The Indian Payments Handbook 2025-2030

October 2025

Preface

Dear readers,

We are pleased to present the sixth edition of The Indian Payments Handbook, for the period 2025-2030. 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. 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 of different payment modes in shaping consumer behaviours and trends
- the expanding use cases on payment products i.e. UPI, cards, Bharat Connect, FASTag and prepaid payment instruments (PPIs)
- strategic innovations in agentic AI, biometric authentication and cross-border UPI.

This year, our analysis is further supported by a market survey that was conducted with 175+ 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 a part of this journey.

Mihir Gandhi
Partner and Leader - Payments Transformation and FinTech
PwC India

Executive summary

India's digital payments ecosystem is entering a pivotal phase of transformation – marked by exponential growth, strategic innovation and deepening financial inclusion. Digital payments are projected to grow from 206 billion transactions in FY25 to 617 billion in FY30, with value rising from INR 299 trillion to INR 907 trillion – about 3x in five years.[1]

At the centre of this evolution is the Unified Payments Interface (UPI), which continues to lead retail payments and accounts for ~90% of transaction volumes.[2] With innovations such as biometric authentication, IoT-enabled payments and cross-border remittances, UPI is well on track to clock 1 billion transactions per day by FY28.[3] However, signs of saturation are also emerging, prompting the need for newer use cases and infrastructure upgrades to sustain momentum. Enabling credit lines through UPI and allowing customers to link RuPay credit cards on UPI shall further boost transaction volumes and help drive momentum.

Credit cards are witnessing robust growth, with volumes and values projected to grow at 21.7% and 20.8% compound annual growth rate (CAGR), respectively.[4] The integration of RuPay credit cards with UPI, potential expansion by non-banking financial companies, and the rise of co-branded and virtual cards are reshaping consumer credit behaviour. Meanwhile, debit cards continue to decline, driven by UPI's convenience and lack of incentives on usage of debit cards.

1 PwC analysis
2 Ibid.
3 Ibid.
4 Ibid.

The merchant acquiring landscape is also undergoing rapid digitisation, and low-cost acceptance infrastructure – such as QR codes and soundboxes – is driving adoption across Tier 2 to Tier 4 cities. Real-time settlements, instant onboarding and cross-sell strategies are enhancing merchant engagement, while online acquiring is expanding on the back of buy now pay later (BNPL), dynamic currency conversion and AI-driven fraud detection.

Platforms like Bharat Connect (erstwhile Bharat Bill Payment System) and FASTag (NETC) are expanding their use cases. Bharat Connect has expanded into new categories such as healthcare, education and society maintenance, with transaction value expected to grow at 30%+ CAGR.[5] FASTag is evolving beyond tolls into parking, fuel and smart city applications, with Global Navigation Satellite System (GNSS)-based tolling and multi-lane free flow (MLFF) systems on the distant horizon.

PPIs are rebounding through UPI integration and new use cases, including forex cards, corporate gifting and National Common Mobility Card (NCMC) adoption, and regulatory clarity and innovation are expected to drive renewed growth in this segment.

India's position as the top global recipient of remittances is being reinforced by UPI-linked corridors, FinTech-led innovations and Reserve Bank of India (RBI)'s cross-border initiatives. The introduction of Payment Aggregator – Cross Border (PA-CB) licences, Central Bank Digital Currency (CBDC) pilots and stablecoin interoperability are laying the foundation for a globally connected payments ecosystem.

Emerging trends such as agentic AI, distributed ledger technology (DLT), biometric authentication and inclusive design are redefining the future of payments while regulatory initiatives like the PRAVAAH portal, self-regulatory organisations (SRO) framework, and offline PA guidelines are fostering a secure, transparent and innovation-friendly environment.

As one may glean, India's digital payments journey is no longer just about volumes – it's about unlocking value. Value that is hidden in building a future-proof, resilient, inclusive and globally advanced digital payments ecosystem, wherein the next five years of this journey will be defined by data-driven, customer-centric innovation.

5 PwC analysis

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01 Evolution of the payments landscape

The Indian digital payments landscape has witnessed remarkable growth over the past eight years, characterised by a strong movement towards digitalisation. The industry is projected to expand more than three times in volume, from 206 billion transactions in FY24–25 to 617 billion by FY29–30. In terms of value of payment transactions, the market is expected to triple, from INR 299 trillion to INR 907 trillion over the same period.[6]

1.1 A look at the year gone by

The past year has seen a wave of developments across regulatory reforms, mergers and acquisitions, technological innovations, and heightened focus on payment security. These developments have collectively shaped the digital payments ecosystem we see today – making it more robust, secure and dynamic.

1.1.1 Regulations and policies and innovation facilitation by RBI

The Reserve Bank of India (RBI) has been at the forefront of facilitating payment innovations, creating a conducive environment for digital transformation. The Government and RBI have, in the last one year, launched multiple regulations to govern and streamline the process for the companies operating in the digital payments space. RBI is focused on regulating and streamlining the entire payments ecosystem to secure the end consumer and lay the path for further growth in digital payments adoption in the country.

Some of the key initiatives taken by RBI in FY24–25 have been given below:

a) Platform for Regulatory Application, Validation and Authorisation (PRAVAAH) portal

From 1 May 2025, RBI requires all regulated entities to use the PRAVAAH portal for authorisations, licences and approvals. This secure, centralised platform simplifies compliance by enabling online submissions, real-time tracking and digital query resolution, reducing delays and paperwork. With 108+ standardised forms, it offers a single-window solution for faster, transparent regulatory processes.

Benefits of the PRAVAAH Portal: The PRAVAAH portal has significantly streamlined the regulatory application process, offering several advantages:

- Unified digital platform: PRAVAAH is a 24x7 web-based portal that replaces fragmented paper and email submissions, enabling seamless filing of over 100 regulatory applications through a single interface.
- Efficient and transparent process: It ensures structured routing, timely acknowledgements and real-time status tracking with automated updates – enhancing communication, reducing delays and improving transparency.

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Although in its early stages, the portal has laid a strong foundation for streamlining regulatory licence applications and offers significant scope for enhancement. Wider adoption can be supported through structured training, comprehensive user guides and a strengthened helpdesk to simplify onboarding. Refining form design with features like 'Not applicable' options, dynamic word limits and continued expansion of supported application types will make the process even more intuitive and efficient. These improvements will further position PRAVAAH as a robust, user-friendly platform for regulatory processes.

b) Self-regulatory organisations

RBI introduced an Omnibus Framework for self-regulatory organisations (SROs) in March 2024. The adoption of the SRO framework underscores RBI's progressive approach to self-regulation within the financial sector, empowering industry stakeholders to navigate regulatory complexities independently while ensuring adherence to standards. This move is particularly pertinent in fostering a balanced ecosystem that accommodates rapid FinTech growth without compromising consumer protection and systemic stability.

c) Regulation of offline payment aggregators (PoS) – RBI draft guidelines

In a move to regulate the entire payment aggregator ecosystem, the RBI issued **draft guidelines** in April 2024, for offline payment aggregators (PA-Ps) handling in-person transactions, extending oversight beyond the 2020 PA-PG Guidelines for online aggregators (PA-Os). The 2020 framework set standards for capital adequacy, governance, merchant due diligence, escrow and settlement accounts, and risk management. This draft was formalised in the amended **Master Direction on Regulation of Payment Aggregator (PA), on 15 September 2025,** officially bringing PA-P under the same comprehensive PA regulations as their online counterpart.

RBI's guidelines for PA-P aim to bring parity with online PA norms, focusing on stronger merchant due diligence, escrow governance, and data security. For players active in both online and offline acquiring, the key challenge is not just compliance cost but operational complexity – physical verification, capital thresholds and card data restrictions require a rethink of onboarding, settlement and security processes.

The strategic response is to integrate compliance across channels: a unified merchant onboarding engine, shared KYC and fraud frameworks, single escrow architecture, and tokenisation-first data posture. This approach reduces duplication, accelerates merchant activation and positions compliance as a competitive differentiator rather than a cost burden. Players who act early on integration will be better placed for RBI authorisation and can leverage regulatory alignment to build scale or niche advantage in a harmonised ecosystem.

d) Payments Regulatory Board for payment and settlement systems

RBI officially notified the Payments Regulatory Board Regulations, 2025,[7] and the new framework came into effect on 20 May 2025. The Payments Regulatory Board (PRB) is a six-member body chaired by the RBI governor and includes three nominees from the central government. It replaces the earlier Board for Regulation and Supervision of Payment and Settlement Systems (BPSS) and aims to bring a more inclusive and collaborative governance model to India's fast-evolving payments ecosystem.

Each member has one vote, with the governor holding a casting vote to maintain RBI's leadership. The PRB is supported by the Department of Payment and Settlement Systems (DPSS) and is mandated to meet at least twice a year, marking a significant shift towards more inclusive governance.

This structural shift can be attributed to the exponential growth in digital payments over the last five years. The inclusion of government nominees is expected to foster broader policy input, especially in areas like cybersecurity, tokenisation and innovation, which also aligns with RBI's ambition to lead globally in digital payments.

1.1.2 Mergers and acquisitions

The past year has witnessed significant consolidation in the digital payments sector, with multiple key acquisitions highlighting the growing convergence and expansion of FinTech capabilities across India. A total of 133 M&A transactions were reported by 88 companies from 2019 to 2024 in the FinTech domain, with 31 deals from the payment industry.[8]

Recent FinTech acquisitions signal a clear shift towards ecosystem expansion and diversification. A leading merchant payments player entered the consumer UPI space through a rewards-led app acquisition, while a major FinTech services firm strengthened its retail reach by integrating a large agent network. Similarly, a merchant SaaS provider added bill payment and CBDC capabilities, and a B2B payments company expanded into Southeast Asia by acquiring a FinTech-as-a-service platform.

These moves share common themes: driving financial inclusion by providing wider range of products/services in the financial services space to ring-fence the customer, targeting underserved markets such as small and medium enterprises (SMEs) and rural segments, and reducing acquisition costs. By integrating loyalty programmes, embedded finance and advanced technologies like AI in the platforms, these players aim to deliver comprehensive digital solutions and future-ready platforms.

Beyond innovation, these acquisitions enhance competitive positioning and global readiness. Companies are evolving from single-service providers to full stack ecosystems, preparing for international expansion and potential IPOs, thus underscoring a broader trend of consolidation and capability building in the digital payments landscape.

7 https://www.moneycontrol.com/banking/rbi-notifies-six-member-payments-regulatory-board-includes-govt-nominees-for-the-first-time-article-13044078.html

8 https://www.pwc.in/assets/pdfs/investing-in-indias-fintech-disruption.pdf

1.2 Various trends shaping the digital payments industry

The digital payments industry is being shaped by various trends. While cash use and fraud are slowing the growth, new players, more investment, wider payments infrastructure, ecosystem approaches, and customer shift to digital are driving the digital payments industry's growth.

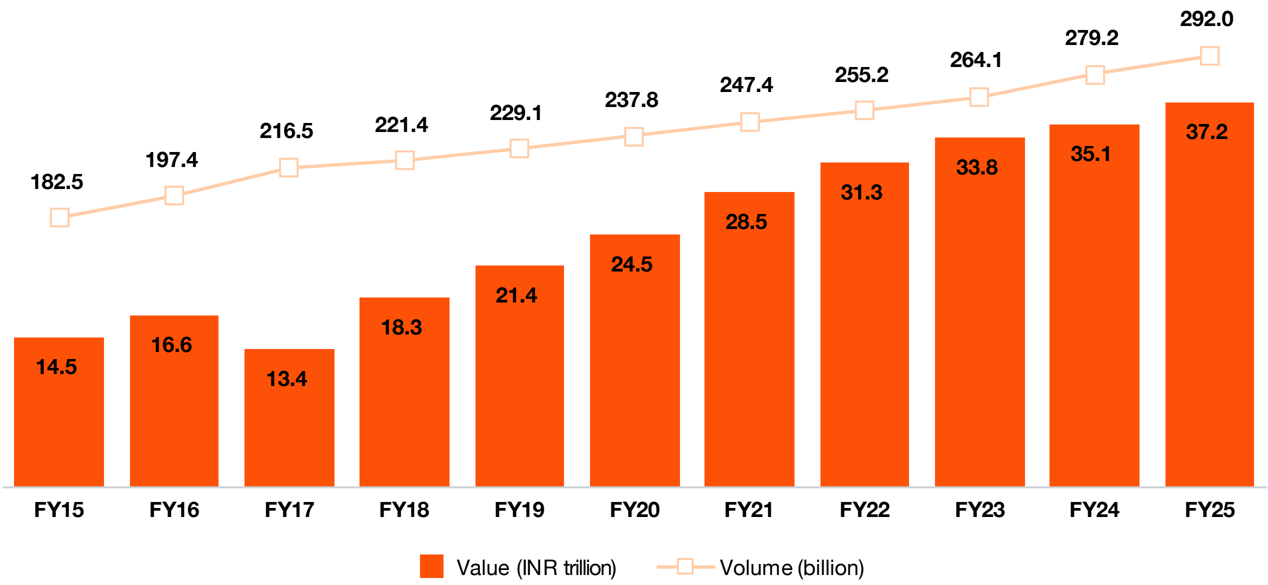
a) Continued growth of cash in circulation:

Despite rapid growth of digital payments instruments like UPI, certain segments including micro merchants, rural consumers and older demographics continue to prefer cash, keeping it relevant in India's payments landscape. States like UP, New Delhi and Bihar have seen high cash usage and were the top three states in terms of growth in average cash dispensed per ATM.[9] Further, the increase in interchange is expected to cover costs for banks and incentivise ATM deployments, especially in semi-urban areas.[10]

To address the limited availability of **UPI-based cash withdrawals** – currently confined to select ATMs and merchants – NPCI plans to leverage the **extensive business correspondent (BC) network.** The proposal would permit UPI cash withdrawals of up to INR 10,000 per transaction at BC outlets, significantly deepening financial inclusion by expanding cash-out points.

In the **formal economy,** where digital payments are more common, cash is still popular because people trust it more. Merchants often share this preference, as accepting cash allows them to avoid costs associated with digital payments, including MDR and device rental fees. Many older adults, rural populations and low-income groups find cash easier to understand and safer than digital payments. They worry about fraud, don't understand technology or simply don't know how to use digital methods well.

Figure 1: Currency in circulation



Source: RBI

9 https://www.thehindubusinessline.com/money-and-banking/growth-in-average-cash-dispensed-per-atm-bihar-delhi-and-up-top-consumption-hotspots/article69542190.ece

10 https://www.indiatoday.in/business/story/atm-cash-withdrawal-cost-to-go-up-for-customers-rbi-higher-interchange-fee-approved-2698951-2025-03-25

Cash also remains a preferred payment mode in certain sectors like jewellery, where over 60% of transactions are in cash, despite regulations such as PAN required for purchases above INR 2,00,000.[11]

To help customers who prefer cash start using digital payments, companies and banks need to take clear and focused steps:

- Understand the different groups of cash users and why they rely on cash to create solutions that really fit their needs.
- Build trust with demos and workshops at local branches or communities to show people how digital payments work and why they are safe.
- Use local languages and easy-to-use devices such as QR codes or apps that work without constant internet access, to help those with limited digital skills or connectivity.
- Provide small rewards or cashback to encourage people to try digital payments and change their habits.
- Have fast and easy support to report problems or fraud to help build confidence.

As India's payment landscape continues to evolve, while cash may no longer be the sole 'king', its utility will persist alongside growing digital methods like UPI. The future will likely witness a balanced coexistence – wherein cash continues to serve specific transactional needs like savings, while digital payments rise in prominence owing to their convenience and efficiency.

b) Investment in FinTech

The Indian payments industry has received huge amount of funding over the years, enabling the players to grow, expand their offerings and innovate beyond the traditional payment platforms. India ranks third globally in FinTech funding, attracting substantial domestic and foreign investments over the past decade. As of 30 June, 2024, India boasts 29 FinTech unicorns, with nine of them in payments.[12] Key segments within payments that have received funding include payment service providers, which represented about 47% of the total funding between 2022 and H1 2024, followed by co-branded card startups at 24%, and PoS startups at 13%.[13] The increased UPI transactions, coupled with the growing digital payments landscape in India and penetration of credit cards, has made it lucrative for companies to invest in players operating in this space. However, there is a need to invest in areas such as AI in payments and fraud prevention, to further fuel this growth and enable innovation in the industry, where differentiation is already difficult to achieve.

11 https://ibef.org/news/digital-payments-double-in-three-years-cash-transactions-fall-reserve-bank-of-india-rbi-report
12 https://www.pwc.in/assets/pdfs/investing-in-indias-fintech-disruption.pdf
13 Ibid.

c) Blurring the intersectoral lines

The payments industry is undergoing a transformation with convergence of multiple industry verticals as new players from other industries are entering and developing comprehensive, ecosystem-oriented products. Once dominated primarily by banks and technology firms, the sector now attracts players from diverse fields such as retail, telecommunications, FinTech, and e-commerce, enabling cross-sector innovation and new market entrants. These players are entering the market either through acquisitions, partnerships or by obtaining their own licences. This trend extends beyond traditional FinTech companies, with organisations from diverse sectors – including large conglomerates – recognising the significant growth and revenue potential in FinTech and payments. For some, payment services serve as a strategic tool to attract new customers, while others leverage payments to expand their range of offerings and ring-fence the customer.

This cross-industry participation is accelerating financial inclusion, expanding merchant acceptance and driving digital adoption across Tier 2 to Tier 4 cities. However, this will also increase competition in the industry and try to capture the market share of the existing players. At the same time, increased competition is spurring innovation and putting pressure on pricing – potentially lowering transaction costs for both consumers and merchants.

Telecommunication companies, for instance, are leveraging their vast subscriber bases and distribution networks to launch payments banks and mobile wallets, bringing financial services to underserved populations. **E-commerce** platforms have built robust in-app payment systems, offering digital wallets, BNPL options and co-branded credit cards to simplify checkout and foster loyalty. Similarly, **social and messaging apps**, leveraging their high user engagement, are integrating peer-to-peer and merchant UPI payments directly within their platforms, turning communication channels into financial conduits.

Example: A major non-banking financial company (NBFC) in India recently launched a mobile app focused on digital financial transactions. The company has secured a PPI licence, operates as a UPI third-party application provider (TPAP) and has also received in-principle approval to become a PA. The NBFC also launched a co-branded credit card in partnership with a small finance bank. This move highlights how established financial players are actively expanding into the digital payments space to capture new growth opportunities.

Ultimately, this blending of sectors is creating a more dynamic, user-centric and interconnected payments ecosystem in India, where the boundaries between commerce, communication and finance are increasingly blurred. To stay relevant over the long term, the pure-play payment players will need to differentiate themselves through innovative products, add useful features, find newer customer segments (that may be underpenetrated) and partner with others to reach more customers.

d) Adoption of the ecosystem approach

Business models have evolved from standalone hubs of economic activities to well-integrated systems nurtured through shared value creation and mutually beneficial solutions.

Ecosystems congregate uniquely positioned entities or sectors, creating an interconnected offering that standalone entities or sectors may be incapable of doing otherwise. An ecosystem approach moves beyond simply offering a standalone product or service – it develops a network of interconnected offerings designed to support merchants across their various business needs.

Example: A leading public sector bank has adopted a comprehensive ecosystem approach by developing an integrated platform that merges accounts, payments and loan products across multiple industry verticals. This innovative platform is designed to serve distinct ecosystems such as education, healthcare, religious institutions, transit and hospitality/tourism, thereby addressing their specific financial needs through a unified digital gateway. By consolidating various financial services into a single platform, the bank enables seamless interaction between customers, merchants, service providers and other stakeholders within these sectors. This ecosystem-driven model not only simplifies financial transactions but also promotes cross-selling opportunities for the bank, deepening customer engagement and unlocking new revenue streams. Furthermore, leveraging advanced analytics and digital interfaces, the bank can provide personalised product offerings and real-time services, enhancing the overall user experience.

Figure 2: Ecosystem engagement

Why engaging in an ecosystem is important?

01 Evolving customer needs beyond financial products

02 Seeking new sources of growth and value

03 Differentiates from standalone providers by offering a complete ecosystem

04 Emergence of non-banks and FinTechs

05 Gathers valuable data on MSME needs and behaviours to refine offerings and improve services

Key benefits

User centricity
Simplifies access to solutions by offering a one-stop solution

Efficiency
Optimises the use of existing infrastructure and customer base

Launching new products and offerings outside core business

Tapping revenue pools of complementary businesses

Outcome

Increase in current account savings account (CASA) deposits by 1.5x in five years (for banks and deposit taking NBFC)

Total revenue growth of ~ 2.5x in over three years

~ 2x growth in new customer acquisition over next three years

e) Consumer behaviours and infrastructure penetration:

Increasing customer preference for digital payments, particularly through products like UPI and card transactions, has compelled merchants across sectors to adopt digital payments methods. This behavioural shift is evident in the widespread deployment of merchant acceptance infrastructure, including PoS terminals (11 million) which have increased by 19% in last three years, QR codes (665 million), and audio-enabled confirmation devices such as soundboxes (23 million). This transition has been significantly enabled by India's robust digital infrastructure. The easy accessibility of low-cost, high-speed mobile data has democratised internet usage, allowing even small businesses and rural users to participate in the digital economy. As of May 2025, the country had 974.87 million broadband subscribers,[14] reflecting the widespread availability and consumption of digital connectivity. Complementing this is the growing penetration of smartphones, with ~650 million users,[15] representing around 46% of the population which is now equipped with internet-enabled mobile devices. This convergence of affordable data and widespread smartphone usage has created a lucrative environment for the growth of mobile-first financial services.

f) Cybersecurity and fraud risks

The rise in digital payments across various instruments has been accompanied by an increase in payment fraud. India's swift transition to digital payments, largely propelled by UPI adoption, has made the country a prime target for payment fraud. As millions opt for cashless transactions for daily purchases and bills, fraudsters have capitalised on vulnerabilities within this expanding ecosystem which can be seen through the increasing number of fraud transactions, which have grown from 2.0 million in FY24 to 2.4 million in FY25.[16]

14 https://www.trai.gov.in/sites/default/files/2025-06/PR_No.51of2025.pdf

15 https://blogs.idc.com/2024/10/09/from-discard-to-demand-the-growing-popularity-of-used-smartphones/

16 https://www.business-standard.com/finance/news/digital-financial-frauds-touch-rs-4-245-crore-in-the-apr-jan-period-of-fy25-125032001214_1.html

Key contributors to payment fraud

Refund frauds

Refund fraud targets UPI users by exploiting the ease of P2P transfers. Fraudsters contact victims, claiming they've accidentally sent money to the user's UPI account and need it returned. They often use fake transaction screenshots or impersonate real entities like shopkeepers to build trust, pressuring the victim to send the alleged amount to a different UPI ID. This tactic takes advantage of India's high volume of UPI transactions, where users may not double-check claims before transferring funds, leading to significant losses.

AI-driven impersonation

Advancements in technology, particularly AI, have enabled fraudsters to impersonate trusted entities with alarming precision. Using AI-generated voice calls or deepfake videos, they pose as bank officials or customer service agents, convincing users to divulge sensitive details such as OTPs or to authorise UPI payments under the guise of securing their accounts. This tech-driven approach exploits the growing reliance on digital banking in India, posing a sophisticated threat to unsuspecting users.

Mule account frauds

Mule account fraud involves fraudsters exploiting individuals to move stolen or illicit funds through their bank accounts. These fraudsters lure victims with fake job offers or promises of easy money, convincing them to receive and transfer funds in exchange for a small commission. Once activated, these accounts serve as intermediaries that obscure the trail of illegal money, making it difficult for authorities to trace the original source or perpetrators. Essentially, the account holder becomes a tool for laundering money, aiding criminal networks while exposing themselves to legal and financial risk.

Planned and ongoing initiatives to tackle payment fraud

Phasing out UPI collect requests for P2P payments: Effective 1 October 2025, National Payments Corporation of India (NPCI) aims to discontinue the P2P 'collect request' feature on UPI apps to curb rising online fraud cases exploiting this system. This change ensures that core UPI services – such as direct money transfers and merchant payments – remain unaffected, while reducing reliance on merchant-initiated collect requests and encouraging customers to initiate 'push' payments through their own apps.

Beneficiary account name look-up: To enhance transaction security, the RBI has introduced real-time payee name validation for NEFT and RTGS transactions. It is an optional feature that enables users to receive instant feedback on whether the recipient's name matches the account details provided.

Proposed Digital Payment Intelligence Platform (DPIP): To be developed as a digital public infrastructure (DPI) by RBI in collaboration with various private and public sector banks, this platform shall focus on improving the overall fraud risk management by providing real-time data and insight sharing amongst participants.

RBI's MuleHunter.ai: MuleHunter.ai is an advanced AI/ML-powered initiative launched by the Reserve Bank Innovation Hub (RBIH)[17] to combat the growing frauds facilitated by mule accounts. While traditional rule-based systems for detecting such accounts have struggled with high false positives and slow turnaround times, MuleHunter.ai overcomes these limitations by analysing 19 distinct behavioural patterns and leveraging ML to detect suspicious activity with greater speed and accuracy. Piloted successfully in two major public sector banks, the tool has shown significant success in identifying and flagging mule accounts in near real time. This success has encouraged at least 15 more banks to implement the MuleHunter platform in FY26 to intensify efforts to tackle fraud by identifying accounts used for fraudulent transactions.[18]

17 https://rbihub.in/mule-hunter-ai/

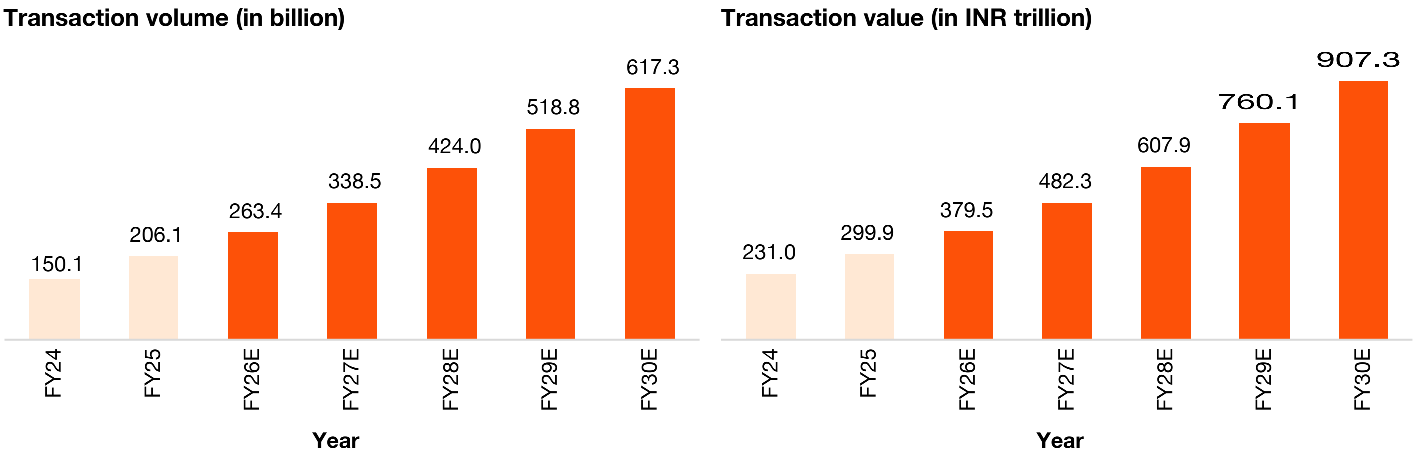
18 https://www.moneycontrol.com/banking/more-banks-to-implement-mulehunter-ai-in-two-months-to-detect-mule-accounts-says-rbi-article-13367678.html

02 Digital payments ecosystem value and volume of transactions

2.1 Overview of the top payment instruments in India

The Indian digital payments ecosystem has experienced significant growth, with transaction volume increasing by 37% and value by 30% year-on-year (YoY) from FY24 to FY25. This growth is driven by factors expected to continue playing a key role, including new technologies, expanded use cases within existing payment modes, supportive government regulations, rising smartphone and internet penetration, and expansion beyond urban and metro areas. Over the next five years (FY25 to FY30), digital payment volumes and values are projected to grow at 24% and 25%[19] annually, respectively.

Figure 3: Digital payments transactions – volume and value

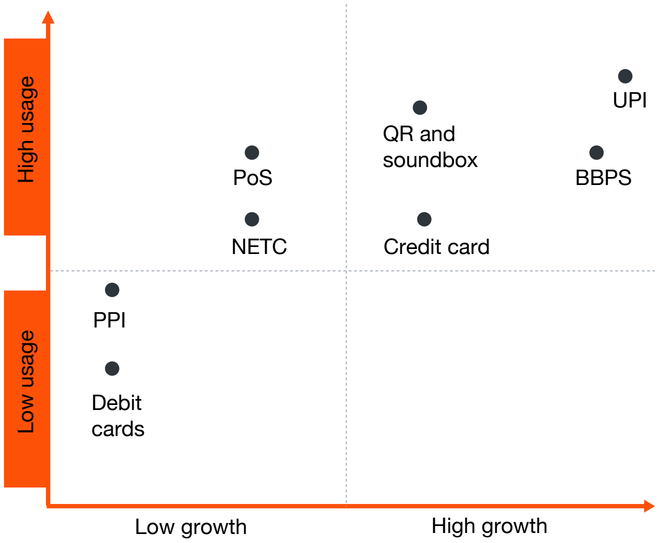


Source: PwC analysis

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

19 PwC analysis

Figure 4: Mapping of payment instruments with growth and adoption

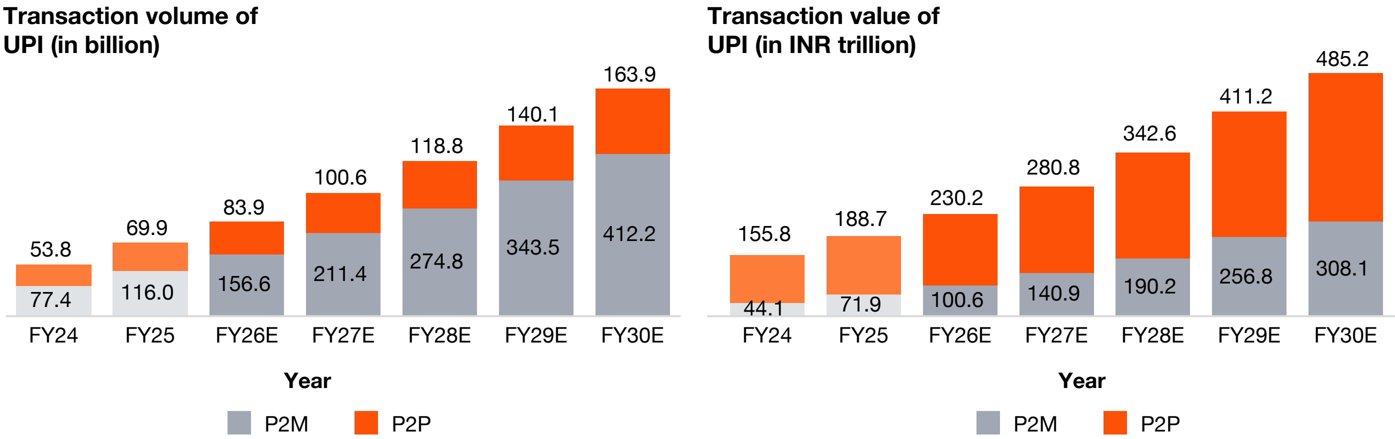


Source: RBI; NPCI; PwC analysis

2.1.1 Unified Payment Interface

UPI has been instrumental in India's digital payments revolution, consistently exhibiting substantial growth over recent year. In the past year alone, UPI transactions have seen a 42% increase in volume and 30% increase in transaction value. These figures underscore UPI's continued expansion and its central role in reshaping financial interactions across the country. As of August 2025, the UPI ecosystem encompasses 688 banks[20] and serves 491 million individuals and 65 million merchants,[21] making it one of the world's largest real-time payment systems in terms of volume.

Figure 5: UPI transactions – volume and value



Source: RBI; NPCI; PwC analysis

20 https://www.npci.org.in/what-we-do/upi/live-members

21 https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=154912&ModuleId=3

UPI is poised for accelerated growth – driven by a combination of strategic initiatives, technological advancements and expanded accessibility. Key factors contributing to this momentum include the following:

- The continued use of the payment system for P2P and P2M transactions and increasing adoption in **Tier 2 and beyond regions** is bridging the digital divide, bringing seamless financial services to previously underserved populations.
- The introduction of **UPI Circle** in FY25[22] enables **delegated payments**, allowing users to authorise trusted individuals or entities to initiate transactions on their behalf.
- In 2023, NPCI raised the UPI limit to INR 500,000 for payments to **hospitals and educational institutions,**[23] and in 2024 extended this to taxes, IPOs and government securities[24] – leading to an increase in transaction values. In August 2025, NPCI further increased limits for select high value categories **– such as jewellery, insurance, credit card bill payments, capital markets and travel –** to INR 500,000 per transaction and INR 1 million per day, enabling larger digital payments and broadening UPI usage across sectors.[25]
- **Credit on UPI** expand UPI's utility by integrating short-term credit, driving higher transaction volumes and merchant acceptance.
- In **December 2024, NPCI** removed the UPI onboarding cap for a social media platform.[26] This would unlock access for the platform's entire Indian user base – i.e. **nearly 596.6 million users** – considerably increasing UPI's reach and potential transaction volume.
- **UPI Lite** enables faster, low-value transactions without PIN authentication, boosting adoption in offline and micro-payment scenarios.
- NPCI has enabled **linking international mobile numbers to UPI**, allowing **NRIs** to use UPI services seamlessly.[27] This initiative strengthens cross-border financial connectivity and simplifies remittances and domestic payments for the Indian diaspora.
- NPCI is piloting **IoT-based UPI payments,**[28] allowing smart devices – such as **refrigerators, cars and wearables –** to initiate transactions independently. This expands UPI use cases to automated recurring payments and micro-transactions.
- NPCI is preparing to roll out **biometric authentication for UPI transactions,**[29] allowing users to approve payments using **fingerprint or facial recognition** instead of entering a traditional 4- or 6-digit PIN.

These growth drivers are expected to lead to increase in transaction volume, reaching 1 billion transactions a day by FY28.

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22 https://www.npci.org.in/PDF/npci/upi/circular/2024/UPI-OC-No-201-FY-24-25-Introduction-of-UPI%20Circle%E2%80%93Delegated-Payments-for-secondary-users.pdf

23 https://www.npci.org.in/PDF/npci/upi/circular/2023/UPI-OC-185-Implementation-of-Rs-5-Lakh-limit-per-transaction-for-specific-categories-in-UPI.pdf

24 https://www.npci.org.in/PDF/npci/upi/circular/2024/UPI-OC-No-185A-FY-24-25-Implementation-of-Rs-5-Lakh-limit-per-transaction-for-specific-categories-in-UPI.pdf

25 https://www.npci.org.in/PDF/npci/upi/circular/2025/UPI-OCNo185B-FY2025-26-Addendum-to-OC185A-Implementation-of-higher-per-transaction-limit-for-specific-categories-in-UPI.pdf

26 https://www.npci.org.in/PDF/npci/press-releases/2024/NPCI-Press-Release-WhatsApp-Pay-Can-Now-Extend-UPI-Services-To-All-Users-in-India.pdf

27 https://www.npci.org.in/what-we-do/upi-global/upi-for-nris/live-members

28 https://www.business-standard.com/finance/news/next-up-for-upi-maybe-letting-your-fridge-pay-125070701173_1.html

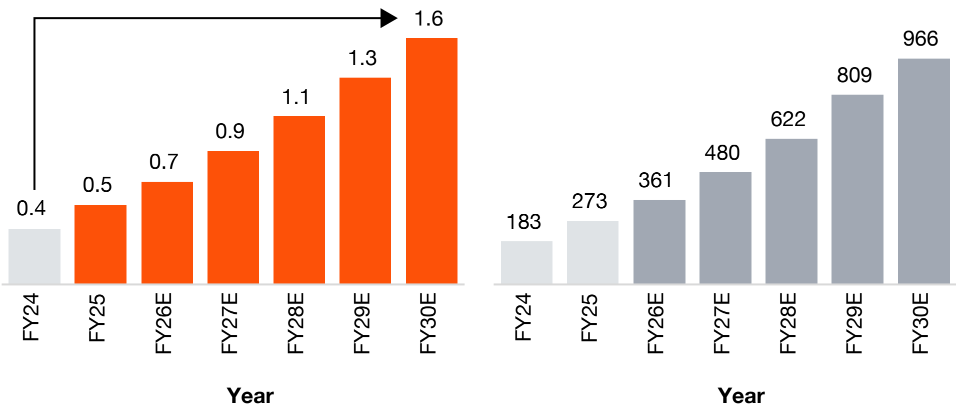
29 https://www.business-standard.com/amp/finance/news/upi-payments-through-biometrics-likely-soon-pin-may-become-optional-125072801569_1.html

Figure 6: UPI revenue lines

Revenue lines for UPI*

These revenue lines do not exist today; however, they maybe be introduced in the near future.

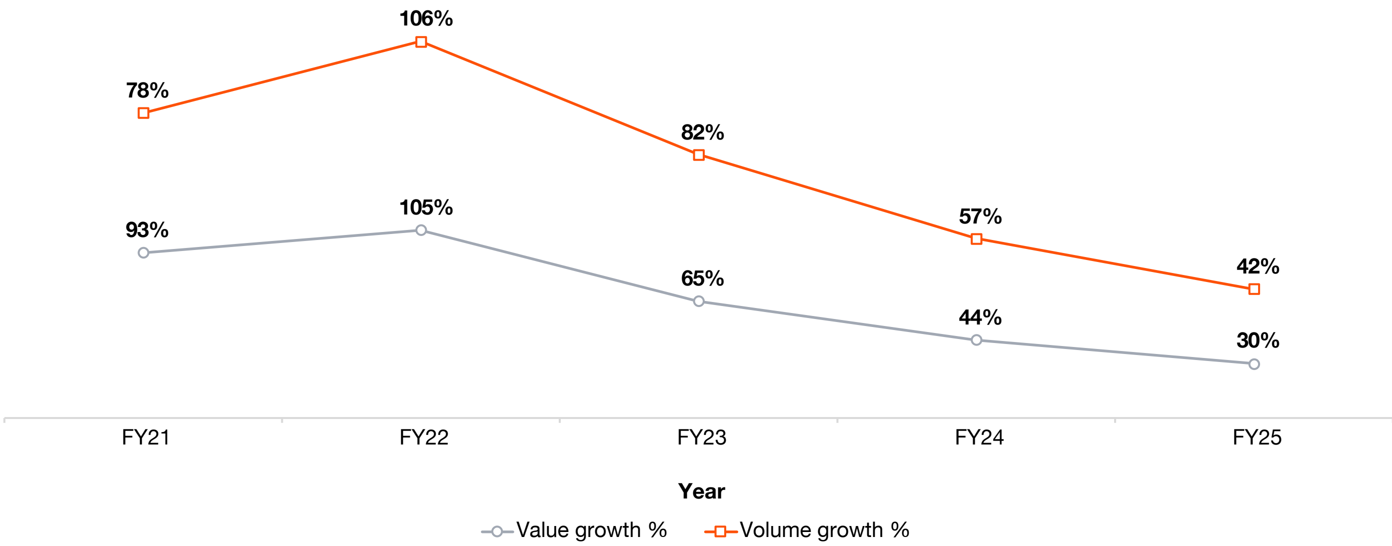
Figure 7: UPI transactions per day and UPI revenue



Source: RBI; NPCI; PwC analysis

Even with UPI achieving 1 billion transactions in the next three years, the current growth rates mark a substantial departure from its hyper-growth phase also due to the base effect. There has been a decline in growth when compared to the initial years, and this is expected to continue in the future. This decline further accentuates the fact that UPI may be approaching a saturation point, signalling a critical juncture demanding the introduction of innovative use cases to sustain momentum and broaden its applicability.

Figure 8: UPI growth rate trends



Market insights: Industry leaders view cross-border transactions (22%) and micro-credit/BNPL (17%) as key drivers in expanding UPI's utility. The introduction of MDR on UPI is viewed as potential game-changer.

Optimising the UPI architecture through regulated API usage

The unprecedented scale of UPI operations has intensified the strain on the service's backend infrastructure, which is largely maintained by banks, payment service providers and NPCI. However, these are not attributable to the server capacity or architectural flaws of the UPI system itself.

Instead, these issues arise from the increasing number of backend calls triggered per transaction, such as balance checks, transaction status checks and autopay mandate executions, which place unnecessary load on the UPI infrastructure.

As UPI scales and new use cases emerge in the form of RuPay credit card linkage and credit line integrations, it becomes important for ecosystem participants to streamline their transaction flows by reducing redundant or excessive API calls per transaction to ensure system efficiency and reliability.

Recognising this, NPCI has introduced restrictions effective 1 August 2025,[30] on the frequency of certain backend operations facilitated by API calls to optimise resource utilisation and reduce strain on the central UPI server – though their long-term impact is still being evaluated.

- Capping on balance inquiries – 50 requests (per user per app per day)
- Limiting account listing requests – 25 requests (per user per app per day)
- Transaction status check – Minimum 90 seconds wait period before first status check, with a limit of three checks allowed within a two-hour window (per transaction)
- Autopay mandates – To be executed only during non-peak hours*

***Non-peak hours** are defined as periods other than those between 10:00 to 13:00 hours and 17:00 to 21:30 hours.

Additionally, to support seamless transaction processing and proactive identification of potential bottlenecks, there is a growing need for end-to-end observability across the UPI transaction lifecycle. Enhanced monitoring and visibility will help ensure that transactions flow smoothly without interruptions, enabling faster issue resolution and improved user experience.

With UPI currently handling over 0.6 billion transactions daily and a target of 2 billion by 2030,[31] such optimisations and observability enhancements are critical to sustaining growth without compromising performance.

30 https://www.npci.org.in/PDF/npci/upi/circular/2025/UPI-OC-No-215-A-FY-2025-26-Guidelines-on-usage-of-UPI-APIs.pdf

31 https://bfsi.economictimes.indiatimes.com/news/fintech/upi-eyes-global-footprint-2-billion-transactions-by-2030/103459125

Rise in UPI frauds

The rise in UPI fraud coincides with the growth in number of users and the transactions processed through UPI. In 2022-23, the value of losses attributable to UPI amounted to INR 5,730 million, making up 0.4% of the total UPI transaction value. However, this increased to INR 11 billion in 2023-24, which was 0.5% of the transaction value. By September 2024, there were 632,000 cases of UPI fraud reported, with the value of fraud reaching INR 4,850 million, which is 0.4% of the transaction value for that period.[32]

The increase in fraud is, to some extent, an unintended consequence of UPI's exponential growth. Regulators and industry participants need to collaborate to create a centralised database of fraudsters and develop innovative solutions to curb these frauds. Despite various preventive measures introduced by the Government and regulatory bodies – such as device binding between the user's mobile number and device, two-factor authentication via PIN, daily transaction limits and restrictions on specific use cases – the incidence of fraud continues to rise.

UPI pricing

The foremost objective in pricing instant payment systems is to balance cost recovery, market adoption and financial sustainability of the payment system. While various stakeholders have spoken about possibility of ending free UPI transactions, there have been no concrete actions or decisions taken yet. While UPI remains free for the users, the cost for maintaining the payment infrastructure, fraud prevention and settlement networks is borne by the Government through subsidising banks and other stakeholders.

Due to the Government's zero merchant discount rate policy, UPI transactions generate no revenue, leading to industry players consistently warning about the financially sustainability of current model. While the industry participants are keen on charges been introduced on UPI, it might have implications for end users/merchants. Consumer might prefer using cash, if these costs are passed down to them by the merchants. There also needs to be regulations to safeguard the customers, while balancing the fees charged to merchants with cost recovery and sustainability aspects.

32 https://www.pwc.in/assets/pdfs/newsletter-payments-fraud-april-25.pdf

Leveraging UPI data for lending

UPI has emerged as a pivotal innovation in India's digital financial ecosystem, offering opportunities to revolutionise lending. By harnessing real-time transaction data, lenders can transition from traditional asset-based models to dynamic, flow-based underwriting approaches. UPI generates a rich repository of behavioural data, which can be leveraged to enhance lending practices.

Financing for MSME: A cornerstone of India's economy, the micro small and medium enterprises (MSMEs) – which contribute 30% to the gross domestic product (GDP) – often face a shortfall in supply of credit estimated between INR 30–35 trillion.[33] This stems from inadequate documentations, high risk perceptions and lengthy processes. UPI-based lending can address these challenges by enabling rapid, cost-efficient credit delivery, thereby enhancing operational efficiency barriers.

Leveraging UPI data: While credit line on UPI and credit card on UPI have gained significant traction, there is a huge opportunity for ecosystem players to capitalise on UPI data to develop innovative products, such as embedded financing options integrated into the purchase journey. For instance, pre-sanctioned working capital lines or overdrafts, facilitated by UPI, can support B2B payments with predefined transaction limits. This not only reduces the time-to-credit from weeks to minutes but also lowers operational costs through automated, data-informed decisions.

This data-driven approach improves lending quality for individuals and businesses alike, addressing the credit needs of the Indian diaspora and supporting sustainable economic development. Effective underwriting of UPI-linked loan products necessitates sophisticated analysis of transaction metadata. Lenders can construct robust models incorporating various parameters to achieve granular creditworthiness evaluations, moving beyond conventional bureau scores to predictive, behaviour-based assessments. This enhances approval rates for creditworthy borrowers and also minimises adverse selection.

By shifting to data-centric models, stakeholders can bridge the credit divide, empower MSMEs and drive economic resilience. However, realising this potential requires robust data privacy frameworks in line with the Digital Personal Data Protection (DPDP) framework, ethical AI practices and collaborative regulatory oversight. As UPI continues to evolve, it promises to redefine lending as a seamless extension of everyday transactions, ultimately contributing to India's vision of a digitally empowered economy.

Innovative business models

As the industry is evolving, UPI payment apps have transitioned from merely being a payment tool to now being leveraged by banks and NBFCs to source customers, facilitate transactions, generate bill payment reminders and accept repayments. A large FinTech's lending partners have disbursed personal and merchant loans worth INR 271 billion in FY24 – a growth of 70% YoY – enabling the company to earn 20% (INR 20 billion) of its revenue.

33 https://www.sidbi.in/head/uploads/msmepluse_documents/MSME_Pulse_Report_May_2025_Digital_Version_compressed.pdf

Impact of the gaming regulation on UPI

The Promotion and Regulation of Online Gaming Act, 2025 implemented from August 2025,[34] has materially impacted UPI, as it prohibits banks and payment systems from processing transactions for real-money gaming platforms. According to NPCI data, the 'Digital Goods: Games' merchant category saw:

- **Transaction volume:** Fell by **23%,** from **351.2 million** in July to **270.7 million** in August 2025
- **Transaction value:** Dropped by **26%,** from **INR 101 billion** in July to **INR 74 billion** in August 2025[35]

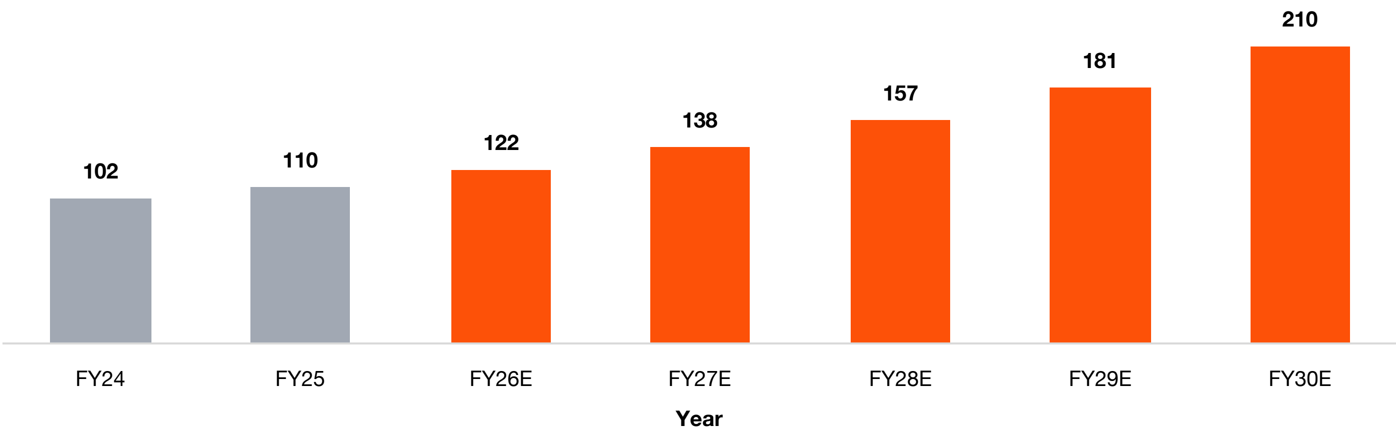
This sharp decline directly correlates with the enactment of the **Online Gaming Act,** which **banned real-money games** such as rummy, poker, fantasy sports and ludo. Despite the gaming sector's decline, **overall UPI volumes hit record highs** in August 2025, crossing **20 billion transactions** worth **INR 24.8 trillion.**[36] Growth continued in categories like **groceries, debt collection, dining and utilities,** showing UPI's resilience and diversification.

2.1.2 Credit cards

According to RBI data, private banks lead the credit card issuance in India, with eight of the top ten issuers being private banks. The credit card market in India is quite consolidated, with the top four banks accounting for approximately 71% of all credit cards outstanding, around 77% of transaction volumes and about 75% of transaction value.[37]

Over the past three years, the number of outstanding credit cards has grown at a CAGR of ~14%, reaching around 110 million by the end of FY25. During the same period, transaction volumes have increased at a CAGR of about 28.7%, while transaction values have grown at 29.5%. The average number of transactions per card has risen by 12.6%, climbing from 30 transactions per card per year in FY22 to about 43. Additionally, annual spending per card has surged from INR 132k to approximately INR 192k over the three years, reflecting a CAGR of 13%. Interestingly, the average ticket size has remained relatively stable at around INR 4,400.

Figure 9: Number of credit cards outstanding (million)



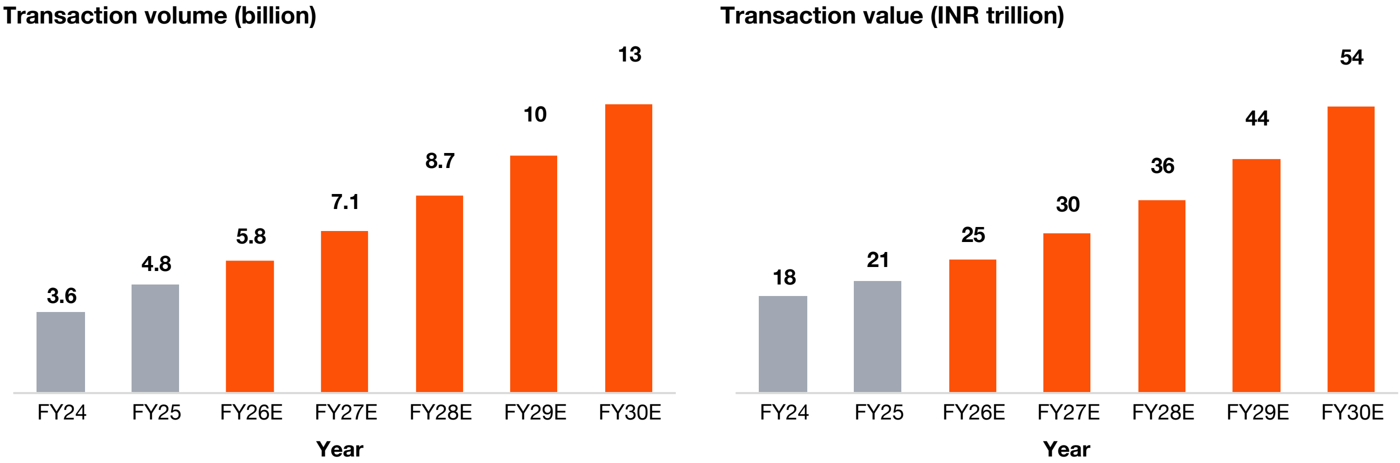
Source: RBI, PwC analysis

34 https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/aug/doc2025821618101.pdf
35 https://www.npci.org.in/what-we-do/upi/upi-ecosystem-statistics
36 Ibid.
37 Reserve Bank of India (RBI) data

According to our analysis, the number of outstanding credit cards is projected to grow at a CAGR of 13.8%, reaching approximately 210 million cards by FY30. If NBFCs are permitted to issue own credit cards, this figure could increase by an additional 10% to 15%. However, to facilitate this expansion, regulatory bodies must ensure that these NBFCs are resilient and capable of managing the associated risks effectively.

Currently, NBFCs collaborate with banks to issue credit card products, but these partnerships introduce friction, reduce agility and increase the time required to bring products to market. If NBFCs are permitted to issue credit cards independently in the coming years, they would be able to quickly offer credit cards to their existing customer base, significantly enhancing their credit card reach to their captive customer base.

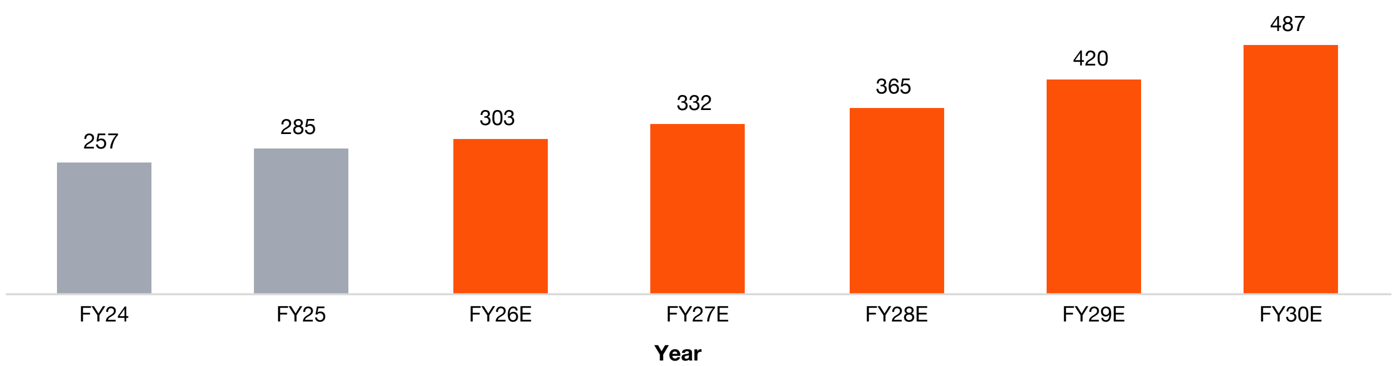
Figure 10: Credit card transactions – volume and value



Source: RBI, PwC analysis

In the next five years, the volume and value of credit card transactions in India are expected to grow at approximately 21.7% and 20.8% respectively, reaching around 13 billion transactions totalling INR 54 trillion by FY30. The number of transactions per card each year is anticipated to gradually increase from 43 to 61, while annual spending per card is projected to reach INR 258,000, growing at a CAGR of 6.1%. The average ticket size is expected to remain stable at around INR ~4,200, with downward pressure from credit card transactions on UPI and upward pressure from inflation. A significant development in India's payments ecosystem has been the linking of RuPay credit cards with UPI, which combines the convenience of UPI with the rewards of credit cards. It has been observed that the share of RuPay credit cards is rapidly increasing among credit card users in India.

Figure 11: Credit card revenue (INR billion)



Note: Revenue for credit card has been calculated based on MDR charged.
Source: RBI; NPCI; PwC analysis

Trends in the credit card market

- **Secured credit cards:** Banks are increasingly offering secured credit cards backed by fixed deposits, gold or other assets, allowing them to extend credit products to thin-file and new-to-bank (NTB) customers while effectively managing risk.
- **RuPay credit card on UPI:** Linking of RuPay credit cards on UPI has revolutionised digital payments by combining UPI's simplicity with credit flexibility. Users can make seamless QR-based transactions while enjoying rewards and consolidated billing. This innovation has significantly boosted credit card adoption and usage, fuelling transaction volumes and deepening credit penetration.
- **Tokenisation:** In the coming years, biometric authentication is expected to be permitted for making digital payment transactions that currently require a PIN, such as UPI and card payments. This shift will enable mobile wallets to authorise transactions using native biometric authentication, enhancing convenience and adoption and, in turn, boosting demand for credit cards.
- **Co-branded credit cards:** Co-branded credit cards are rapidly increasing credit card penetration in India by offering tailored benefits through partnerships between banks and consumer brands. The growth is fuelled by rising digital adoption, personalised rewards and seamless onboarding experiences, making them a key driver of financial inclusion and credit expansion.
- **Credit card issuance by NBFCs:** Currently, NBFCs partner with banks to offer co-branded credit cards – an arrangement that often introduces friction, limits flexibility and extends time to market. If permitted to issue credit cards independently, NBFCs could quickly extend such products to their existing customer base. Before granting this approval, RBI would need to conduct a rigorous assessment to ensure these institutions demonstrate sufficient resilience, governance and risk-management capabilities to issue and manage credit cards safely.
- Financial institutions are increasingly targeting **high-net-worth individuals (HNIs) and ultra-high-net-worth individuals (UHNIs)** with premium and super-premium credit card offerings. To reach these customers, banks are leveraging alternative discovery channels, such as engaging with premium real estate buyers.

Market insights

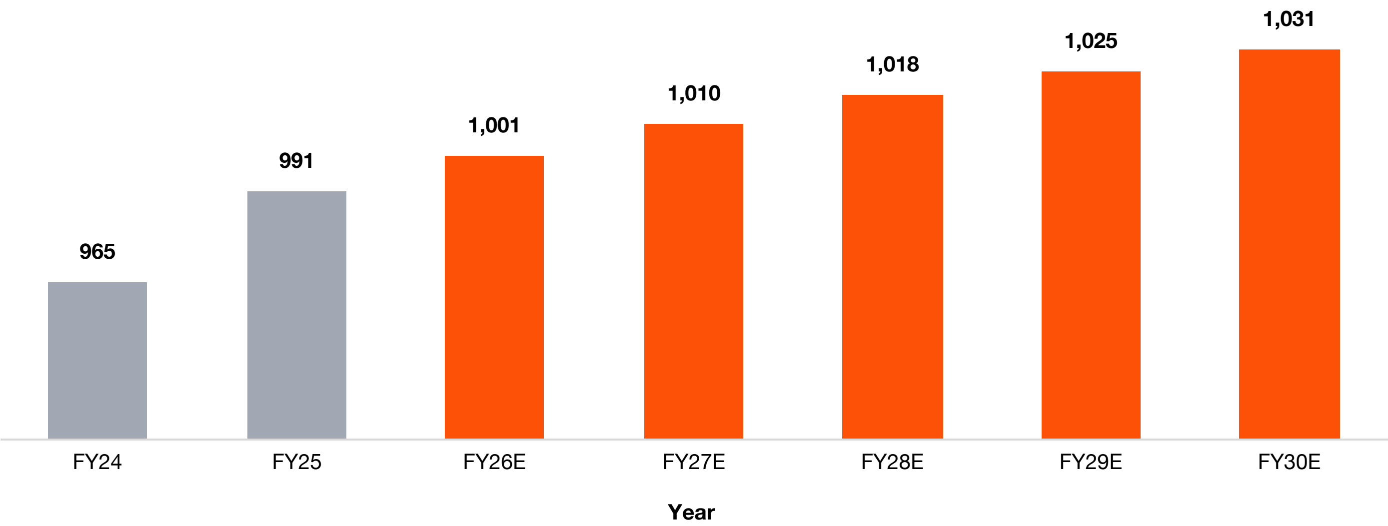
- Beyond UPI, credit cards are emerging as a key driver of innovation in digital payments, with 65% of respondents identifying them as the leading mode of growth.
- A significant shift towards tokenised, virtual formats and wearable payment solutions is expected, largely driven by the adoption trends of millennials and Gen Z.
- Loyalty and rewards programmes, coupled with accessible low-cost EMI options, are poised to further accelerate growth in the credit card segment by enhancing customer value and driving sustained engagement.
- More than 90% of respondents believe credit cards hold strong potential for future growth.

2.1.3 Debit cards

According to data from the RBI, the use of debit cards has significantly declined in recent years. Over the past three years, the volume of debit card transactions has decreased at a CAGR of 26%, while the transaction value has fallen at a CAGR of 12%. Despite this decline, the average transaction size (ATS) has increased from INR 1,854 to INR 3,074, growing at a CAGR of approximately 18%.

Additionally, the annual number of transactions per card has sharply decreased from 4.3 to 1.6, leading to a reduction in total spending per card from around INR 8,000 to INR 5,000 over the same period. Meanwhile, the total number of debit cards in circulation has grown at 2.59% to reach about 1 billion.

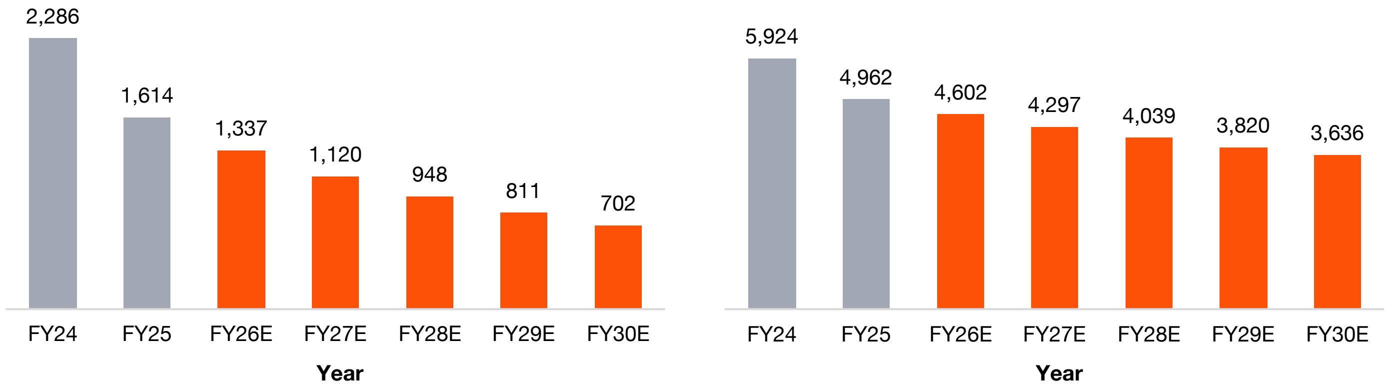
Figure 12: Number of debit cards outstanding (million)



Source: RBI, PwC analysis

The number of debit cards issued continues to grow YoY, primarily because they are linked to newly opened savings and current accounts. These accounts serve as a low-cost source of funds for banks, making debit card issuance a default process. However, despite this growth, customers are increasingly opting for UPI and credit cards for digital transactions. This shift in consumer behaviour is evident in the rapid growth of these payment instruments. Additionally, the ease of obtaining and using credit cards has contributed to the decrease in debit card usage for both PoS and online transactions. This trend is expected to continue in the coming years, with some banks considering the virtualisation of debit cards. By eliminating the physical form of debit cards, banks could achieve significant cost savings. A virtual debit card is a digital counterpart of a traditional debit card, primarily designed for secure online transactions. It can also be used for in-person payments through device tokenisation on leading mobile original equipment manufacturer wallet platforms.

Figure 13: Debit card transactions – volume and value

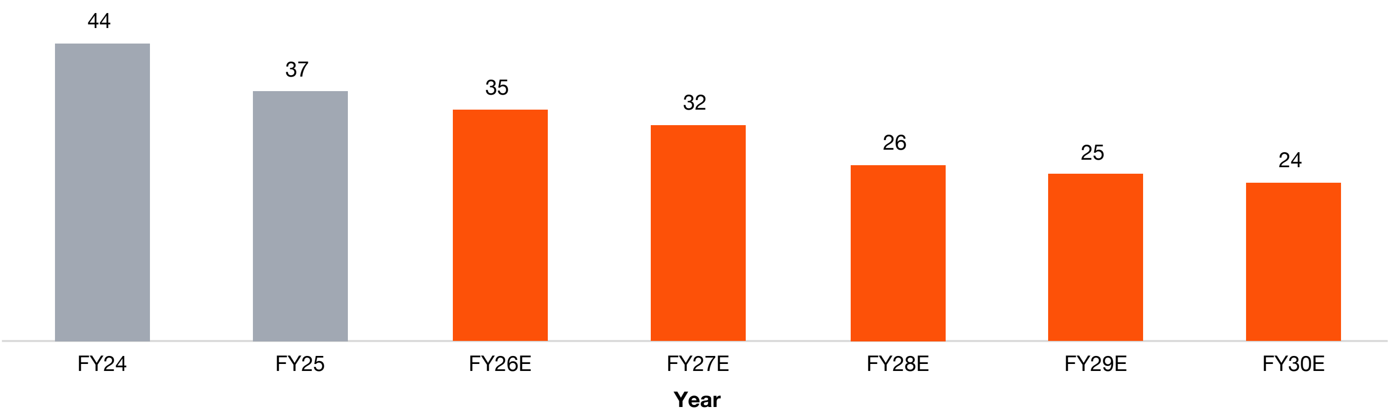


Source: RBI, PwC analysis

Market insights: Over 50% of respondents anticipate a decline in debit card usage, driven by the growing adoption of UPI and increased credit card penetration. Rural banking infrastructure could support moderate growth in this segment, helping maintain current volume levels.

By FY30, debit card transaction volumes are anticipated to decrease significantly, from the current 1.6 billion transactions to approximately 700 million, reflecting a yearly decline rate of about 15%. Additionally, the transaction value is projected to reduce by 6%, dropping from around INR 5 trillion to approximately INR 3.6 trillion. Despite these declines, the ATS is expected to rise at a CAGR of 11%, reaching INR 5,179 by FY30. Furthermore, the number of transactions per card per year is expected to fall even further – down to 0.7.[38]

Figure 14: Debit card revenue (INR billion)



Note: Revenue for debit card has been calculated based on MDR charged.

Source: RBI; NPCI; PwC analysis

38 PwC analysis

2.1.4 NETC

The National Electronic Toll Collection (NETC) system has achieved significant penetration and efficiency in toll collection, reflecting a strong shift towards digital payments in the transport sector. FASTag is progressing beyond toll collection, adopting new areas such as fee payments for parking in malls, airports, metro stations, forest entry points, large public events (e.g. Maha Kumbh Mela held from 13 January 2025 to 26 February 2025) etc.[39]

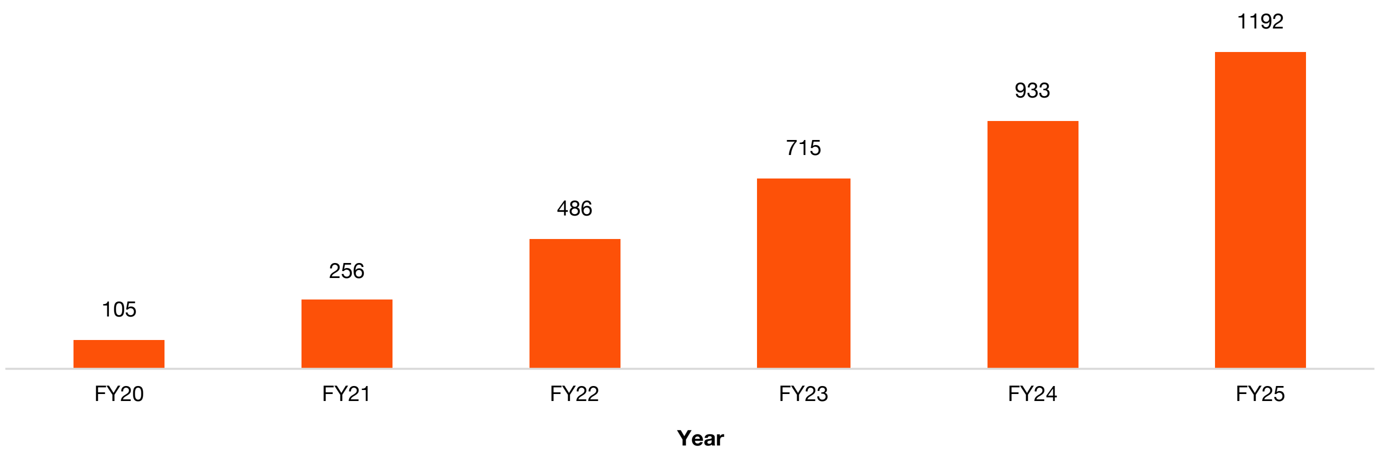
Figure 15: NETC key figures

10	38	1,738+
Live acquirer banks	**Live issuing banks**	**Toll plazas accepting FASTag**

As reported by NPCI in FY25, number of toll plazas have grown to 1,738 with steady 6.2% increase in national highways up to 150 million km. As of July 2025, banks have collectively issued over 112 million FASTags.[40] The average daily collection through Electronic Toll Collection (ETC) is around INR 1.9 billion, with penetration of about 98.5% in total fee collection.[41]

While live FASTags experienced impressive growth with a 36% CAGR since FY21, the ecosystem underwent a strategic rationalisation in FY25, leading to a 3% decline in the active tag base. This was a planned outcome of new rules executed in April 2024 aimed at improving data integrity. Key initiatives included the 'One Vehicle, One FASTag' mandate, the mandatory replacement of tags older than five years and the blacklisting of accounts that failed to update their KYC information.[42]

Figure 16: Number of FASTags issued (million)



Source: RBI; NPCI; PwC analysis

39 https://economictimes.indiatimes.com/news/economy/infrastructure/toll-mopup-rises-12-5-in-fy25-to-an-all-time-high/articleshow/119954601.cms?from=mdr

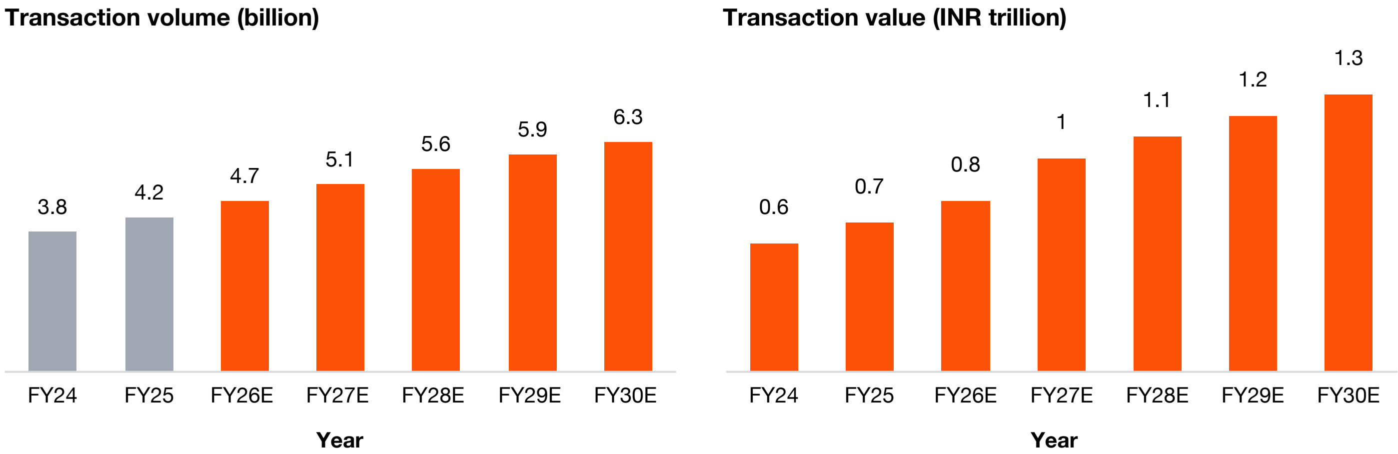
40 https://www.npci.org.in/what-we-do/netc-fastag/product-statistics

41 https://www.pib.gov.in/PressNoteDetails.aspx?id=154624

42 https://www.npci.org.in/what-we-do/netc-fastag/circulars

NETC transaction volume and value grew by 10% and 13% respectively, reaching 4.2 billion transactions and INR 729 billion in FY24-25. NETC has seen modest growth in FY25 due to the implementation of new rules by the NPCI and experienced slight degrowth in the commercial vehicles segment. The Indian logistics sector is growing 10–12% YoY[43] and is anticipated to grow with CAGR of 7.7% by 2030,[44] by attempting to reduce costs from 13–14% to around 8%.[45] To achieve this, public and private institutes are focusing on reducing the reliance on road transportation through initiatives such as PM Gati Shakti, use of alternative mode of transportation like rail or waterways and introduction of higher gross vehicle weight (GVW) vehicles with higher capacities.

Figure 17: NETC transactions – volume and value



Source: RBI; NPCI; PwC analysis

43 https://manufacturing.economictimes.indiatimes.com/news/industry/indian-road-logistics-sector-set-for-growth-ahead-of-festive-season-icra/113900622

44 https://www.businessworld.in/article/indias-logistics-sector-powers-ahead-amid-global-shocks-561642

45 https://infra.economictimes.indiatimes.com/news/logistics/govt-aims-to-cut-logistics-costs-to-8-with-cwcs-support/118671756

Revenue lines for NETC (FASTag)

Tag issuance

MDR

Over the next five years, while growth in toll volume may be moderated by the promotion of alternative transport modes, the overall value will continue to be driven by several key factors: consistent 4–5% annual toll rate hikes by the NHAI, rising traffic on existing highways, and the strategic expansion of FASTag into new use cases beyond mobility payments. Some of these use cases are already live, as seen during the Kumbh Mela, where a surge in traffic added an additional 2-3% to toll revenue.[46]

Figure 18: NETC revenue (billion)

Source: RBI; NPCI; PwC analysis

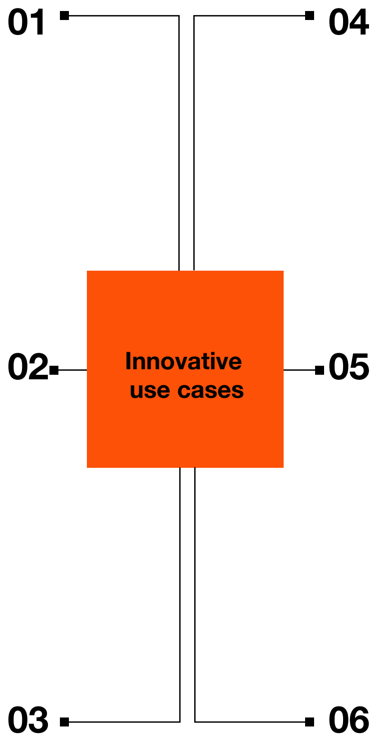
Moreover, multiple players are contributing to driving the adoption as well as generating revenue by facilitating partnerships between oil and gas companies and leading banks for fuel payments through FASTag, offering parking management systems with payment processing through FASTag by private players in malls, airport parking, forest entry points, etc.

46 https://economictimes.indiatimes.com/news/economy/infrastructure/toll-mopup-rises-12-5-in-fy25-to-an-all-time-high/articleshow/119954601.cms?from=mdr

FASTag as a flexible payment tool: Beyond toll collection

To expand FASTag's utility beyond toll collection, NPCI and Indian Highway Management Company Limited (IHMCL) are partnering with FinTechs, parking management companies and other industry players to develop new applications for the platform, including seamless payments for EV charging, parking and, potentially, insurance services.[47]

Figure 19: Innovative use cases for FASTag



Parking payments

FASTag is already widely used for cashless payments at parking facilities in malls, airports and urban centres which deduct fees automatically, reducing wait times. NPCI, along with parking operators, is working to expand adoption by rolling it out at more locations.

Fuel payments

FASTag-linked wallets facilitate payments at fuel stations, streamlining transactions and reducing cash handling. Large oil and gas companies and other fuel retailers have integrated FASTag for quick refuelling payments.

Smart city applications

FASTag supports smart mobility by enabling payments for congestion charges, low-emission zones or municipal services in smart cities. Pilot projects in cities like Delhi explore FASTag for urban mobility solutions.

Insurance and compliance

FASTag data can support usage-based insurance models and ensure compliance with vehicle regulations by tracking travel history. Potential integration with insurance providers for dynamic premium calculations.

Car maintenance and repair

FASTag-enabled payments can streamline car maintenance and repair transactions by linking vehicle expenses directly to the FASTag wallet. This allows for cashless payments at authorised service centres, improving convenience and tracking for fleet and individual vehicle owners.

EV charging stations

RFID readers at charging points detect FASTags, deducting fees from the linked wallet or bank account, eliminating the need for manual payments or app-based transactions. This reduces transaction time, enhances user convenience and minimises cash handling.

Shift towards free-flow tolling systems

GNSS-based tolling has been in discussion for the past few years, including a workshop in August 2022, where the Ministry of Road Transport and Highways (MoRTH) and NHAI officially announced plans to implement a GNSS-based toll collection system, aiming to eliminate toll booths within a year. To this end, the Government conducted pilot projects on the Bengaluru–Mysore section of NH-275 and the Panipat–Hisar section of NH-709[48] and announced an initial rollout alongside the existing FASTag system, targeting 2,000 km of highways by April–June 2025, prioritising commercial vehicles.

The NPCI and centre have commented that as the implementation of the GNSS-based system is still at a very nascent stage, a multi-lane free flow (MLFF) tolling or 'ANPR-FASTag-based barrier-less tolling system' will be implemented at select plazas to facilitate transactions through FASTag and vehicle registration number (VRN) using high-performance RFID readers and ANPR cameras.[49]

47 https://economictimes.indiatimes.com/industry/transportation/roadways/road-ministry-plans-to-expand-the-use-of-fastags-to-other-sectors-beyond-toll-collection/articleshow/122073997.cms?from=mdr

48 https://www.pib.gov.in/PressReleasePage.aspx?PRID=2036273

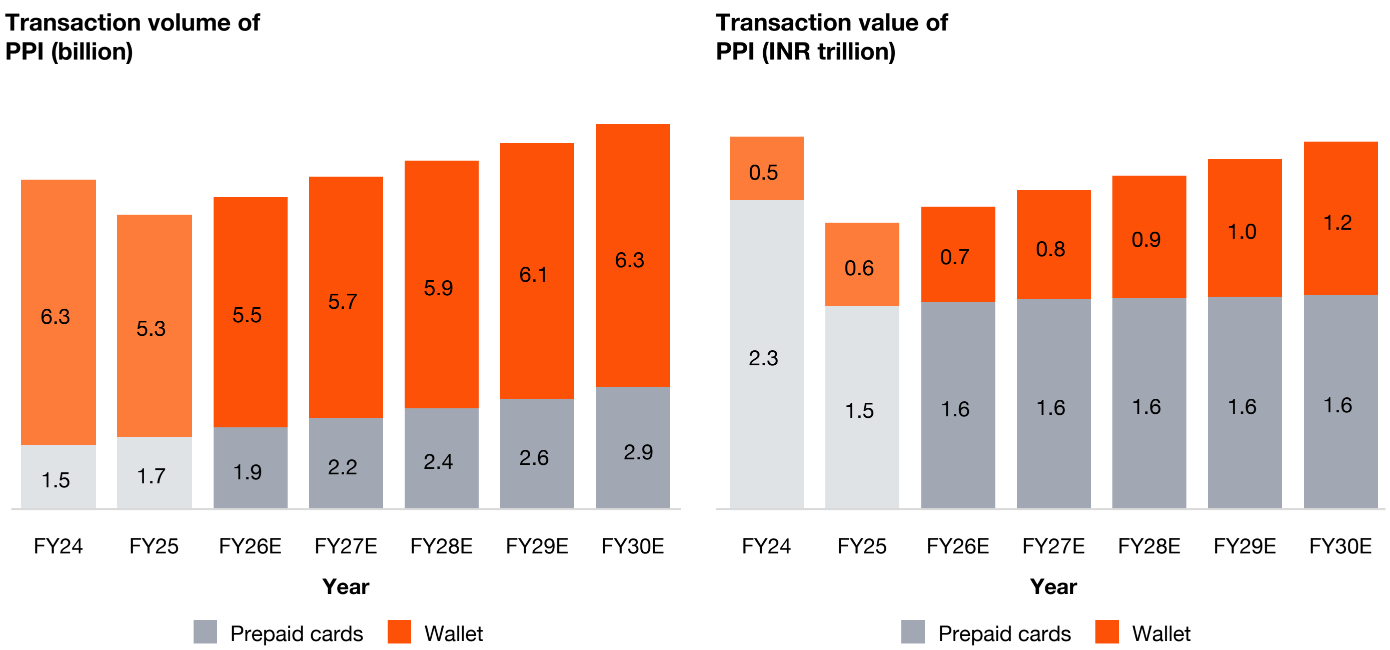
49 https://www.pib.gov.in/PressReleasePage.aspx?PRID=2139666

2.1.5 Prepaid Instrument

In stark contrast to the upward trend seen in recent years, PPIs experienced a downturn in FY25, with transaction volume and value dropping by 10% and 23% respectively. This decline was mainly observed in prepaid wallets, which suffered a 16% decrease in transaction volume and a 34% fall in transaction value – primarily due to a major player facing regulatory challenges, and RBI circular barring PPI issues to load it by credit lines. Meanwhile, prepaid cards jumped the trend, achieving growth of 14% in transaction volume and 31% in transaction value during the same period.

The gift card market is broadly categorised into closed-loop and open-loop cards, with the former commanding a dominant share of approximately 62%. A notable trend within this space is the increasing adoption of prepaid cards by corporates as part of their employee rewards and recognition programmes. These cards offer a flexible and convenient way to incentivise performance and boost morale.

Figure 20: PPI transactions – volume and value



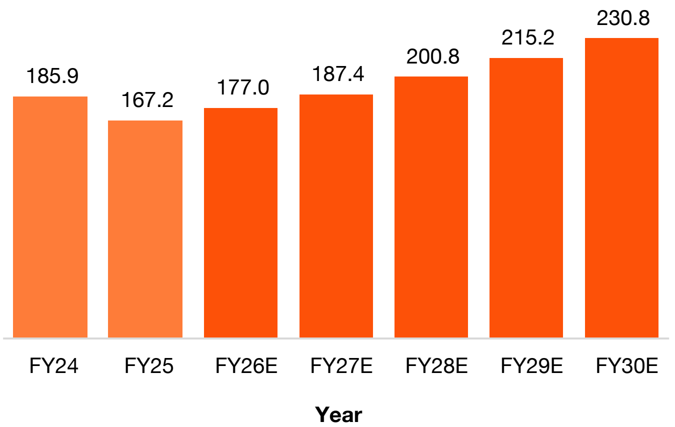
Source: RBI; NPCI; PwC analysis

Additionally, credit card issuers are leveraging prepaid cards as a customer engagement tool to reward users who achieve specific milestones with prepaid card as incentives. This strategy enhances customer loyalty and encourages higher spending.

The ecosystem is experiencing significant momentum, driven by several factors:

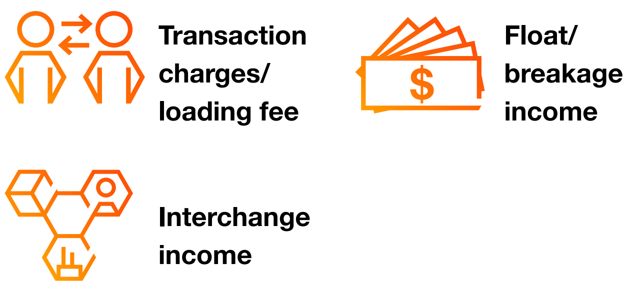
- In FY25, numerous players have applied for and have obtained licences for PPI issuance, contributing to the dynamic growth.[50]
- Outbound travel, particularly for leisure and education, is expected to boost the usage of forex prepaid cards. Between January and March 2025, India saw 75.9 million outbound travellers, with ~40% traveling for leisure.[51]
- RBI has authorised fully compliant KYC PPIs to use UPI for transactions via TPAPs, enhancing transaction efficiency and accessibility.[52]
- The expansion of NCMC cards is notable, with around 200 million NCMC-enabled cards issued by 48 banks as of March 2024.[53] Regulations facilitating the issuance of these cards with a limit of INR 3,000 without KYC have made them more user-friendly. Moreover, the emergence of new metro projects has accelerated the adoption of NCMC cards.
- Corporate gift cards have emerged as a powerful tool for business relationship management, with companies increasingly using them for employee engagement, channel partner incentives and customer loyalty programmes.
- RBI's approval for integrating PPIs with third-party UPI platforms is expected to open new avenues for transactional activities and drive significant growth in the PPI sector.

Figure 21: PPI revenue



Source: PwC analysis

Figure 22: Revenue lines for PPI



Market insights: PPI wallets and cards are expected to experience stronger growth compared to traditional digital payment methods such as NEFT and IMPS.

50 https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=12043

51 https://tourism.gov.in/sites/default/files/2025-07/Quarterly%20%20Tourism%20Snapshot%20Jan-Mar%202025.pdf

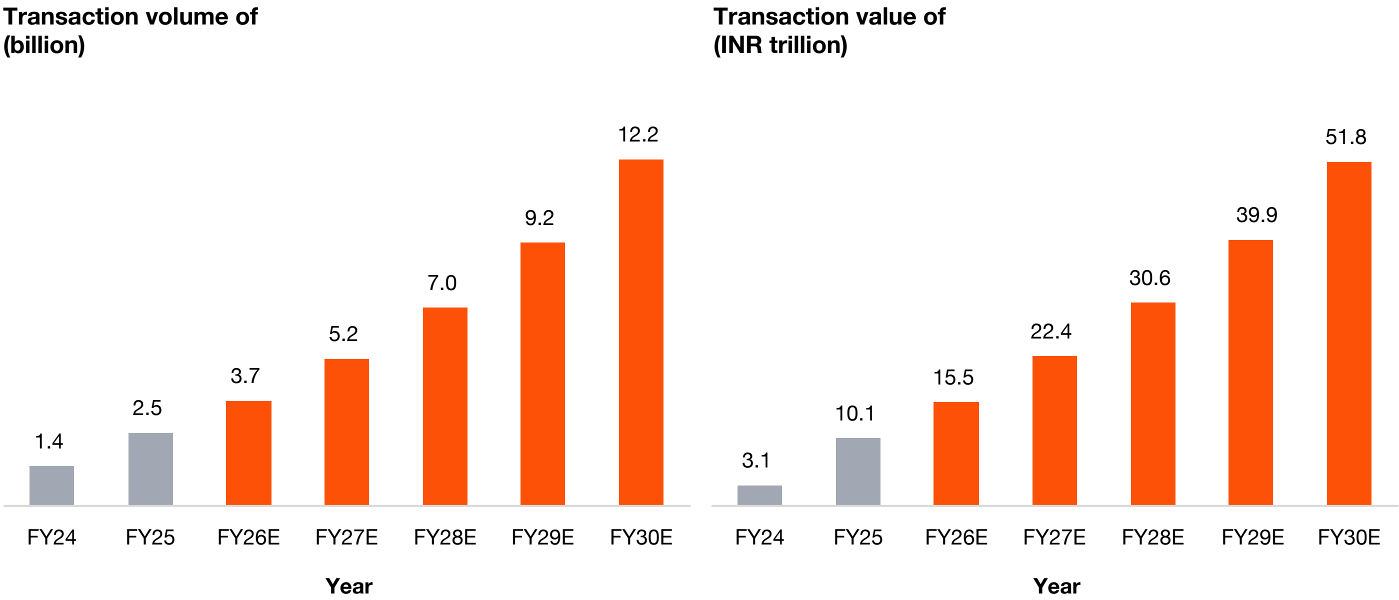
52 https://timesofindia.indiatimes.com/technology/tech-news/change-in-upi-rule-rbi-allows-upi-access-for-prepaid-payment-instruments-via-third-party-apps/articleshow/116750577.cms

53 https://www.npci.org.in/PDF/npci/knowledge-center/partner-whitepapers/RuPay-NCMC-Leading-the-way-in-Smart-Mobility-Payments.pdf

2.1.6 Bharat Connect

Bharat Connect, previously called Bharat Bill Payment System (BBPS), has shown significant growth and expansion, establishing itself as a crucial component of India's digital payments landscape. The transactional volume has increased by 83% YoY, while the value has surged by 230% YoY.[54] The average ticket size has also increased to INR 3,990 from INR 2,300 in FY24. This growth can be attributed to contributing categories such as credit cards, electricity, loan repayment, insurance and FASTag. As of August 2025, the Bharat Connect ecosystem has seen a significant transformation in terms of participation, with biller operating units at 48, customer operating units at 68 and number of billers at 22,427 with number of agent institutions at 1,112.[55] The ecosystem has also seen an increase in biller categories including rental payments, society maintenances, club and associations, hospital and pathology, donation, agent collection, National Pension Scheme, subscriptions, recurring deposits, and municipal tax payments.

Figure 23: Bharat Connect transactions – volume and value



Source: RBI; NPCI; PwC analysis

54 https://www.bharat-connect.com/statistics/billers/
55 https://www.bharat-connect.com/statistics/

Measures taken by RBI and NPCI to strengthen the ecosystem

- **Rebranding BBPS to Bharat Connect[56]–** The campaign broadened the scope and vision of Bharat Connect, emphasising on its usability beyond bill payments. It addressed misconceptions and reassured users by highlighting how Bharat Connect quietly powers millions of everyday transactions.
- **Bharat Connect for business[57]–** RBI aims to unify payment businesses under a standardised network with robust grievance and settlement mechanisms. Bharat Connect is enabling this for B2B payments, with FinTechs integrating as operating units. As of now, ten players are live on the platform.
- **Linking of FX-Retail platform with Bharat Connect and enabling cross-border payments[58]–** RBI announced its plans to link the FX-Retail platform – used for buying and selling foreign exchange – with Bharat Connect to expand the scope of cross-border transactions for foreign outward remittances along with inward remittances. This move will broaden digital access and simplify forex transactions, especially for individuals and sole proprietors.

Expansion through strategic enhancements:[59] NPCI introduced key innovations to accelerate the growth of the Bharat Connect system.

- Bharat Connect QR enables seamless offline-to-online bill collection, enhancing customer acquisition.
- UPI AutoPay integration facilitates recurring payments, improving convenience and retention.
- The Unified Presentment Management System streamlines bill fetching and presentment, reducing failures and enhancing reliability.
- ‘Deemed success’ feature improves transaction success rates by minimising refund-related disruptions.

Collectively, these enhancements strengthen Bharat Connect’s infrastructure, expand its service scope and elevate user experience across sectors.

56 https://www.bharat-connect.com/strapi/uploads/Intimation_of_Rebranding_and_Change_in_Logo_of_BBPS_9362012970.pdf

57 https://economictimes.indiatimes.com/tech/technology/b2b-fintech-companies-hop-on-bharat-connect-to-get-back-in-business/articleshow/118125597.cms?from=mdr

58 https://www.cnbctv18.com/market/rbi-to-link-foreign-exchange-platform-with-bharat-connect-to-broaden-digital-access-19612303.htm

59 https://www.bharat-connect.com/circulars/

In FY24–25, credit card bill payments emerged as the leading contributor to the transaction value, driven by RBI's mandate to route all such payments through Bharat Connect. While this category will stabilise. owing to 27 of the 64 issuing banks – including all major ones – being live, overall growth will be sustained by core categories like utility bills and loan repayments due to their convenience and accessibility. Furthermore, addition of new biller categories such as hospitals and pathology, society maintenance, National Pension Scheme, and clubs and associations will further diversify and strengthen the Bharat Connect ecosystem over the next five years.

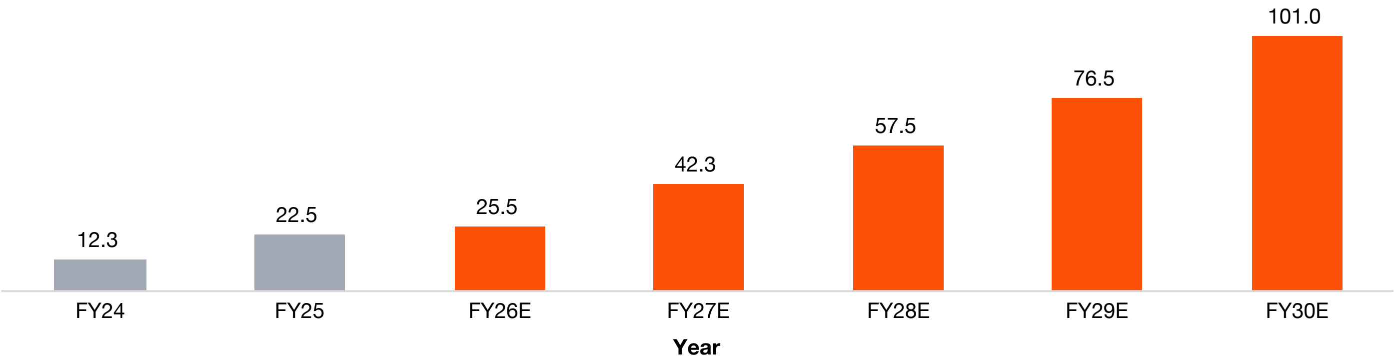
Revenue lines for Bharat Connect

Customer convenience fee

Interchange paid by biller to customer operating unit

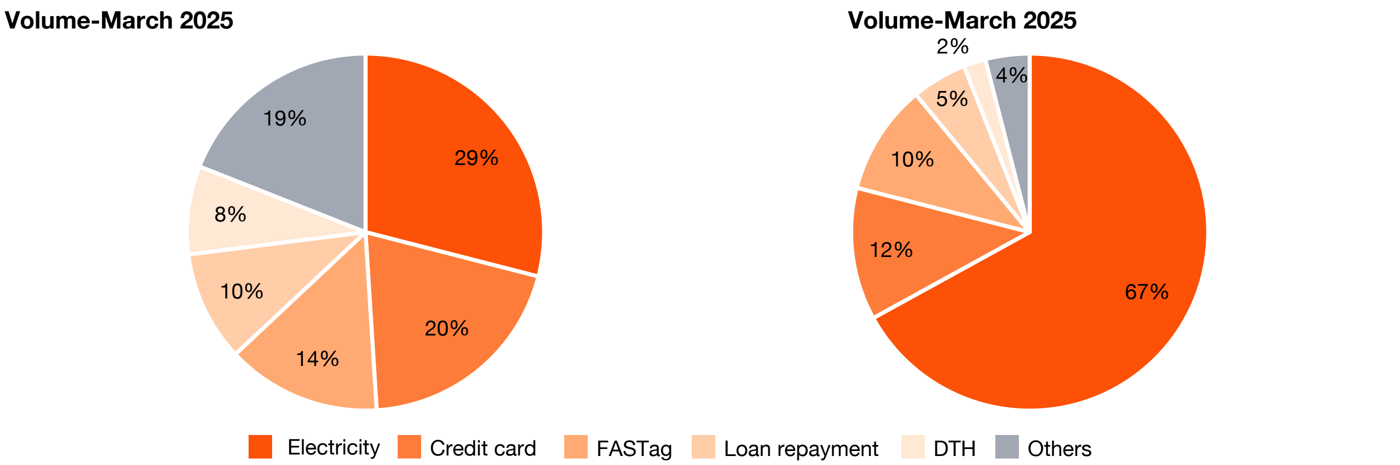
Float income

Figure 24: Bharat Connect revenue (INR billion)



Source: RBI; NPCI; PwC analysis

Figure 25: Bharat Connect – bill payment type volume and value split



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

Source: Bharat BillPay; NPCI; PwC analysis

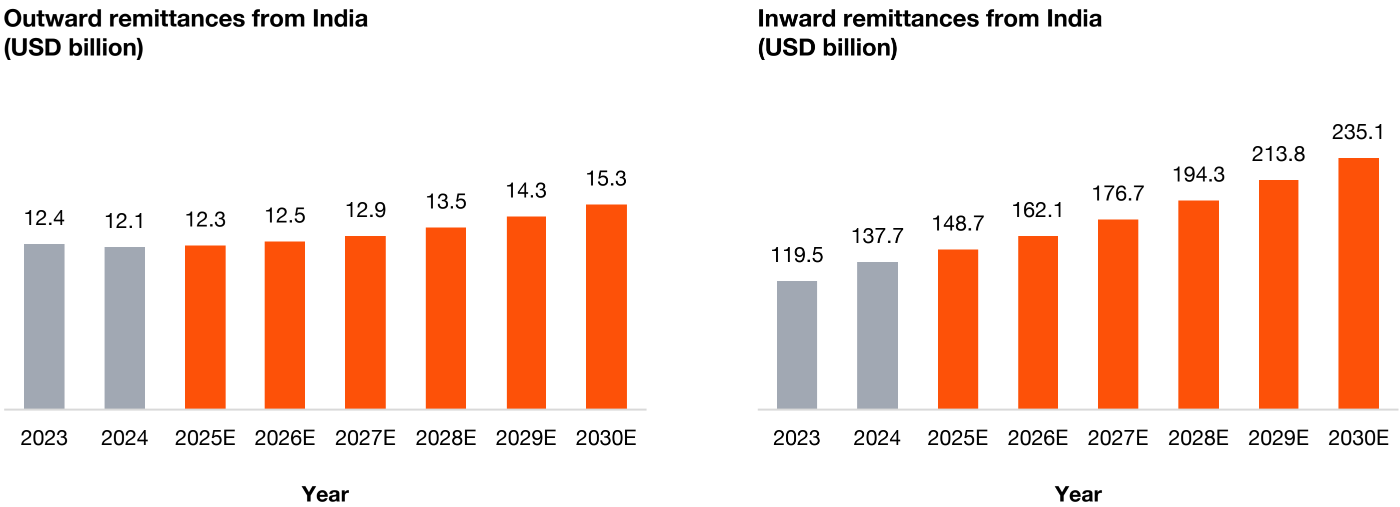
2.1.7 Cross-border remittance

According to the World Bank, in 2024, remittance flows to low- to middle-income countries (LMICs) increased to USD 685 billion, with a growth rate of 5.8%.[60] Globally, total remittance flows rose by 4.6% from USD 865 billion in 2023 to USD 905 billion in 2024. This was driven by strong labour markets in high-income countries and skilled labour shortages, which increased the demand for migrant workers and digital channel adoption. Over 60% of remittances in 2024 were processed through digital channels.[61]

India, at USD 150 billion in 2024, has been the largest recipient of remittances globally with a contribution of 14.3% – which is the highest such share since the turn of the millennium for any country.[62]

India saw a steady growth of 1.5% to 2% in outward remittances, majorly driven by the growing emigrant population from countries such as Bangladesh, Nepal, Pakistan and Sri Lanka. This growth can mainly be attributed to labour shortages and increased demand for migrant workers. Moreover, the cost of sending remittances from India to these countries reduced by almost 0.5%, due to increased adoption of digital payment channels and reducing intermediaries in payment chains. In the next five years, inward remittance flows to India may observe moderate growth of 8% to 9%,[63] sent by emigrants mostly hailing from advanced economies (AEs) such as the US, the UK, Australia or Gulf Cooperation Council. Factors attributing to this growth are high-paying jobs – especially for skilled Indian migrants – and changing migration patterns – especially in Kerala, Tamil Nadu, Andhra Pradesh and Telangana. In 2024, there has been a substantial outflow of people, with over 600,000 leaving India, particularly for countries like the UK, the UAE, Canada, Australia, and the US.[64]

Figure 26: Outward and inward remittances from India



Source: World Bank; PwC analysis

60 https://blogs.worldbank.org/en/peoplemove/in-2024--remittance-flows-to-low--and-middle-income-countries-ar
61 https://www.migrationdataportal.org/themes/remittances-overview
62 https://www.thehindu.com/data/india-got-143-of-global-remittances-in-2024-its-highest-ever/article69039825.ece
63 PwC analysis
64 https://factodata.com/brain-drain-how-many-people-left-india-from-1960-to-2025

Considering cross-border remittances in India, initiatives like the UPI's linkage with Singapore's faster payment system, and expansion to countries like Trinidad and Tobago are making cross-border transfers faster, cheaper and more accessible.[65] RBI's issuance of PA-CB licences and its participation in global projects like Nexus and ISO 20022 adoption are enhancing interoperability and trust.[66] FinTechs are capturing large share of the remittance market, leveraging DLT, stablecoins,[67] and real-time payment rails to offer low-cost, transparent and 24x7 services. With the RBI exploring cross-border CBDC pilots and global regulatory alignment through forums like the Financial Stability Board (FSB), India is well-positioned to scale its remittance economy and retain its pole position in inward remittances.[68] However, outward remittances might get impacted due to the implementation of tax by various countries globally.

2.2 Merchant acquiring

Merchant acquiring plays a pivotal role in enabling seamless commerce by acting as the essential bridge between merchants and the broader payments ecosystem. Beyond simple payment processing, the acquiring business serves as a critical enabler for merchants to not only accept payments from multiple channels – such as credit and debit cards and UPI – but also gain access to a network of ecosystems players including payment networks, banks, issuers, payment gateways and service providers. This interconnected network ensures that transactions are authorised, authenticated and securely settled, creating a frictionless experience for both merchants and consumers alike. Moreover, merchant acquirers provide value-added services such as fraud prevention, data analytics, settlement and reconciliation tools that enable merchants to optimise their operations. The scope encompasses both physical and online payments, addressing the evolving needs of commerce in an increasingly digital world. By facilitating these transactions and connecting key participants within the payment's ecosystem, the merchant acquirers act as an essential that supports not only everyday transactions but also the broader digital transformation of retail and commerce.

65 https://www.npci.org.in/npci-in-news/press-releases

66 https://timesofindia.indiatimes.com/business/india-business/rbi-joins-nexus-to-link-upi-with-asean-fast-payment-systems-for-cross-border-payments/articleshow/111403524.cms

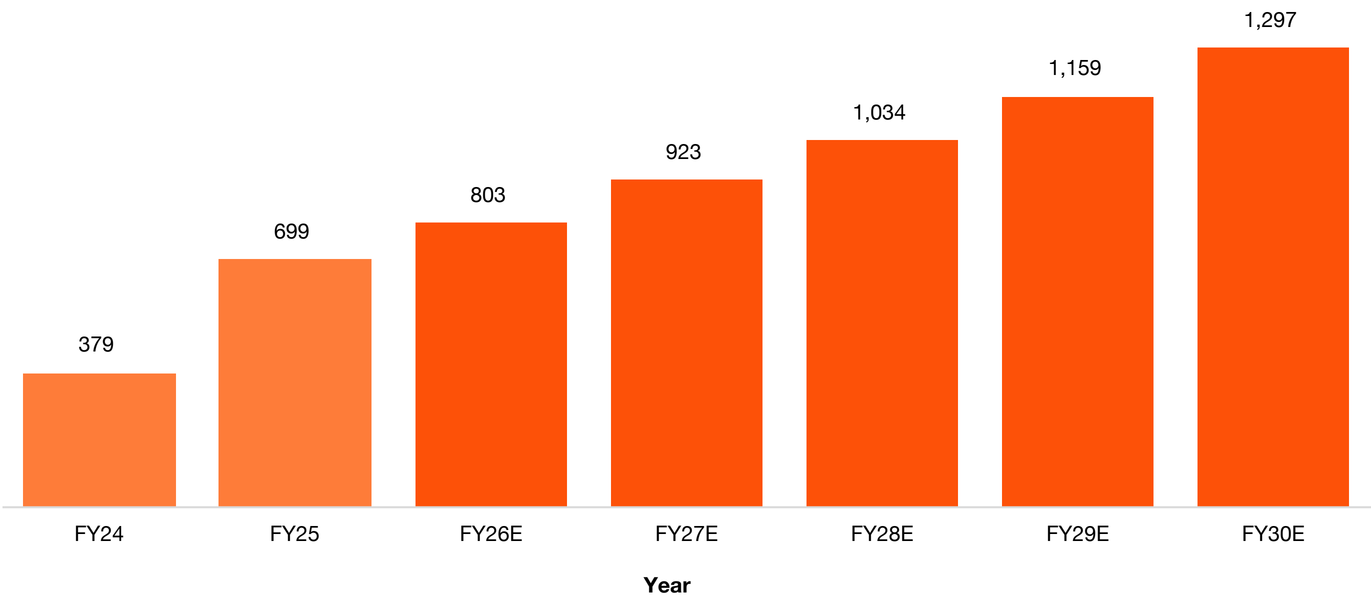
67 https://www.fortuneindia.com/markets/cryptocurrency/how-stablecoins-could-unlock-indias-130-billion-remittance-economy/123706

68 https://documents1.worldbank.org/curated/en/099714008132436612/pdf/IDU1a9cf73b51fcad1425a1a0dd1cc8f2f3331ce.pdf

2.2.1 Payment at merchant location

Digital payment acceptance infrastructures at merchant location form the backbone of retail transactions, enabling merchants to efficiently accept a variety of electronic payments while enhancing the consumer experience at the PoS. Currently, the landscape is dominated by traditional PoS terminals, soundboxes and QR codes, facilitating quick and secure payment acceptance, with innovative all-in-one devices gaining traction.

Figure 27: Total payment acceptance devices deployed (million)



Source: RBI; PwC analysis

Emerging trends in in-store payments

a) **QR code dominance:** QR codes have become the backbone of offline digital payments in India. They are cost-effective, easy to deploy and require no expensive hardware – making them ideal for small merchants. UPI-based QR transactions have surged, especially in Tier 2 and 3 cities.

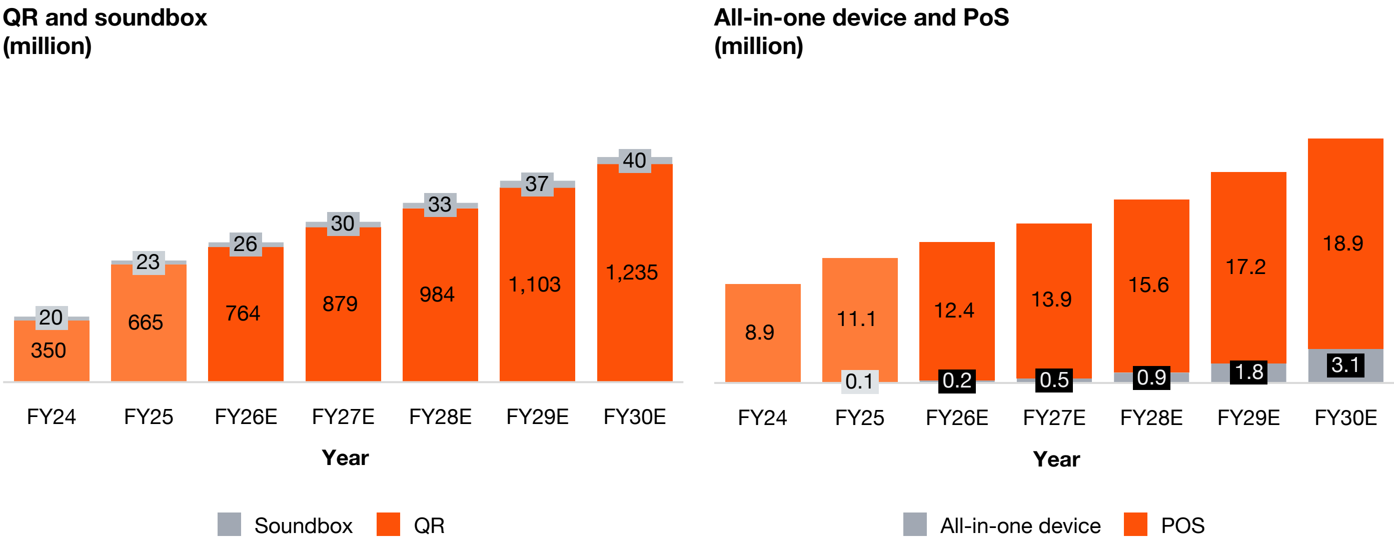
b) **Evolution of PoS systems:** PoS devices are evolving into all-in-one smart terminals that support EMV chip, swipe, tap (NFC), static/dynamic QR codes and integrated soundbox.

c) **Soundboxes for instant payment confirmation:** Soundboxes provide real-time voice alerts for successful transactions, reducing disputes and improving trust. They are particularly useful for small merchants who handle high transaction volumes and need quick confirmation.

d) **Penetration in Tier 2 and 3 cities:** Acquirers are increasingly focusing on semi-urban and rural markets by offering low-cost payment solutions such as QR codes and soundboxes. This strategic expansion is fostering financial inclusion and accelerating the adoption of digital payments in underserved regions. Notably, around 75% of new QR code deployments have taken place in Tier 2 and Tier 3 cities.[69]

69 https://bfsi.economictimes.indiatimes.com/news/fintech/upi-transactions-grow-42-yoy-in-h2-cy24-qr-code-deployments-surge-126-to-633-44-mn/119904505

Figure 28: Split of payments devices deployed



Source: RBI; PwC analysis

e) **Real-time settlements:** Merchants increasingly demand instant settlement instead of traditional T+1 or T+2 cycles. Real-time settlement improves cash flow, which is critical for small businesses with a tight working capital.

f) **Instant merchant onboarding:** Using Aadhaar-based eKYC and India Stack, acquirers can onboard merchants within minutes. This paperless process reduces friction and accelerates digital adoption.

g) **Loyalty and rewards integration:** PoS systems now include loyalty programmes and cashback offers, helping merchants retain customers and increase repeat business.

h) **Cross-selling financial products:** Acquirers leverage transaction data to offer loans, insurance and savings products to merchants, creating new revenue streams and supporting financial inclusion.

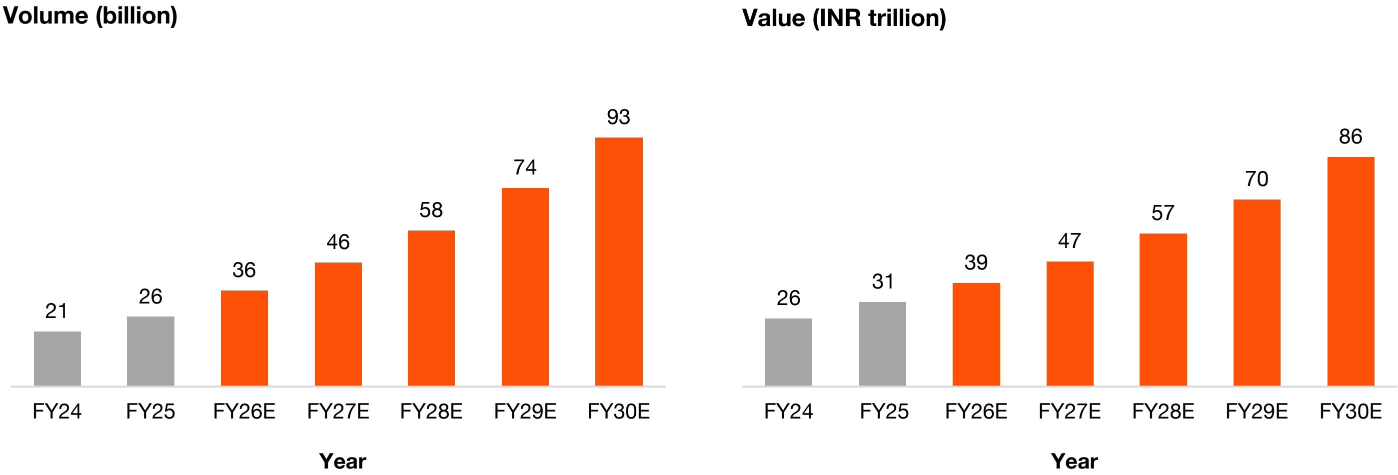
i) **Introduction of all-in-one devices:** The introduction of all-in-one payment devices – integrating QR code scanning, card payments (tap and PIN) and soundbox functionality – is expected to see increased adoption, driven by the convenience they offer to merchants at minimal incremental cost.

Market insights: Over 84% of respondents believe that low-cost acceptance infrastructure, along with integrated PoS and tap-to-phone solutions, is going to be crucial in driving merchant adoption.

2.2.2 Online payments

The online payment sector – including payment gateways, payment aggregators, automated bill payment services and recurring payment solutions – is witnessing rapid innovation and significant market expansion. The online payment market is projected to grow at a 22% CAGR, expected to reach INR 86 trillion by FY30 from INR 31 trillion in FY25. By volume, it is expected to grow at a 29% CAGR, reaching 93 billion transactions by FY30 from 36 billion in FY25. The driving forces behind this robust growth are multifaceted, including the penetration of smartphones and affordable internet, the continuous influx of new and agile players, a culture of innovation fostering user-centric solutions, an expanding population looking for convenience in payments, and a consistently rising GDP contributing to increased digital consumption.

Figure 29: Online payments transactions – volume and value



Source: RBI; PwC analysis

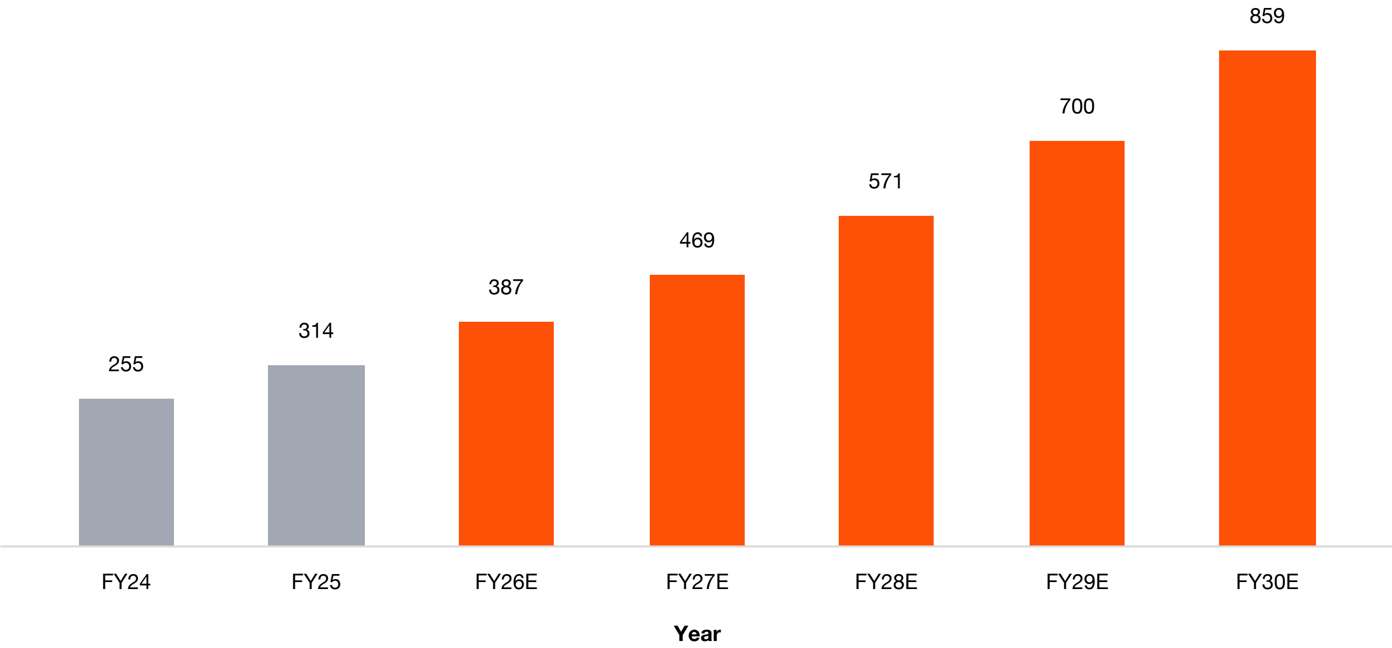
a) **Omnichannel payment solutions:** Unified payment systems connect online, in-app and offline transactions into a single platform. This helps merchants manage multiple channels efficiently and deliver a consistent customer experience. A large payment company acquired a PoS device solution provider to enable businesses to accept payments across websites, mobile apps and physical stores through one integrated dashboard.

b) **BNPL expansion:** BNPL solutions allow customers to split their payments into easy monthly instalments, making purchases more affordable. For example, many e-commerce platforms now let shoppers buy products instantly and pay later in flexible instalments, which attracts price-sensitive customers and boosts conversion rates.

c) **Transparent and flexible pricing models:** Acquirers are introducing pricing structures like Interchange++ and tiered models for better cost clarity. For instance, some payment providers now offer detailed pricing breakdowns so businesses can predict costs accurately and avoid hidden charges, helping them manage margins effectively.

Figure 30: Revenue from online payments

(INR million)



d) **Loyalty and rewards integration:** Payment platforms are embedding cashback and loyalty programmes into the checkout experience. For example, customers can earn instant cashback or redeemable points during transactions, encouraging repeat purchases and improving retention.

e) **Dynamic currency conversion:** Merchants are adopting multi-currency acceptance to cater to global customers. For example, international shoppers can view prices in their local currency while merchants settle in their preferred currency, simplifying cross-border transactions and boosting global sales.

f) **Data-driven insights:** Advanced analytics tools help merchants understand customer behaviour and optimise pricing strategies. For instance, dashboards now provide insights into transaction trends, customer demographics and payment success rates, enabling data-driven decisions.

g) **AI-powered fraud prevention and risk scoring:** AI is transforming payment security by addressing both transaction- and merchant-level risks. Real-time AI systems monitor transactions to detect anomalies and flag suspicious activities, reducing chargebacks and financial losses. At the same time, AI-driven risk scoring models evaluate merchant credibility during onboarding, ensuring compliance and protecting the ecosystem from fraudulent businesses.

h) **Biometric authentication with API-first integration:** Modern payment platforms are adopting an API-first approach while integrating advanced security features like biometric authentication. Businesses can now embed payment solutions seamlessly into their websites and apps using developer-friendly APIs, enabling customers to authorise transactions through fingerprint or facial recognition. This combination enhances user experience, accelerates go-to-market and strengthens security for high-value transactions by reducing fraud risk.

03 Industry views on the future of digital payments

PwC conducted a survey with 175+ individuals in the payments and FinTech space in roles such as CXOs, product heads, strategy leads and other senior leadership overseeing payment products. The survey explored emerging trends, innovation drivers, regulatory impact and outlook for trends in digital payments in India.

Key takeaways and insights

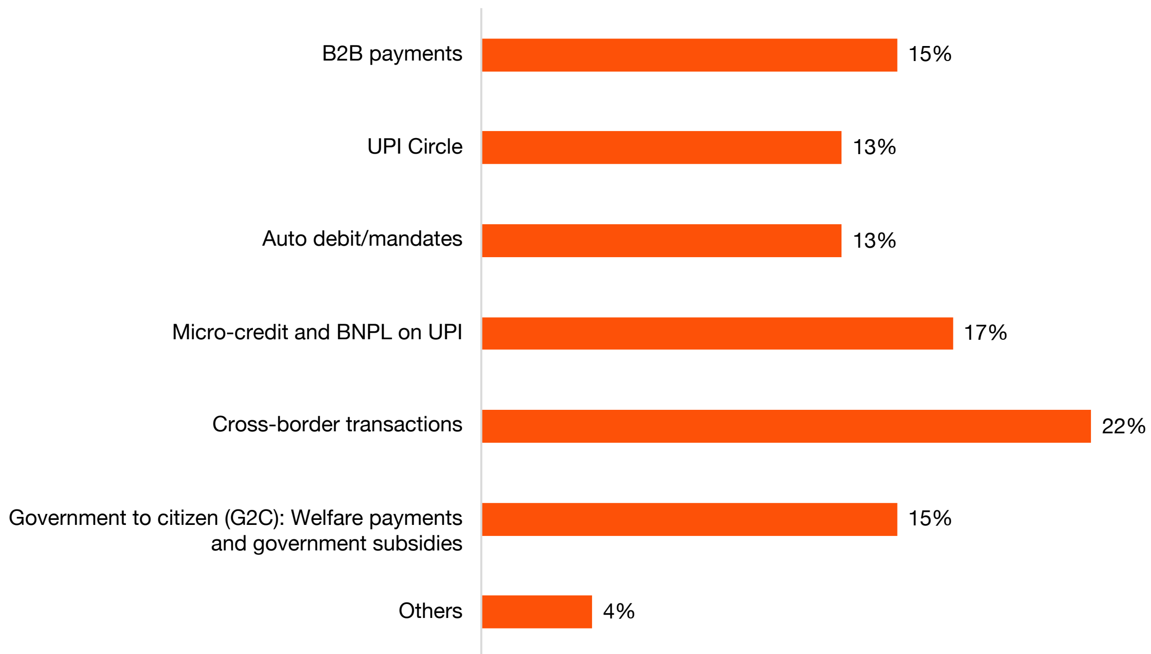
While UPI remains central, the next wave of transformation will be spearheaded by credit cards, with 65% of respondents ranking them as the top growth mode. The influence of AI is another dominant theme, as 73% of respondents expect GenAI and agentic AI to significantly impact the payments landscape.

Key growth areas for UPI are also emerging, with 22% of participants identifying cross-border transactions as a pivotal new use case. This evolution is supported by a favourable regulatory environment, where 70% of respondents feel that tokenisation and the RuPay–UPI linkage are top enablers. To succeed, a focus on user trust and experience is paramount, with 66% believing that hyper-personalisation and cybersecurity are critical success factors.

a) Emerging use cases that would further drive the adoption of UPI

The survey highlights **cross-border transactions and credit-based services** as the most promising areas for UPI expansion. There's also notable interest in **government disbursements** and business payments, suggesting UPI's potential to evolve beyond peer-to-peer transactions into a comprehensive financial ecosystem.

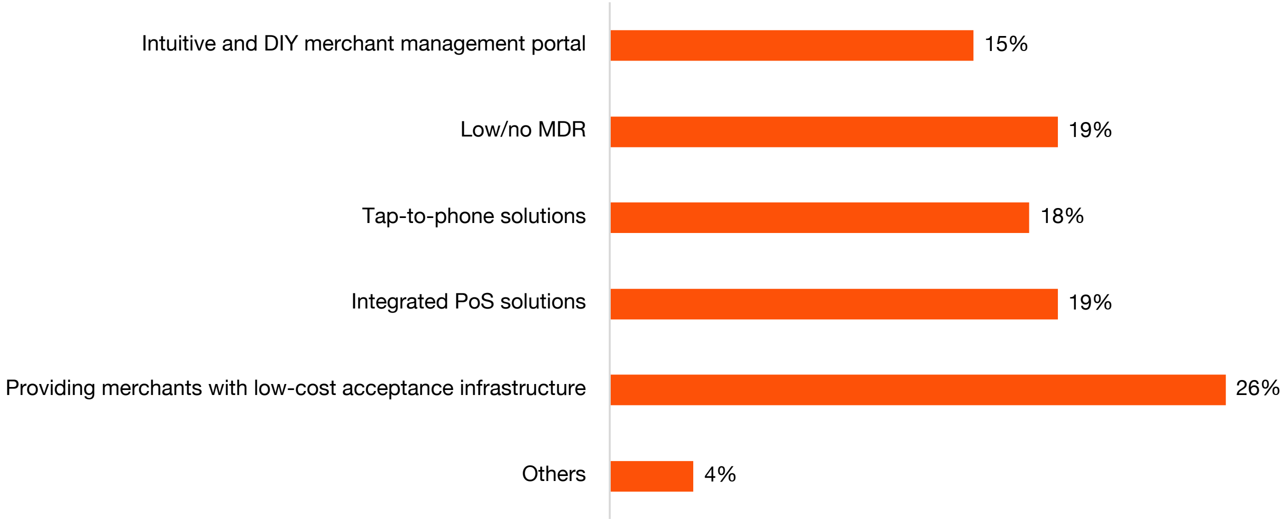
Figure 31: Emerging trends on UPI



b) Providing maximum value to merchants in the acquiring space

As highlighted by the industry participants, the highest priority for merchants is **access to low-cost acceptance infrastructure,** indicating that affordability is essential for the wider adoption of digital payments. Strong interest in **integrated PoS** and **tap-to-phone** solutions suggests merchants value seamless, multifunctional tools that simplify operations and reduce hardware dependency.

Figure 32: Trends in merchant acquiring

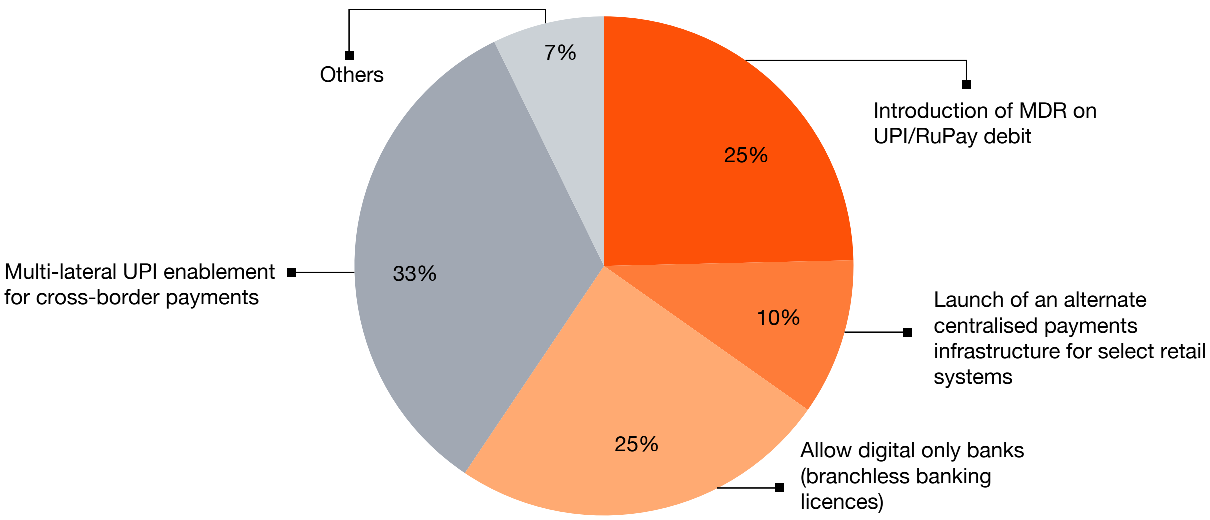


c) Regulatory trends that would accelerate digital payments growth:

Cross-border UPI enablement is the top priority (33%) – indicating a strong demand for international interoperability, which could unlock new markets and remittance flows.

Regulatory support for digital-only banks and MDR introduction on UPI/RuPay debit suggests that the ecosystem is looking for sustainable monetisation models and innovation-friendly licensing to support long-term growth.

Figure 33: Regulatory trends

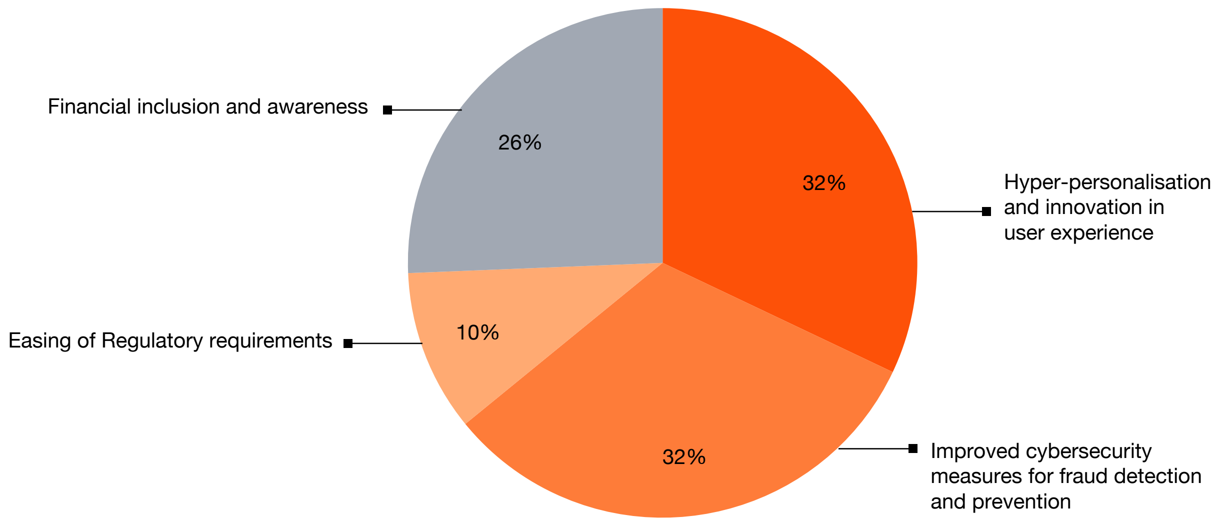


d) Critical success factors for the future of digital

User experience and security are paramount: The top two success factors –**hyper-personalisation/UX innovation and cybersecurity** (each with 32%) – highlight that future growth in digital payments hinges on making platforms both intuitive and secure.

Financial inclusion remains a strong priority with 26% – indicating that expanding access and awareness, especially in underserved segments, is still crucial for long-term adoption.

Figure 34: Critical success factors for the future of digital



Conclusion

Our findings underscore a pivotal moment for digital payments in India. The era of pure transaction processing is evolving. While UPI remains the core, the next phase of transformation will be led by three powerful forces: the integration of credit, the deployment of AI to create smarter user journeys and a shifting regulatory landscape. Success now requires a strategic pivot – rethinking product roadmaps to embed credit, investing in AI capabilities to enhance engagement and aligning with regulatory tailwinds to capture future growth. Ultimately, stakeholders must align their strategies with these data-backed trends – particularly the rise of credit, the integration of AI and evolving regulatory frameworks – to stay ahead in this rapidly advancing ecosystem.

04 The future of digital payments in India

India's payments ecosystem is rapidly evolving into a global benchmark for digital financial innovation. With UPI at its core, the country is expanding real-time payment capabilities across borders, while maintaining a hybrid model that balances digital and cash transactions. FinTechs are driving product innovation in credit, customer-centric personalisation and embedded finance, supported by strong regulatory frameworks and infrastructure like Bharat Connect and the Digital Rupee. As cybersecurity, financial inclusion and AI-powered personalisation gain momentum, India is poised to lead the next wave of secure, inclusive and globally integrated payment solutions.

Over the next five years, India's payments landscape will evolve through digital currencies, decentralised identity verification and global tech integration. Real-time credit, seamless international remittances and embedded financial services will facilitate a more connected, inclusive and efficient financial ecosystem.

Figure 35: New trends in payments ecosystem

- **A** Use of agentic AI for streamlining payment operations
- **B** Blockchain and cross-border payment
- **C** CKYC with DLT or blockchain in the Indian payments industry
- **D** Growth in India's CBDC journey
- **E** Focus on designing payment solutions for differently abled population
- **F** Market-based, cost-reflective pricing for digital payments
- **G** Enabling cross-border payments through stablecoin – CBDC interoperability
- **H** Enabling payment for players from other industries
- **I** GCCs fuelling the future of FinTech businesses

a) Use of agentic AI for streamlining payment operations

Agentic AI enables systems to act independently in pursuit of specified objectives. In contrast to conventional AI, which gives more emphasis to pattern detection and data analysis, agentic AI uses this information for autonomous decision-making, task accomplishment and ongoing learning. Considering the rapid growth in digital transformation across the banking and financial services industry, many companies are also experimenting with various agentic AI solutions to bring efficiencies in day-to-day operational processes. There are a few players that are now implementing these solutions on a large scale across their operational value chain and newer use cases are also being explored.

Use cases across BFSI for agentic AI

These use cases enable players to reduce operational costs, enhance risk management and compliance, shorten turnaround times, and minimise human errors, among other benefits.

Figure 36: Use cases of agentic AI

KYC, AML and regulatory compliance automation	Agentic commerce	AI-driven lead qualification and conversion	Investment research and advisory generation
Customer service	Wealth management	Automating claim processing	Agentic AI-managed contact centre

b) Blockchain and cross-border payments

Blockchain technology is set to revolutionise India's payments landscape by enhancing security, lowering costs and streamlining transactions. Leading public and private banks are already leveraging it for cross-border payments and trade finance. By 2030, innovations such as stablecoins in cross-border payments, CBDC's expansion in digital transactions, decentralised finance in P2P lending and microfinance, and asset tokenisation to facilitate instant settlements – backed by regulatory clarity and technological advancement – could drive mass adoption. However, challenges like scalability, regulatory ambiguity and legacy integration require strategic investments, pilot initiatives and stakeholder education. As India's FinTech blockchain market continues its projected growth, the technology is set to become pivotal in building a more secure, efficient and inclusive digital economy.

Market insights: Seventy-three percent of respondents believe that GenAI and agentic AI are expected to have a significant impact on digital payments. Nearly half of the respondents believe that agentic AI and biometric authentication are set to transform the user experience in digital payments.

c) Central KYC (CYKC) with distributed ledger technology in the Indian payments industry

The CKYC framework has the potential to be deeply integrated with DLTs to transform identity verification across India's payment ecosystem. Leveraging DLTs, tamper-proof architecture, CKYC data can be made securely interoperable and instantly accessible across banks, FinTech and payment service providers, significantly reducing duplication and accelerating digital onboarding. Smart contracts will enable users to manage consent-driven data sharing, enhancing privacy and control. Transparent audit trails will support real-time regulatory oversight and compliance.

Building on early pilots by leading technology firms and regulatory bodies like NPCI, future applications may include seamless onboarding for CBDC (digital rupee), secure cross-border remittances and decentralised identity systems – positioning CKYC as a foundational layer for trusted digital finance in India.

d) Growth in India's CBDC journey

India's CBDC pilot, known as the digital rupee which was launched in late 2022, has now evolved into a multi-layered initiative with both retail and wholesale components. While adoption is still nascent, the pilot has expanded significantly in scope, participants and use cases. With India's digital payments ecosystem already among the most advanced globally, CBDC has the potential to further enhance financial inclusion, transaction transparency and cross-border efficiency.

These would be driven by use cases around programmability, offline access and institutional use cases. At present, CBDC still accounts for less than 0.003%[70] of the total currency in circulation and broader adoption depends on government push, user awareness and interoperability with existing payment systems.

The RBI is also actively exploring cross-border CBDC pilots, both bilateral and multilateral, in collaboration with the Bank for International Settlements (BIS).

Key highlights (as of March 2025)[71]

- Retail CBDC in circulation reached INR 1,016 crore, up from INR 234 crore a year earlier.
- About 17 banks and 60 lakh users are part of the pilot, with INR 857 crore in INR 500 denomination alone.
- Offline payments and programmability features have been added to improve usability and targeted fund transfers.
- Non-bank entities are now allowed to distribute CBDC wallets, enhancing last-mile reach.

70 https://www.rbi.org.in/Scripts/BS_CurrencyCirculationDetails.aspx

71 https://timesofindia.indiatimes.com/business/india-business/e-rupee-circulation-rises-to-rs-1016-crore-rbi-to-explore-cross-border-cbdc-pilots/articleshow/121493447.cms

e) Focus on designing payment solutions for differently abled population

As India accelerates towards becoming a global digital economy, ensuring that digital payments platforms are inclusive and accessible to all segments of society is paramount. Among these, persons with disabilities (PwDs) represent a significant yet often underserved user group. Regulators, including the RBI, are continuously working to ensure that digital payment products remain accessible to all individuals, including those with disabilities. In October 2024, RBI directed payment system participants, including banks and authorised non-bank payment system providers, to review the accessibility of their digital payment systems for PwDs and submit details of their systems or devices requiring modifications.[72] Similarly, in February 2024, the Ministry of Finance released the **Accessibility Standard Guidelines for Infrastructure and Services in Financial Institutions across India.** These guidelines provide a structured framework for financial service providers to ensure that their physical and digital infrastructure meet accessibility standards.[73] These guidelines are designed to facilitate seamless financial access for PwDs, enabling them to fully utilise digital payments platforms. Players operating in the industry are currently investing heavily to make this happen. Building payment solutions accessible to differently abled individuals is not only a regulatory requirement but a social imperative that aligns FinTech innovation with inclusive growth objectives. With focused efforts by regulators like RBI, Ministry of Finance and industry stakeholders, India is paving the way to create a payments ecosystem that is truly universal – one that empowers every citizen, regardless of physical ability, to participate fully in the digital economy.

Aadhaar-based face authentication offered by a payments bank enables customers to perform banking transactions using **facial recognition**, eliminating the need for physical biometric inputs like fingerprints or OTPs.

- Support for all banking services, including **account opening, balance inquiry, fund transfers and utility payments**
- Inclusive banking for the elderly, differently abled and individuals with worn fingerprints
- Fast and contactless transactions for improved customer experience
- Safe banking during **emergencies**, where physical contact may be risky

f) Enabling cross-border payments through stablecoin – CBDC interoperability

Interoperability between stablecoins and CBDCs can enable faster, more efficient cross-border payments by leveraging the former for the international leg and converting the domestic leg into digital rupee via CBDC wallets. Although this is a distant possibility at present, it will allow seamless fund transfers across jurisdictions, reduce transaction costs and eliminate delays associated with traditional banking. By bridging decentralised and sovereign digital currencies, this interoperability will help lay the foundation for a globally connected, inclusive financial ecosystem.

72 https://www.outlookmoney.com/banking/rbi-releases-guidelines-to-enhance-digital-payment-accessibility-for-specially-abled

73 https://financialservices.gov.in/beta/sites/default/files/2024-09/Guidelines-FI.pdf

g) Enabling payments for players from other industries

Existing financial infrastructure and strategic partnerships are being leveraged to enable payments for companies operating in other sectors. Instead of applying for a full banking or payment system operator licence, non-financial entities can plug into these licensed providers' systems via robust APIs. This allows them to offer payment acceptance (from customers) and disbursals (to vendors or customers) directly within their applications and workflows, while the underlying regulatory compliance, settlement and technical complexities are handled by the licensed partner.

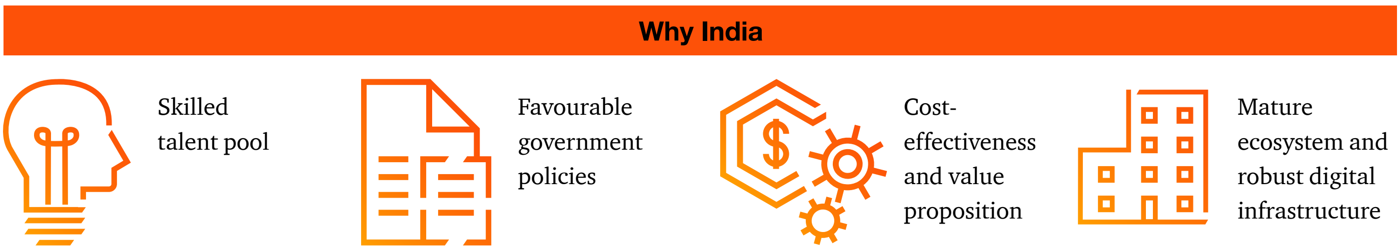
Technologically, the backbone of this enablement is API-led integration. Modern financial APIs allow seamless communication between a non-financial entity's platform (e.g. an e-commerce website, a telecom app, a ride-sharing service) and the payment processing systems of banks or FinTechs. This means a customer can complete a transaction without ever leaving the non-financial entity's ecosystem.

Strategically, non-financial entities enable payments to create embedded finance experiences. This means payments are not a standalone step but an integrated, often invisible, part of a customer's journey within their primary service. For an e-commerce platform, it's a one-click checkout; for a telecom operator, it's instant bill payment within the service app; for a ride-sharing company, it's auto-deduction upon trip completion. This integration enhances user convenience, reduces abandonment rates and provides valuable data on customer spending patterns, which can then be used to offer personalised financial products like credit, insurance or loyalty rewards, thereby creating new revenue streams and deeper customer engagement. As digital payments become an essential part of the customer journey, their seamless integration is no longer just a feature – it's a strategic necessity, leading to enhanced and seamless customer interaction.

h) Global Capability Centres (GCCs) fuelling the future of FinTech businesses

GCCs are offshore or nearshore hubs typically established by large international financial institutions to drive core business operations, strategic research and innovation by leveraging niche talent and operational efficiencies in targeted global locations. India's GCC sector has emerged as a strategic powerhouse, generating USD 68 billion in revenue in FY25 (~1.6% of GDP) with an 11% five-year CAGR, and is projected to scale to USD 150–200 billion by 2030,[74] underscoring the country's growing importance as the preferred destination. This is also evident from the growth in the number of GCCs, which has surged to over 1,900 in 2025 and expected to surpass 2,400 by 2030.[75] India has over 20 dedicated GCCs of leading global payments companies, employing 35,000 to 50,000 people – roughly 8–10% of the broader BFSI GCC workforce.[76]

Figure 37: Why GCC prefer India



74 https://www.republicworld.com/business/india-must-move-faster-on-gcc-growth-sitharaman-urges-states-industry-at-cii-summit

75 https://ibef.org/blogs/global-capability-centres-gccs-in-india

76 https://bfsi.financialexpressb2b.com/blogs/what-will-it-take-for-payments-gccs-in-india-to-evolve-into-global-innovation-hubs

While large international financial institutions across banking, investment banking, custodian services, among others have established GCCs' base in India, there's a significant opportunity for large financial conglomerates with diversified operations in banking, lending, payments, wealth management to unlock value through this route.

Figure 38: Benefits of GCCs

Benefits derived by Indian conglomerates by establishing GCCs

- Standardisation of operational processes across diverse business lines
- Enhanced operational resiliency and business continuity
- Foster innovation and experiment with new technologies
- Cost optimisation and faster go-to-market

Indian FinTechs have an opportunity to play an important role in the GCC ecosystem and empower GCCs in the BFSI space in the country. By offering specialised API-first platforms, hub modernisation and ISO 20022 migration solutions, fraud detection and management solutions, AI-driven automation, and deep expertise in solutions tailored for areas like back-office optimisation, risk management and R&D support, these FinTechs enable GCCs to rapidly standardise critical financial processes and inject cutting-edge innovation into global operations.

Payments GCCs have transformed from tactical support centres focused on transaction processing and compliance into strategic innovation hubs. Today, they drive high-value work in engineering, data science and global platform architecture. These centres are also now leading critical initiatives like tokenisation, AI-powered risk analytics and next-gen platform development, actively shaping global product roadmaps and delivering locally relevant solutions with global interoperability.

Platform modernisation and ISO 20022 migration

A global bank in India is leveraging its GCCs to lead the transformation of cross-border payments through the **ISO 20022 migration**. This shift enables the adoption of **MX message formats,** which carry richer, structured data that is critical for enhancing **real-time compliance monitoring and fraud detection capabilities.** The bank's flagship **cross-border payment platform** has been integrated with SWIFT MX standards and supports payments in over **135 currencies**, including **ACH, instant payments, digital wallets and cards** – with minimal integration overhead for partner banks. These innovations are helping traditional banks stay competitive with FinTechs by delivering **faster, more transparent and cost-efficient payment experiences,** while also strengthening risk and compliance frameworks.

05

Conclusion

India’s digital payments industry has grown rapidly over the last decade, becoming one of the most advanced economies globally. While UPI has been at the forefront of this revolution, driving deeper penetration of digital payments in India, other payment products such as Bharat Connect, PPIs, FASTag and credit cards have also helped millions of users and merchants adopt digital payments across cities and rural areas. Innovative use cases – including credit card linkages and international partnerships – are further propelling this momentum.

However, while digital payments have become mainstream in many parts of the country, there is still work to be done. Cash continues to be used in specific segments, but its role is gradually reducing as digital options become more accessible and trustworthy.

To move forward, the industry must focus on:

1. expanding digital infrastructure in underserved areas
2. improving fraud prevention and user safety
3. leveraging agentic AI to streamline processes
4. creating new use cases for UPI and other payment modes
5. supporting innovation in lending, credit and embedded finance
6. strengthening regulatory frameworks and simplifying compliance

The next phase of growth will be all about building a secure, inclusive and future-ready payments ecosystem that works for everyone – consumers, merchants and businesses alike.

Looking towards the future, we envision a dynamic new era for the digital payments industry, marked by groundbreaking product launches, cutting-edge technological advancements, supportive regulatory frameworks and enhanced customer safety protocols.

Notes

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