352 (last accessed on 16 August 2026)
53. https://www.indiabudget.gov.in/economicsurvey/doc/Infographics%20English.pdf (last accessed on 16 August 2026)
54. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2259988&reg=3&lang=1 (last accessed on 16 August 2026)
55. https://www.pwc.in/assets/pdfs/indian-payments-handbook-2025-2030.pdf (last accessed on 16 August 2026)

Figure 21: PPI transaction volume and value

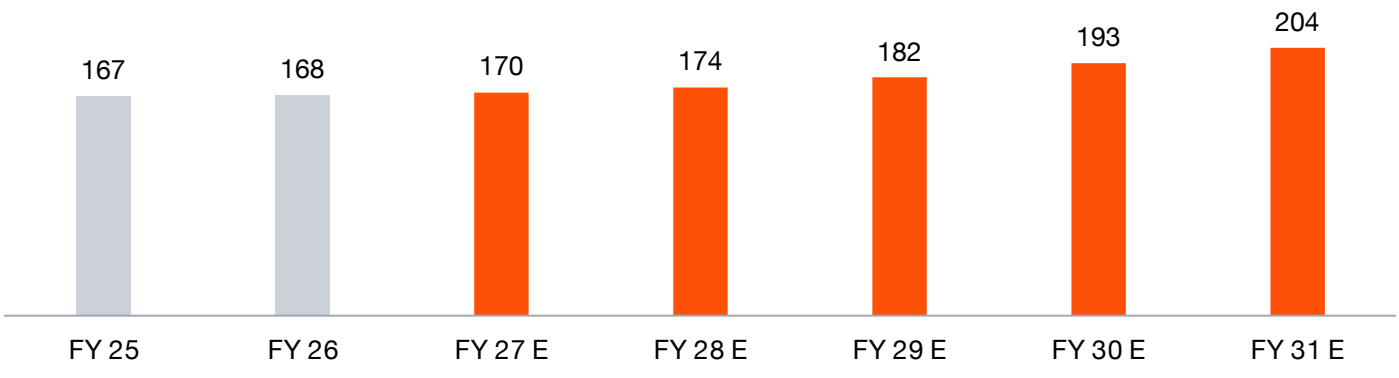


Source: NPCI, RBI, PwC analysis

Revenue lines for PPI

- Transaction charges/loading fee
- Float/breakage income
- Interchange income

Figure 22: Total revenue (₹ bn)



Source: RBI, PwC analysis based on information available online

Momentum in the wallet and card ecosystem

- **Use-case breadth continues to widen:** NCMC transit cards, meal cards, fuel and fleet cards, and gig-economy payout rails continue to expand the addressable use-case base for PPIs, even where this has not yet shown up as a step change in category-wide volumes.
- **Cannibalisation from adjacent rails persists:** Direct bank-account UPI payments remain simpler than PPI for most retail users, and RuPay credit-on-UPI increasingly competes with prepaid cards for premium spend.
- **Longer-term structural risk:** CBDC (e-Rupee) wallets and closed-loop wallets are a plausible substitute for retail and offline PPI use cases over FY29–31, and tier-1 wallet penetration is approaching saturation.

Travel and forex cards continue to serve distinct use cases

While international UPI acceptance is expanding, forex cards remain relevant for students' overseas education expenses, and travellers seeking prepaid spending convenience. Growth in outbound travel and international education is expected to support continued demand for the category.

PPI enters FY26–31 as a maturing category. Wallets carry the largest base, but their underlying growth has already slowed down. Prepaid cards, on the other hand, show consistent growth, while travel/forex cards have shown a decline due to the impact of geopolitical conflicts on travel as well as the usage of alternative payment instruments.

Survey responses:

Market insights:

- 23% of industry leaders believe PPIs will strengthen their relevance through deeper integration within digital platforms and super apps, while evolving through targeted use cases such as youth-centric payments, micro-spends, and ecosystem-led commerce.
- 18% of respondents see PPIs carving out differentiated positions in specialised payment ecosystems such as transit, gaming, closed-loop networks, and cross-border/forex payments, where dedicated payment experiences continue to offer distinct value.

2.1.6 Bharat Connect

Bharat Connect has evolved from a utility bill payment system into a broad-based payments and collections platform, extending well beyond its original base of recurring household bills. The platform now spans 30 categories, up from 11 in FY23,[56] with recent additions including EV recharge, eChallan, B2B payments, forex and fleet card recharge.

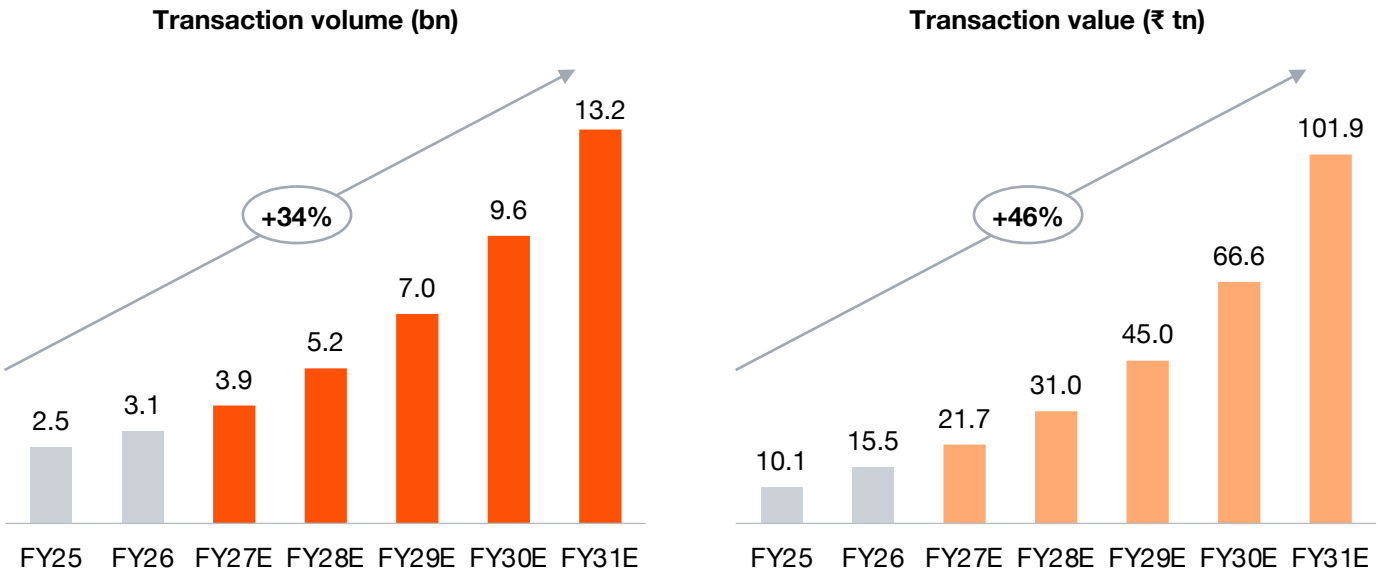
Figure 23: Bharat Connect—key figures

22,686	66	101
Live billers	Biller operating units (BOUs)	Customer operating units (COUs)

56. https://www.bharat-connect.com/categories/ (last accessed on 16 August 2026)

NPCI Bharat BillPay Limited (NBBL) has indicated a balanced focus on onboarding across both BOUs and COUs, recognising that both work side by side within the Bharat Connect model. While billers add depth on the supply side, COUs extend reach to end users. Among the fastest-growing contributors are credit card payments, with the number of live credit card billers rising from 20 in July 2024 to 36 by March 2026, and electricity, where the value of bills processed grew by 11.2% in FY26 on the back of rising consumption.

Figure 24: Bharat Connect transactions volume and value



Source: Bharat BillPay; NPCI; PwC analysis

Bharat Connect transaction volume and value grew by 22% and 53% respectively in FY25–26. Value growth continues to exceed volume growth, supported by two structural shifts: deepening value within established high-ticket categories (i.e. credit cards, loan repayment and insurance) and the onboarding of new high-value categories such as B2B payments and rental. Low-ticket additions such as EV recharge and NCMC recharge contribute primarily to transaction volume and everyday engagement, while high-ticket categories drive transaction value and lift ATS. The upward movement in ATS is thus due to the growing high-value categories on the platform.

Key drivers shaping Bharat Connect growth

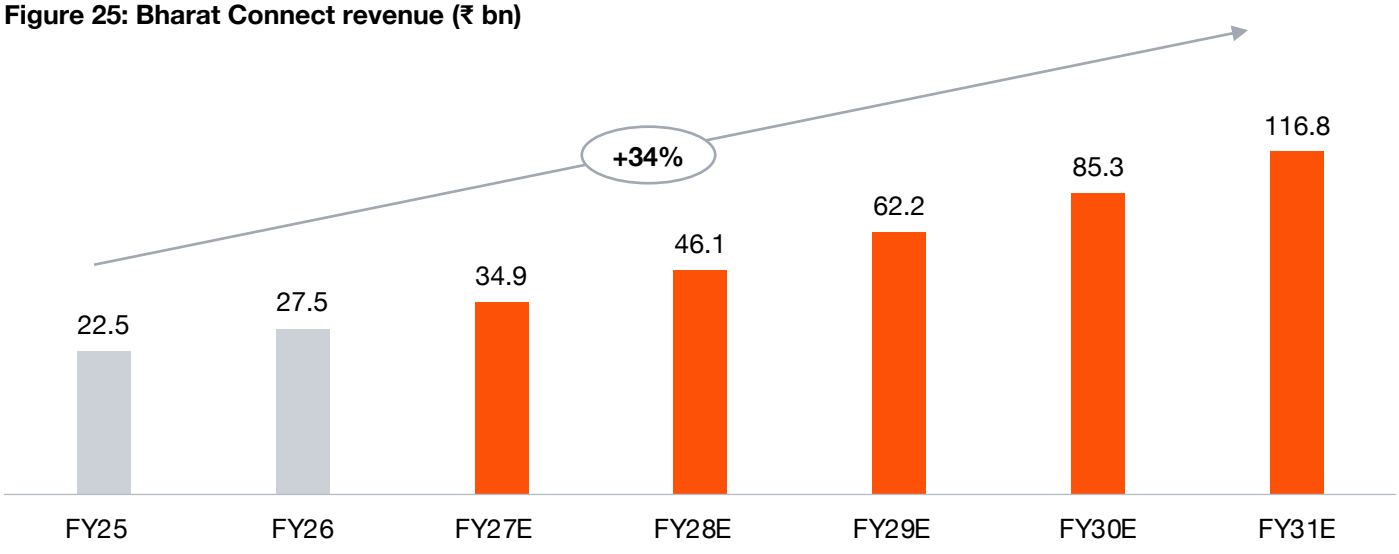
- **Electricity remains a core volume driver**, supported by India's projected ~6–6.5% CAGR[57] growth in power demand.
- **Credit card bill payments continue to expand**, supported by rising card issuance and an increasing number of transactions per card.
- **Insurance and loan repayments are driving transaction value growth**, strengthening Bharat Connect's high-ticket payment mix.
- **Rental, B2B, NPS, and municipal taxes are expanding the addressable market**, bringing new recurring and high-value payment flows onto the platform.
- **Continued onboarding of billers**, BOUs, and COUs is strengthening ecosystem reach and platform adoption.

57. https://energy.economictimes.indiatimes.com/news/power/icra-forecasts-5-55-growth-in-indias-electricity-demand-by-fy26-with-44-gw-capacity-addition/121458997 (last accessed on 16 August 2026)

Revenue lines for Bharat Connect

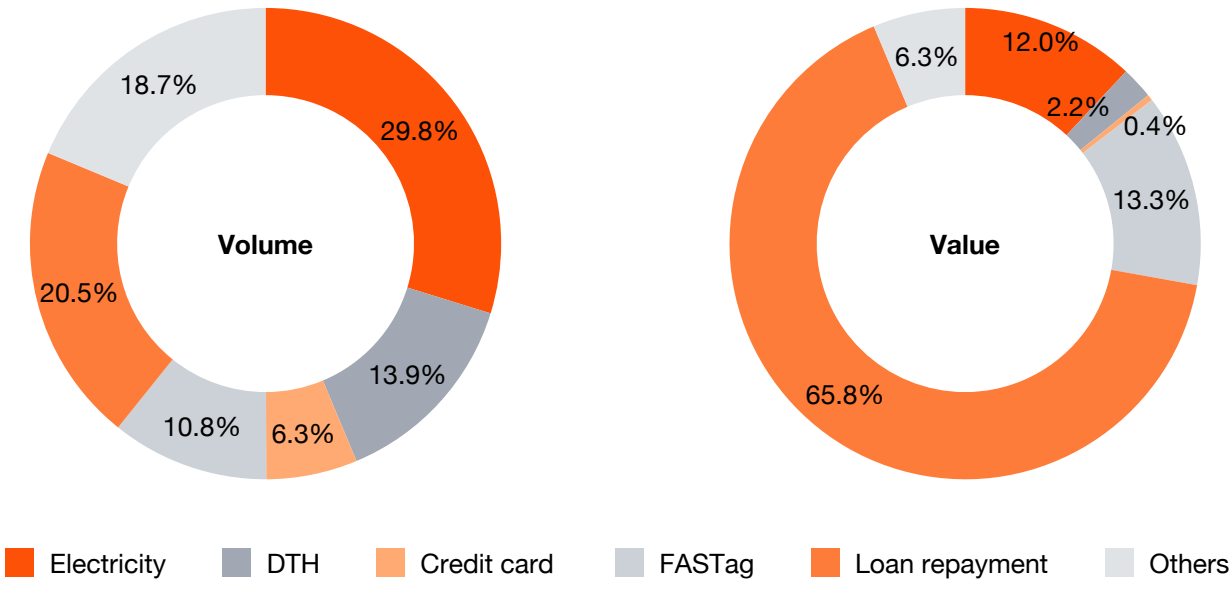
- Customer convenience fee
- Fee paid by biller to BOU
- Interchange paid by BOU to COU
- Float income

Figure 25: Bharat Connect revenue (₹ bn)



Source: Bharat BillPay, NPCI, PwC analysis

Figure 26: Bharat Connect: Bill payment type volume and value split (FY26)



Others include mobile prepaid, LPG gas, mobile postpaid, insurance, gas, and water.

Source: Bharat BillPay; NPCI; PwC analysis based on information available online

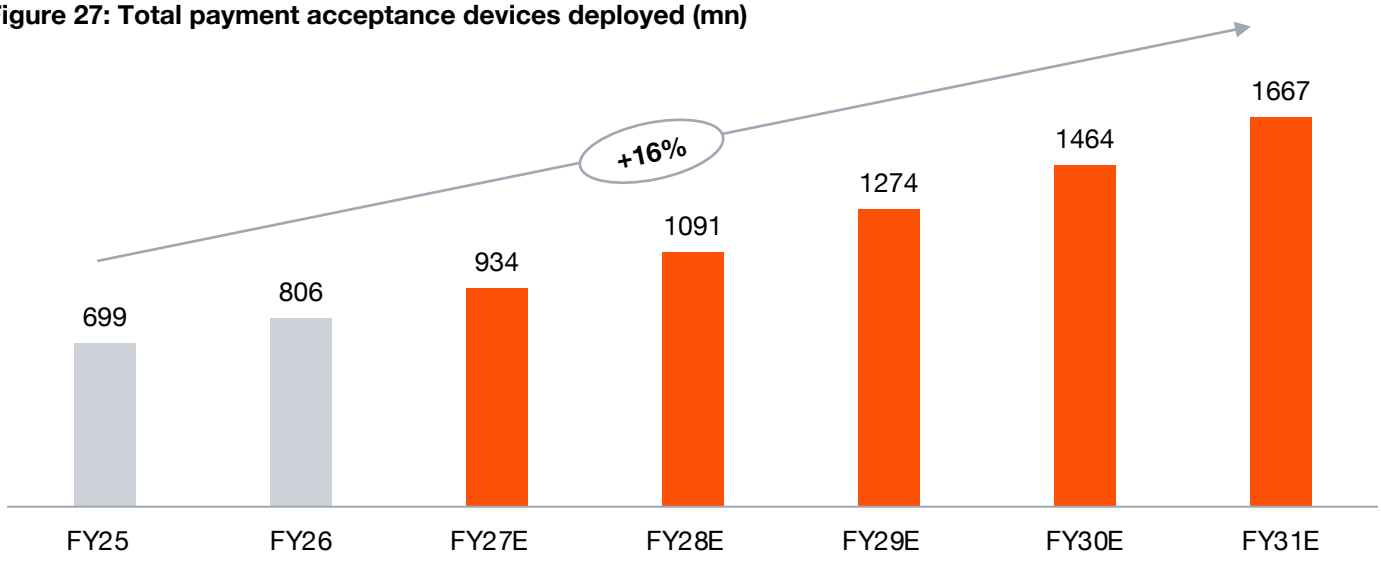
Platform evolution and future opportunities

- **DTH, cable, and landline payments are structurally declining**, driven by changing consumption and communication patterns, with consumers increasingly shifting towards OTT platforms. Recurring payments and standing instruction transactions on this platform can be captured by Bharat Connect.
- **Growth is shifting towards higher-value financial categories**, including credit card bill payments, insurance, and loan repayments.
- **National Pension System (NPS) presents a sizeable opportunity**, supported by 20-30% YoY growth[58] in pension assets under management.
- **Municipal taxes are becoming increasingly digital**, with digitisation driving growth in collections.
- **Platform enhancements such as biometric payments**, dynamic QR, integration in other applications, and net-banking integration are expected to improve user experience and adoption.

2.2 Merchant acquiring business

India's merchant acquiring ecosystem has evolved significantly over the last five years, driven by widespread deployment of QR codes, soundboxes, and PoS infrastructure. Merchant acceptance has expanded beyond metro cities into tier-2, tier-3, and rural locations, supported by increasing smartphone penetration, affordable acceptance solutions, and regulatory initiatives focused on expanding digital payments adoption. As digital payments increasingly become the preferred mode of payment for everyday transactions, merchant acquiring will continue to play a critical role in supporting India's growing payment volumes.

Figure 27: Total payment acceptance devices deployed (mn)



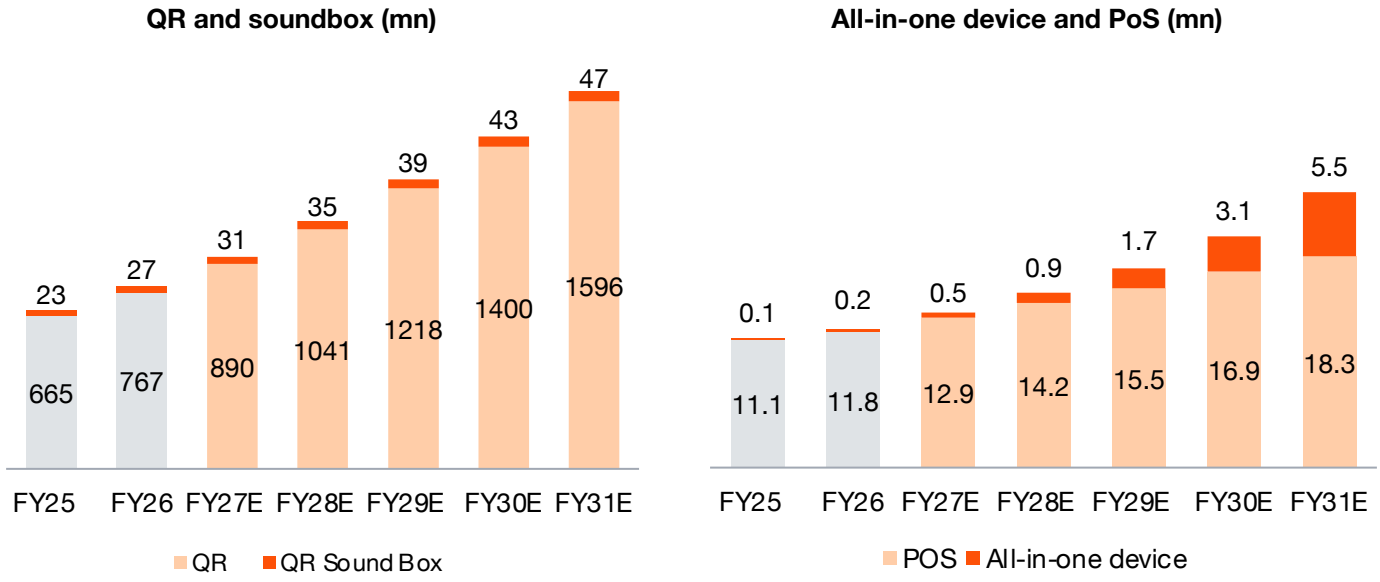
Devices include POS, QR, QR soundbox, and all-in-one devices

Source: RBI; PwC analysis based on information available online

58. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2123577&reg=48&lang=2 (last accessed on 16 August 2026)

Merchant acceptance in-store infrastructure is expected to grow at a 16% CAGR by FY31. QR codes will continue to dominate merchant acceptance owing to their low deployment costs and ease of adoption, while soundboxes, SoftPOS, and integrated acceptance devices are expected to witness strong growth over the forecast period.

Figure 28: Split of payments devices deployed



Source: RBI, PwC analysis based on information available online

Key trends shaping merchant acquiring

a. Acceptance infrastructure expands beyond metros

Merchant acquiring growth is expected to be driven by continued penetration into tier-3 and tier-4 cities and underserved markets. Banks, FinTechs, and other merchant acquirers are accelerating the deployment of payment acceptance infrastructure across these areas, supported by rising digital payment adoption among small merchants and ongoing government initiatives. As of May 2025, approximately 47.7 million[59] digital payment touchpoints had been deployed under the Payments Infrastructure Development Fund (PIDF), creating a strong foundation for future growth.

b. Smart AI-led devices gain prominence

Soundboxes are evolving from transaction notification devices into merchant engagement platforms. New-gen devices are increasingly combining payment acceptance, card processing, merchant services, and business support capabilities within a single device. At the same time, all-in-one devices integrating QR, contactless payments, keypad functionality, and soundbox capabilities are expected to gain traction among organised merchant segments seeking operational simplicity.

59. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2149372&reg=48&lang=2 (last accessed on 16 August 2026)

c. SoftPOS and tap-to-phone acceptance broadens market reach

SoftPOS and tap-to-phone solutions[60] are expected to accelerate merchant digitisation by reducing hardware dependency and lowering the cost of acceptance. These solutions make digital acceptance economically viable for micro and small merchants by allowing them to accept payments directly through smartphones. Rather than replacing traditional acceptance infrastructure, software-based acceptance is expected to expand the overall acquiring market.

d. New entrants intensify competition

Merchant acquiring continues to attract participation beyond traditional banks and payment service providers. For instance:

- A large enterprise software provider expanded its FinTech portfolio through the launch of PoS and soundbox solutions
- A payments bank partnered with a payment technology provider to enter the soundbox segment
- A large FinTech player received RBI authorisation to operate as an offline payment aggregator

These developments indicate that merchant acquiring is increasingly being viewed as a strategic channel for merchant acquisition, customer engagement, ring-fencing the customer, and financial services distribution. Increased participation is expected to accelerate innovation across merchant onboarding, device offerings, and value-added merchant solutions.

e. Interoperability reshapes merchant acceptance infrastructure

NPCI's proposed interoperable soundbox framework[61] may enable merchants to use a single soundbox across multiple payment applications, reducing dependency on provider-specific devices. As acceptance infrastructure becomes more interoperable, competition is likely to shift further towards merchant servicing, value-added offerings, and overall merchant experience rather than proprietary hardware deployment alone.

f. Merchant acquiring evolves into a merchant services ecosystem

Merchant acquiring is expanding beyond payment acceptance and increasingly becoming a platform for merchant engagement. Acquiring players are integrating loyalty programmes, analytics, merchant financing, and business management capabilities to strengthen merchant relationships and improve customer retention. Over time, payments infrastructure is expected to become a key distribution channel for a broader suite of merchant services.

Survey responses:

Market insights:

33% of industry leaders anticipate future merchant-acquiring revenues to be driven by a combination of value-added services, including lending, advertising, and SaaS offerings, together with the gradual return of direct payment monetisation models.

60. https://bfsi.economictimes.indiatimes.com/articles/indias-softpos-revolution-the-future-of-contactless-payments/122063376 (last accessed on 16 August 2026)
61. https://economictimes.indiatimes.com/tech/technology/one-soundbox-soon-for-all-payment-apps-as-npci-readies-platform/articleshow/131160676.cms?from=mdr&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst (last accessed on 16 August 2026)

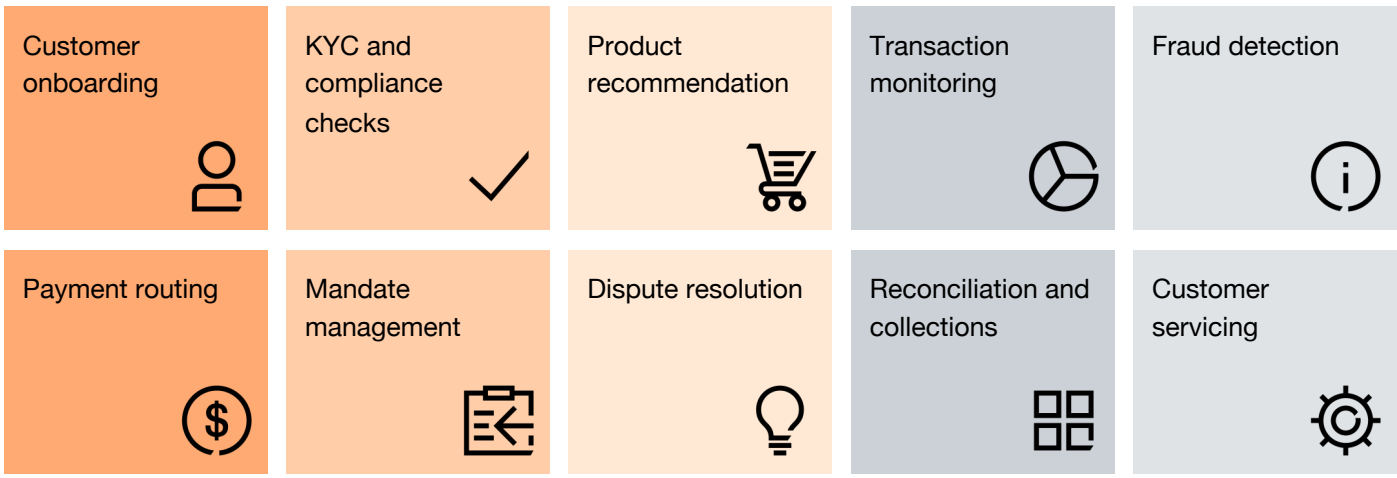
03

The Future of digital payments in India

1. Agentic AI and agentic commerce

Agentic AI could mark the next step in the evolution of AI-led payments by moving beyond insight generation towards systems that can interpret user intent, plan actions, and execute defined workflows within established controls. In payments, this could enable more automated servicing, intelligent payment orchestration, personalised product and payment mode recommendations, and over time customer-authorised transaction execution.

Figure 29: Where value could emerge



- **Customer servicing**: AI agents can support transaction-status queries, charge disputes, mandate service, and other high-volume service requests, improving responsiveness while reducing support costs.
- **Operations and reconciliation**: Intelligent agents can help automate reconciliation, exception handling, and workflow orchestration, reducing manual effort and operational errors.
- **Personalisation and conversion**: Agent-led journeys can recommend relevant payment instruments, rewards, or credit products based on context and customer preferences.
- **Agentic commerce**: Conversational and voice-based interfaces could allow customers to discover, compare, and purchase products within a single interaction, with early industry pilots already demonstrating AI-assisted payment initiation and tracking.
- **Transaction recovery and drop-off management:** AI agents can proactively identify abandoned purchase journeys or incomplete payment transactions and engage customers through contextual nudges, reminders, or alternative payment options, helping merchants recover lost sales and improve payment success rate.

What will determine adoption

Scaled adoption will depend on clearly defined customer consent, authentication, transaction limits, auditability, liability allocation, and human intervention for exceptional cases. Initial adoption is therefore likely to be concentrated in lower-risk servicing and operational workflows before extending to more autonomous payment execution. Industry initiatives such as NPCI's proposed Unified Agent Protocol (UAP) could further accelerate agentic commerce by enabling AI agents to securely interact with merchants, financial institutions, and payment ecosystems through a standardised framework.

Survey responses:

56% of industry leaders identify agentic payments and autonomous commerce as the most disruptive trend in India's payments ecosystem over the next five years, signalling a shift towards AI-led transaction initiation and execution.

44% of respondents expect AI's primary role in payments to be enhancing customer experience through personalised interactions, intelligent support, and more intuitive payment journeys.

28% of industry leaders believe AI/ML-based behavioural analytics will become the most critical technology for fraud prevention, enabling more proactive and context-aware risk detection.

25% of respondents view dedicated regulatory frameworks for AI models and agentic payments as a key policy enabler for accelerating innovation and adoption in digital payments.

2. Reimagining card payments in India

India's credit card market continues to expand, with approximately **118.6 million cards in circulation and ₹23.6 trillion of spends in FY26.** Growth is increasingly being shaped by wider digital adoption, deeper penetration beyond major cities, and the integration of RuPay credit cards with UPI, which is extending credit-card usage into lower-value, everyday payment occasions.

At the same time, the ecosystem continues to face structural constraints such as issuer concentration, limited customer choice across networks, and merchant acceptance friction, especially among small merchants who face high MDR on card payments compared to UPI. Greater interoperability and network choice, both across card networks and standardised card products offered by multiple issuers, could therefore increase competition across issuers, networks, merchants, and acceptance infrastructure.

Three developments could reshape the market:

a. Credit cards on UPI are expanding the acceptance footprint:

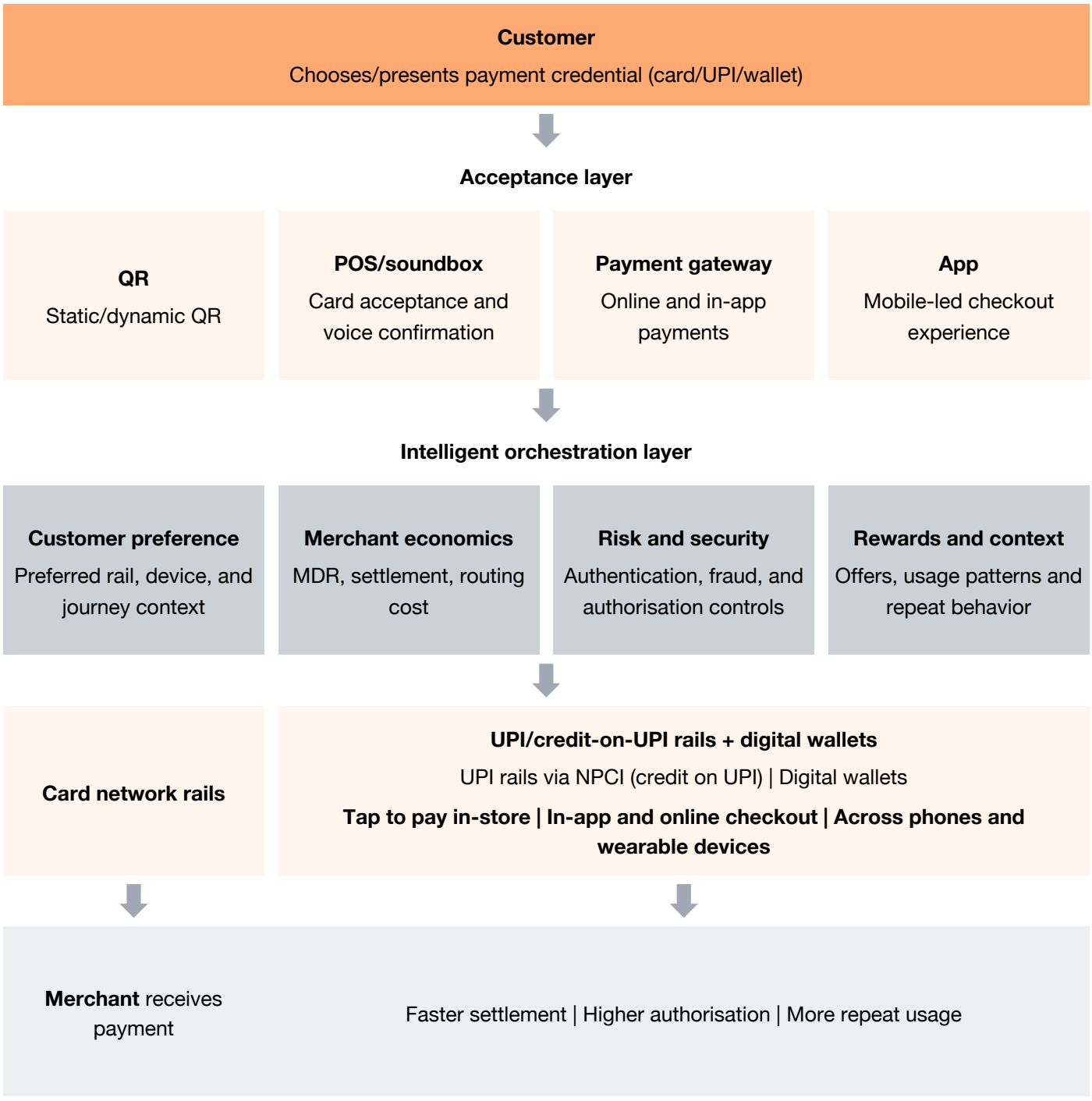
The integration of RuPay credit cards with UPI represents an important shift in card acceptance. By enabling credit-card payments through existing UPI QR infrastructure, the model allows card-based credit to participate in payment occasions that previously depended on physical POS terminals or traditional online card acceptance.

This is particularly relevant for smaller merchants and lower-value transactions, where UPI QR acceptance is already widespread. It also changes the role of the acceptance layer: Physical POS terminals, soundboxes, and digital payment gateways increasingly become points where payment choice, routing, and merchant economics converge.

The emergence of digital wallet ecosystems could further accelerate the adoption of card payments by enabling seamless and secure payments across in-store, online, and contactless channels. As consumers increasingly adopt mobile-first payment experiences, smartphones may become a key interface for accessing and using card-based credit across everyday transactions.

Over time, payment acceptance infrastructure could become more intelligent, using orchestration and tokenisation capabilities to determine the most appropriate payment rail based on factors such as instrument availability, customer preference, merchant cost, transaction context, and security requirements.

Figure 30: Evolution from a passive transaction endpoint to an orchestration layer connecting multiple payment rails

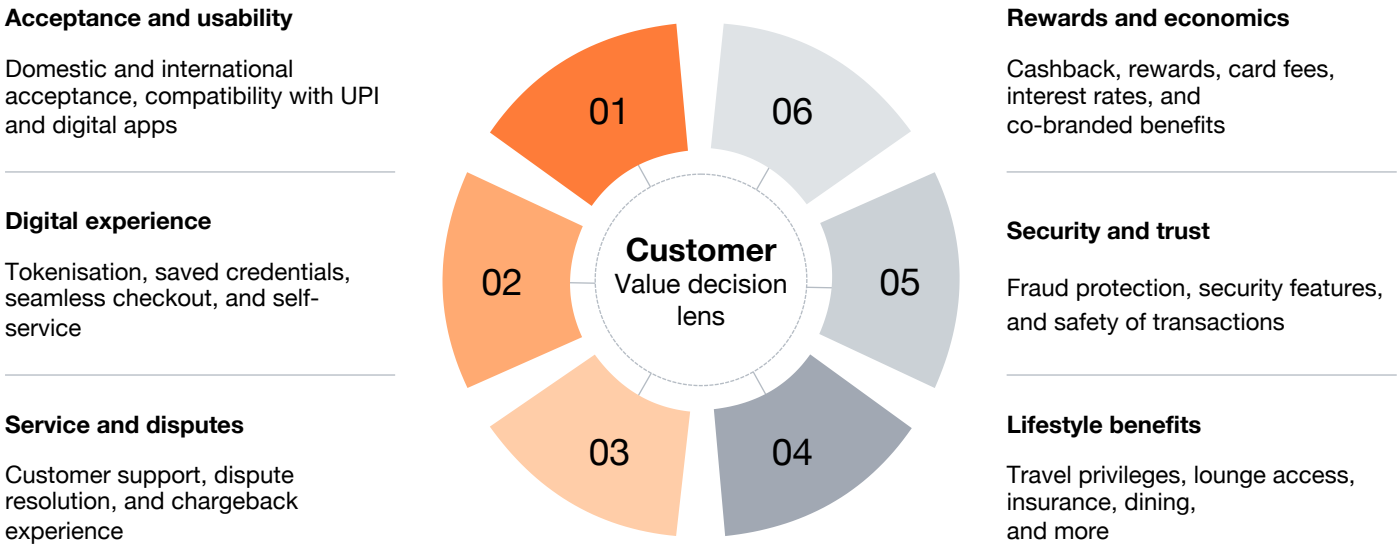


Illustrative merchant acceptance architecture

b. **Greater network choice and interoperability**: Regulatory emphasis on interoperability is encouraging a card ecosystem in which customers have greater choice across networks and issuers. As this evolves, competition between card networks is likely to depend increasingly on the **value delivered to cardholders**, rather than on issuer relationships alone.

Interoperability could also extend beyond network choice to **greater standardisation of card products across issuers**. Customers may increasingly expect access to similar product features, reward structures, acceptance experiences, and servicing capabilities irrespective of the issuing institution, enabling easier comparison and portability of value propositions.

Figure 31: What will drive network choice



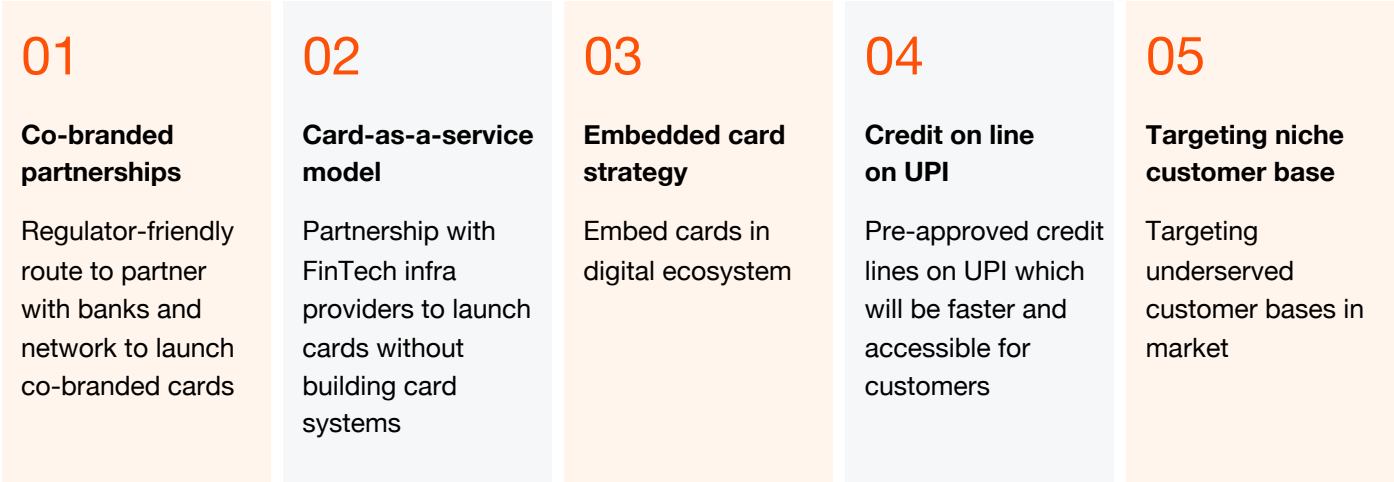
Competition shifts from network availability to differentiated customer value

c. **Broader issuer participation could deepen credit card penetration**

India's credit card market remains relatively underpenetrated outside affluent urban customer segments. Greater participation by NBFCs, subject to the applicable regulatory framework and approvals, could widen access by bringing differentiated distribution and underwriting capabilities to **self-employed, gig-economy, rural, semi-urban, and new-to-credit customers**.

NBFCs are particularly well positioned to leverage captive customer ecosystems, alternative data, and embedded distribution models to address segments that may not fit traditional bank underwriting models.

Figure 32: Potential NBFC routes to expand card access



What this means for the ecosystem

The card ecosystem is shifting from competition based primarily on issuance and acceptance towards competition based on customer choice, payment experience, distribution, underwriting, and economics.

Table 7: Implications for ecosystem participants

Entities	Implications
Card networks	Compete increasingly on acceptance, digital experience, security, economics, and differentiated benefits
Issuers	Gain greater flexibility to design multi-network propositions and deepen customer engagement via differentiated rewards and loyalty ecosystems, helping customer retention in a future where issuer interoperability may make switching between card providers easy
Merchants	Benefit from broader acceptance options and potentially greater transparency around payment economics
Customers	Gain greater choice across networks, issuers, and payment interfaces, including UPI and digital wallets, while benefiting from more consistent card features and acceptance experiences

The future card ecosystem may be defined not only by interoperability across networks, but also by interoperable customer experiences, where credit can be accessed seamlessly through UPI, mobile wallets, and standardised card propositions offered by multiple issuers.

3. AI-led fraud prevention and next-generation authentication

India's rapid shift towards digital and real-time payments has increased both the scale and complexity of fraud risk. While reported fraud cases have declined in some categories, the value involved in digital frauds amounts to ₹35.86 crore with a total of 5,997 reported cases as of FY25-26, indicating that financial institutions are increasingly dealing with fewer but potentially higher-impact incidents.

At the same time, fraud methods are becoming more sophisticated. As payment journeys become more digital, fraudsters are increasingly using AI and automation to target customer identity, behaviour, and authentication mechanisms rather than attempting to compromise payment infrastructure directly.

How fraud risks are evolving

Emerging fraud vectors are likely to include:

- AI-powered impersonation: Deepfake voice and video, synthetic customer-support interactions, and executive impersonation
- Synthetic identity and KYC fraud: AI-generated identities, manipulated documents, and combinations of genuine and fabricated customer information
- Automated social engineering: AI-generated phishing, multilingual scams, and autonomous fraud bots capable of interacting with customers at scale
- Faster movement of fraudulent funds: Rapid movement of fraud proceeds across accounts and payment channels due to automation, reducing the time available for intervention

Quantum-enabled cyber and fraud risks are emerging

While large-scale quantum computing remains at an early stage, financial institutions are increasingly assessing its potential implications for payment security. In future, advanced quantum computers could weaken some of the key public cryptography mechanisms used to secure payment authentication, digital signatures, and sensitive financial data. Quantum capabilities combined with AI could increase the scale and speed of certain attack techniques like forging trusted credentials and compromised authentication, thus building pressure to transition towards safe post-quantum cryptography.

AI is shifting fraud detection towards real-time prevention

AI-based fraud systems are increasingly moving institutions beyond static rules towards continuous behavioural and transaction-level risk assessment:

- Real-time anomaly detection: Transaction amount, frequency, beneficiary, location, device, and historical behaviour can be analysed together to identify activity that deviates from a customer's normal pattern.
- Behavioural risk scoring: AI models can continuously assess customer and transaction behaviour to generate contextual risk scores and determine whether additional verification is required.
- Network and mule-account detection: Graph and behavioural analytics can identify relationships between accounts, beneficiaries, and transaction flows that may indicate coordinated fraud or mule networks.
- Automated intervention: Suspicious transactions can trigger alerts and step up authentication, temporary holds, or investigation workflows before funds leave the ecosystem.

This shifts fraud management from post-transaction detection towards prevention at the point of payment.

Authentication is also moving beyond passwords and OTPs

AI-led fraud detection is increasingly being complemented by stronger authentication mechanisms that reduce dependence on credentials vulnerable to phishing or social engineering.

Figure 33: Upcoming biometric authentication methods

Emerging options

- Voice recognition
- Iris recognition
- Palm scan
- Finger vein recognition
- Smile authentication



Widely accepted

- Fingerprint recognition
- Facial recognition

Among biometric methods, fingerprint recognition is currently the most favoured option. Facial recognition is gaining popularity through integration with smartphones. Further, voice and iris recognition, palm scans, finger vein recognition, and smiling at the camera have limited use cases as of today.

Passkeys could reduce credential-based fraud

Passkeys replace traditional passwords with **cryptographic credentials linked to a user's device or authenticator**. Authentication is completed using the device's biometric or PIN mechanism rather than a shared password.

Potential advantages include:

- Lower exposure to phishing and credential theft
- Reduced dependence on passwords and OTPs
- Lower customer friction during authentication
- Stronger resistance to account-takeover attempts
- Improved integration with device-based biometric verification

Implication

The ultimate goal is to create a **layered, quantum-ready security model**, where AI continuously assesses transaction risk while biometrics and cryptographic authentication strengthen customer verification. The challenge for financial institutions will be to improve fraud prevention without introducing excessive friction into legitimate payment journeys.

As fraud becomes more automated and identity-led, payment security is shifting from static authentication towards continuous, intelligence-led risk assessment supported by biometrics and cryptographic credentials.



4. CBDC: A parallel ecosystem for cross-border payments

India's integration into the global economy faces a critical challenge as cross-border payments are expensive, slow, and inaccessible to customers. Recognising this challenge, the RBI and NPCI have aimed to devise systems that address it. Aligned with the G20 roadmap and its 2028 vision, the RBI formalised the PA-CB framework requiring all non-bank entities in cross-border businesses to secure specific licences. The regulator also introduced specific guidelines instructing banks to notify and credit inward remittances within a 24-hour window. The NPCI also expanded UPI services to more nations with 24x7 real-time payments and integration with a few major apps.

The RBI's development of the digital rupee represents a fundamental reimagining of how cross-border payments can operate at the speed and cost of domestic payments. The CBDC, directly issued by the RBI, can be a significant boost for cross-border payments in many ways:

- Cross-border transactions can be settled directly between central banks without requiring intermediary banks or correspondent banking arrangements.
- The settlements can happen in real time rather than taking days.
- Transaction costs are minimal because intermediary fees are eliminated.

In parallel with CBDC-led innovation, the evolution of cross-border infrastructure is likely to move beyond fund transfers to a more integrated trade and transaction ecosystem. One potential direction is the development of cross-border B2B platforms supporting invoice processing, bank guarantee (BG) and letter of credit (LC) workflows, collections, payment settlement, reconciliation, and dispute management on a common standards-based infrastructure.

Such platforms could leverage **ISO 20022 messaging standards** to enable seamless information exchange between participating financial institutions, corporates, and payment service providers. For the domestic leg of transactions, **UPI rails could be used for credit and debit flows**, creating a tightly integrated experience between domestic and international payment ecosystems.

Survey responses:

Market insights:

- **35% of industry leaders** believe programmability will be the key use case for retail CBDC adoption, enabling purpose-bound payments across government subsidies, employee benefits, incentives, and other conditional-use payment scenarios.
- **29% of respondents** identify cross-border CBDC corridors as the most promising avenue for scaling adoption, driven by the potential for faster, more transparent and lower-cost international payment flows.

5. From fraud detection to fraud intelligence: AI, industry-wide intelligence, and quantum readiness

As India's digital payments ecosystem continues to scale, fraud management is evolving from institution-specific controls towards ecosystem-wide intelligence and collaborative risk monitoring. While AI is enabling real-time detection of suspicious activity within individual institutions, the next stage of fraud prevention is expected to be driven by shared intelligence, centralised risk visibility, and coordinated industry response mechanisms. Industry analysis of internal payments highlights growing interest in centralised fraud-monitoring capabilities that can provide ecosystem-wide visibility of emerging fraud patterns and mule-account networks.

A key development in this direction is the emergence of industry-wide fraud intelligence platforms such as the **Indian Digital Payments Intelligence Platform (IDPIC)**, which could enable banks, payment aggregators, FinTechs, NBFCs, and other ecosystem participants to identify fraud trends before they impact individual institutions and customers. By aggregating risk signals across the payment ecosystem, such platforms could shift fraud management from reactive detection towards proactive prevention.

Beyond centralised intelligence, AI-powered fraud solutions are increasingly moving institutions beyond static rule-based monitoring towards continuous behavioural and transaction-level risk assessment. Advanced analytics can assess transaction amounts, frequency, beneficiary details, location, device characteristics, and historical customer behaviour simultaneously to identify anomalies in real time. Graph analytics and network intelligence can further help uncover hidden relationships across accounts and transaction flows, improving the detection of organised fraud and mule account networks.

At the same time, institutions are strengthening authentication frameworks through biometric verification, passkeys, and device-based authentication mechanisms that reduce dependence on passwords and OTPs. This combination of AI-driven risk assessment, behavioural analytics, and stronger authentication is creating a layered security architecture that balances fraud prevention with customer convenience.

Figure 34: Advantages of AI in fraud detection



Real-time detection

AI enables real-time monitoring and analysis of transactions. This rapid response allows for immediate identification of suspicious activity, preventing potential financial loss in the early stages of attack.



Accuracy and adaptability

AI-powered systems analyse large amounts of complex data with high accuracy, detecting anomalies and possessing the capability to learn from new data and identify emerging fraud patterns.

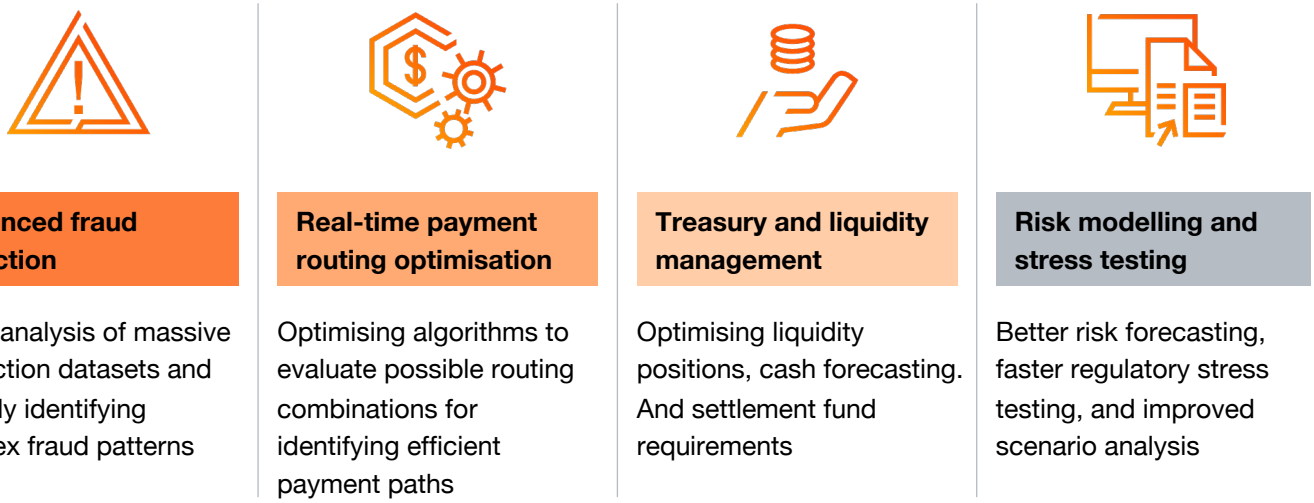


Reduced operational costs

By automating the fraud detection process, organisations can lower their operational costs. The AI-powered system will reduce the need for extensive manual monitoring and analysis.

Looking further ahead, **quantum computing** could enhance fraud analytics, risk modelling, and payment-network optimisation by enabling the analysis of increasingly complex transaction, behavioural, and network datasets. However, these applications remain largely experimental and are expected to emerge over a longer time horizon. More immediate attention is focused on the **cybersecurity implications of quantum computing** and the transition towards quantum-safe security standards. Banks and payment system participants are increasingly evaluating post-quantum cryptography and crypto-agile architectures to prepare for a future where advanced quantum computers may weaken current encryption mechanisms protecting payment transactions and financial data. International initiatives such as the BIS Innovation Hub's Project Leap, along with **India's national quantum mission** and the RBI's Quantum Secure and Adaptive Financial Ecosystem initiative, are helping the industry prepare for this transition.

Figure 35: Future trends in quantum computing



The future of payment security is likely to be defined by a combination of ecosystem-wide fraud intelligence, AI-driven risk assessment, stronger authentication mechanisms, and quantum-ready security frameworks. As fraudsters become more sophisticated and increasingly leverage automation and AI, financial institutions will need to move beyond isolated defence mechanisms towards collaborative, intelligence-led fraud prevention models that identify threats before they reach customers and the broader financial ecosystem.

Conclusion

India's payments journey is moving from digital adoption to digital depth. Digital payments are increasingly becoming embedded in everyday economic activity, with UPI establishing itself as the dominant retail transaction rail and continuing to expand through deeper merchant penetration, new use cases, and broader geographic reach. At the same time, the ecosystem is becoming more differentiated: Credit cards are moving towards higher-frequency usage, Bharat Connect is expanding beyond traditional bill payments, and debit cards are increasingly assuming a supporting rather than primary transaction role.

This evolution is also changing **what will matter for growth**. The opportunity is no longer only to bring more consumers and merchants onto digital rails, but also to increase the number of occasions for which digital payments are relevant across everyday commerce, credit, recurring payments, mobility, cross-border transactions, and emerging agent-led journeys. The continued coexistence of cash reinforces this point: Digital rails are absorbing a greater share of incremental economic activity even as cash retains relevance for specific behavioural and liquidity needs.

As payments become more pervasive and interconnected, **trust, security, and sustainable economics become as important as convenience and scale**. Fraud prevention is already shifting towards more proactive and intelligence-led controls, while regulatory and technology developments are creating the foundations for more interoperable, intelligent, and customer-centric payment experiences.

India's next chapter in payments will be defined by digital depth rather than digital adoption — that is, expanding from scale to everyday relevance, from individual payment rails to an interconnected ecosystem, and from convenience-led growth to trusted, intelligent, and sustainable payments.

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