The Indian payments handbook – 2021–2026

March 2022

Preface

Dear readers,

We are pleased to bring you the second edition of 'The Indian payments handbook' for the period 2021–2026. Like the previous edition, this year's publication focuses on India's fast-growing digital payments industry. We have analysed the year gone by and the key learnings for the industry, along with the progress made by the Indian payments' ecosystem in the last few years, key growth factors and emerging trends.

We have considered the impact of the COVID-19 pandemic on industry performance, how the pandemic has changed the behaviour of customers towards touchless payment modes and how it will evolve going forward.

Based on insights gathered from our discussions with key stakeholders in this space, we demystify the latest developments in the payments space, such as the emergence of buy now pay later (BNPL), digital currency, tokenisation, corporate payments, offline payments and growth of acquiring infrastructure that will define the future of this industry in India.

India is already at the forefront when it comes to digital payments innovations across the globe and with the efforts and initiatives of key stakeholders, such as regulators, banks, payments/FinTech companies, card networks and service providers, we are confident that the industry is going to see tremendous growth in the coming years.

We hope you will find this report to be a useful and insightful read.

Regards,

Mihir Gandhi
Partner and Leader, Payments Transformation
PwC India

Executive summary

Payments and settlement systems are the foundation of the Indian economy. The digital payments space has seen a massive boom over the past few years, growing at a compound annual growth rate (CAGR) of 30%. In continuation to our previous report on the Indian payments industry,[1] where we estimated the revenue streams of multiple payments modes and the shape of the market in the near future, in this edition, we aim to identify the areas and gaps that require focus in order to increase the usage of smart and convenient payment instruments.

For the digital payments industry in particular, the pandemic has played a crucial role in introducing new developments coupled with technological advancements and regulatory support, which have now transformed the industry significantly. UPI has contributed significantly to this growth, reaching a record 22 billion[2] transactions in 2020–21. UPI transactions are expected to cross 160 billion by 2025–26. Though the increase in card issuance has been gradual, the number of active debit and credit cards is expected to reach 1,021 million and 145 million respectively by 2025–26. National Electronic Toll Collection (NETC) has also seen significant growth of 94% in terms of volume as compared to the previous year as digitisation of toll collection gathers pace.

Bharat Bill Payment System (BBPS) as a platform is also maturing, with customers steadily shifting to electronic bill payments. This trend has been supported by the onboarding of new billers which has increased at a CAGR of 56% since the inception of this platform. With the National Payments Corporation of India (NPCI) transferring all its BBPS transaction mandates to its new subsidiary, NPCI Bharat BillPay Ltd, there will be an additional focus on BBPS, which has already witnessed transactions worth INR 618 billion till October 2021. This is expected to cross the INR 4 trillion mark by the end of FY 2025–26.

It is also noteworthy that the number of acceptance points for digital payments, both QR and physical PoS, has increased tremendously across the country. This has helped in driving the growth of the payments industry. With the Government pushing for better infrastructure, acquisition of PoS devices has seen a steady rise, and by year end, the number of these devices is expected to reach 5.4 million. Similarly, deployment of QR codes has also been surging and is expected to reach 170 million by the end of FY 2025–26.

Our report provides insights into the current and future digital payments landscape and the key factors that are influencing customer spending behaviour and transactions in India. We have also focused on upcoming trends in the Indian payments ecosystem, such as buy now pay later (BNPL), e-RUPI, central bank digital currency (CBDC) and offline payments, and on how ecosystem players are likely to adapt to these new payment trends.

With the growing preference for contactless payments, we expect a continuous rise in the entry of FinTech players in the market, monetising customer data and adopting a more user-centric approach. These companies aim to invest in infrastructure integrated with artificial intelligence (AI), machine learning (ML) and blockchain in order to offer innovative and customised solutions for customers. At the same time, regulators are setting up a new umbrella entity for payments which will be governed by the provisions of payments and settlement systems (PSS) and can be expected to introduce new payment rails which could disrupt the business models of the existing rails. All these factors will collectively lead to a surge in digital payments transactions in the near future, with new use cases like BNPL, B2B payments and digital currencies emerging as major trends.

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1 *https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/payments-transformation/the-indian-payments-handbook-2020-2025.pdf*

2 *https://www.npci.org.in/what-we-do/upi/product-statistics*

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1.

A look at the year gone by

Over the last few years, the pandemic and related developments, along with a growing focus on digitisation, have significantly impacted trends in the payments industry. Customers have widely adopted digital payment modes and their usage in both physical and e-commerce transactions has increased. With transaction volumes rising significantly, merchant acquirers – both in the physical and e-commerce space – are offering value-added services to small and medium businesses. This has created a revenue stream in addition to the existing low-margin offerings for acquirers. Emerging markets are also shifting to the digital economy, thus making room for improved use cases in international remittances as well.

The global digital payments market, which currently stands at USD 5,872 billion, is expected to reach USD 9,073 billion by the end of 2025, growing at a compound annual growth rate (CAGR) of 11%. Global cashless payment volumes are set to increase by more than 80% from 2020 to 2025, from about 1 trillion transactions to almost 1.9 trillion, and to almost triple by 2030.[3]

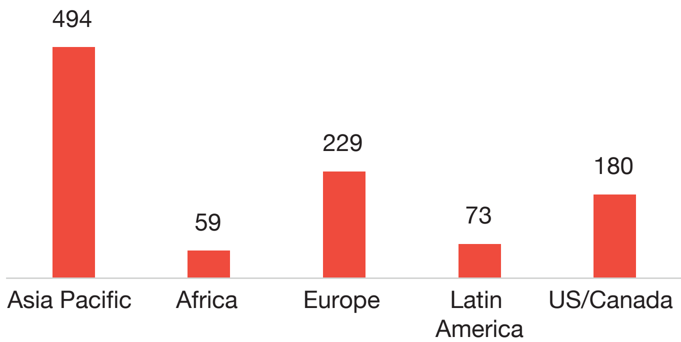
India, China, South Korea, Thailand and the UK generated the maximum number of real-time payment transactions in 2021. Card transactions are also increasing globally as issuance of virtual and contactless cards continues to gain momentum. Partnerships and collaboration between card networks institutions are going to play a significant role in expanding the cards market, which is expected to reach USD 45 trillion by 2023.[4]

3 *https://www.businesswire.com/news/home/20220218005233/en/Global-Digital-Payment-Market-is-Expected-to-Grow-at-a-CAGR-of-over-20.5-During-2022-2030---ResearchAndMarkets.com*

4 *https://www.paymentscardsandmobile.com/global-card-expenditure-to-reach-45-trillion/*

With smartphones seeing rapid adoption among a large section of society and real-time payments becoming increasingly popular, merchants have started offering multiple payment options. This enables them to offer an improved payment experience to their customers and strengthen their competitive position in the market via partnerships and collaboration. The Asia-Pacific region will witness fastest growth, with cashless transaction volumes growing by 109% until 2025 and then by 76% from 2025 to 2030. It will be followed by Africa (78%, 64%) and Europe (64%, 39%). Latin America comes next (52%, 48%), with the US and Canada growing least rapidly (43%, 35%).[5]

Global cashless transaction volumes – 2020 (in USD billion)



Source: PwC, Payments 2025 & beyond: Navigating the payments matrix

To build a robust payments ecosystem, it is crucial to enhance the infrastructure supporting digital payments. Regulatory authorities around the world are investing heavily to close the gaps and promote a safe and efficient ecosystem.

- The World Bank is constantly working with industry stakeholders to reduce the cost of international remittances.

- The Government of India proposed the introduction of a digital currency, to be issued by the Reserve Bank of India (RBI) in FY 22–23.
- Reimbursement of merchant discount rate (MDR) to the tune of INR 1,500 crore was announced in Union Budget 2022–23.

- The South African Reserve Bank (SARB) has requested Payments Association of South Africa (PASA) to facilitate the co-design of a new Payments Industry Body (PIB) for better inclusivity of payment system stakeholders.

- Australian payments systems are under official review by prudential authorities to enhance and modify the current payments system architecture.

- The Canadian Government intends to implement a new oversight framework for retail payments and bring clarity and certainty to regulating and potentially broadening the scope of Payments Canada.

5 *https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/payments-in-2025.html*

Indian payments landscape

India continues to witness upsurge in digital payments transactions – a trend that has continued from 2020–21 and the first half of 2021–22. UPI has been the main driving factor behind this growth, along with credit and debit cards. Bharat Bill Payment System (BBPS) as a platform is also maturing, with customers increasingly shifting to electronic bill payments and new billers getting onboarded. It is also noteworthy that the number of acceptance points, both QR and physical point of sale (PoS), for digital payments has increased tremendously across the country.

Cards, namely credit, debit and prepaid, have remained one of the stable contributors to the growth of digital payments in India due to the increasing number of physical acceptance points and rising adoption of e-commerce. The entry of new issuers will drive the growth of card issuance and transaction volumes.

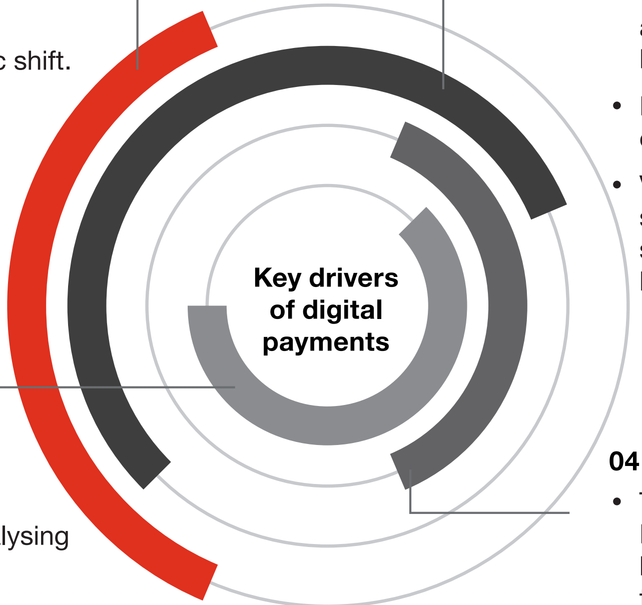
One of the most consistent movers across the years in the field of digital payments is National Electronic Toll Collection (NETC). With the Government having made FASTag mandatory for all four-wheeler vehicles across the country, digital payments will receive a further boost in this category. QR code-based payments have also seen a significant rise in recent times due to promotional activities that have helped consumers realise the ease of usage.

There has been a massive shift in the FinTech space, with more than 2,000 FinTechs currently operating in the country. These FinTechs have leveraged India Stack to develop banking and payment offerings. Consumer apps launched by these FinTechs have been able to provide a better user interface and experience in terms of onboarding and usage. The success of UPI can be attributed to this development as these FinTechs have been able to take a payment product to the masses. Initially, these FinTechs were seen as challengers to traditional banks and financial institutions but have gradually emerged as collaborators. Neobanks are one such example.

The latest developments around new umbrella entities (NUEs) to streamline retail payments across the country could prove to be a game changer in the digital payments ecosystem. To ease of the burden on the National Payments Corporation of India (NPCI) as well as to mitigate risk, the RBI has decided to come up with a framework that allows where authorised entities to set up, manage and operate a new payment system not limited to ATM, POS, etc. These entities will be responsible for operating clearing and settlement systems for participating banks and non-banks as well as for monitoring retail payment system developments and related issues in India and internationally. The emergence of NUEs will spur the development of new payment products and rails, and enable the broad-basing of homegrown payment institutions.

The RBI's initiative to set up a Regulatory Sandbox with a cohort on offline payments will pave the way for FinTechs and solution developers to test their solutions among the critical mass. Guidelines on offline payments will provide necessary directions to stakeholders – banks, FinTechs and payment schemes – for the development and growth of this segment. Offline payments will take digital payments to the hinterland and border areas of the country, which face problems with internet connectivity.

Central bank digital currency (CBDC) is an emerging area in payments across the globe. With announcements by the Finance Minister and RBI, steps towards the launch of digital rupee – India's version of CBDC – have been taken. CBDC is the sovereign-backed digital version of physical cash and will be issued by the RBI at the beginning of the new fiscal year. While it is seen as a solution for more efficient and cheaper currency management, CBDC will result in product innovation and parallel rails that will complement the existing ones.



01 Change in customer payment behaviour

- Payment behaviour of Indian customers has seen a tectonic shift.
- Integration of payment modes facilitated by FinTechs and PayTechs has led to ease of usage.
- Redefined customer journeys are driving adoption both in the physical and e-commerce space.

02 Technology as growth driver

- Technology platforms are catalysing the digitisation of payment processes.
- Cloud hosting, open APIs, etc., are enabling players to provide platform as a service and launch new product offerings.
- Ecosystem-based platforms with embedded finance have emerged.

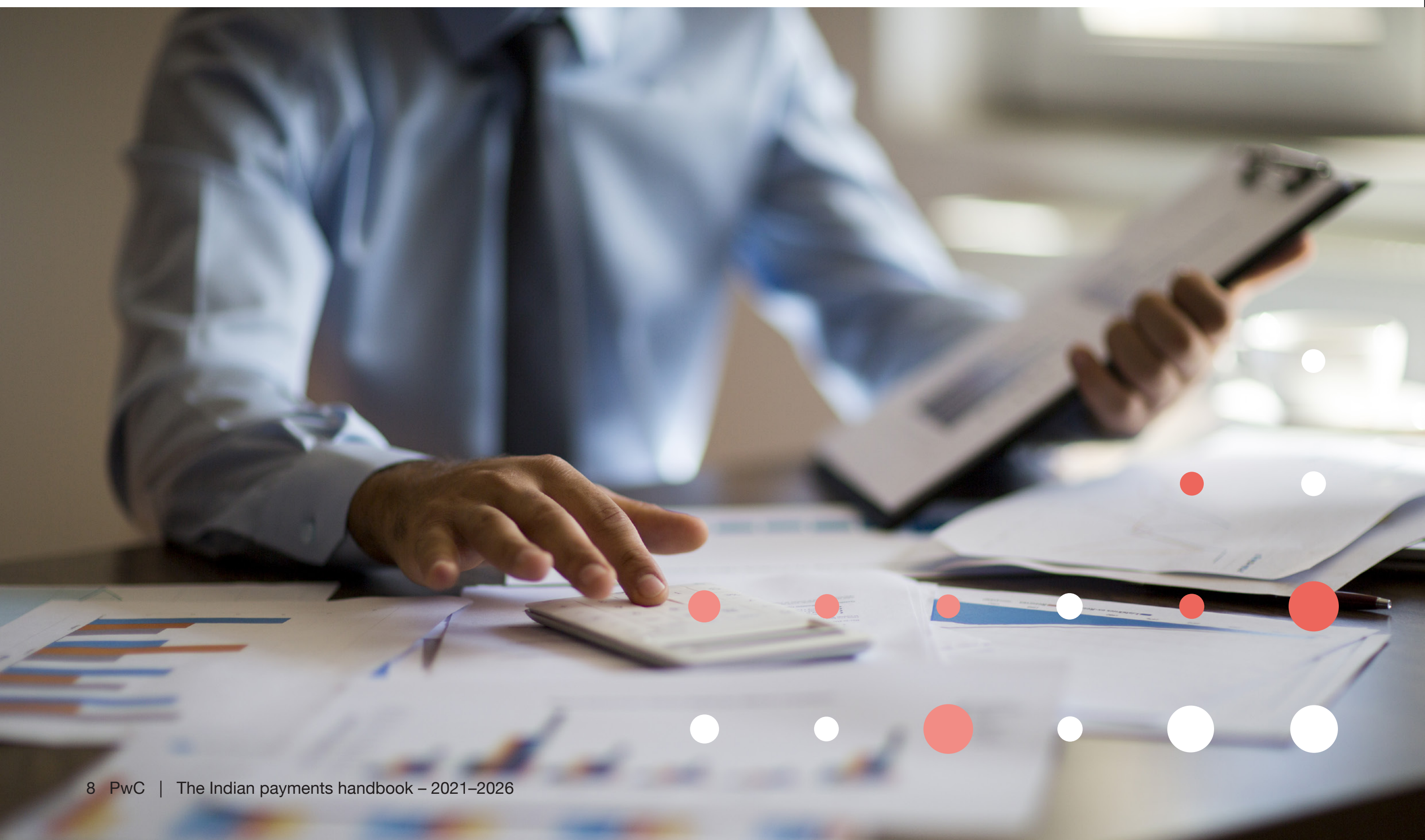
03 Entry of new players

- The digital payment space is attracting big techs and non-banking players.
- Payment services are now being offered on messaging platforms .
- Value-added services, cross-selling of products and overlay services are a few emerging business models .

04 Regulatory initiatives

- The Payments Infrastructure Development Fund (PIDF) has been created to boost the growth of acquiring infrastructure.
- Guidelines have been issued on offline payments, tokenisation and regulatory sandbox.
- Reimbursement of MDR on RuPay card and UPI transactions has been announced.

Source: PwC analysis, RBI, MeitY



Regulations supporting digital payments

- **Legal Entity Identifier, January 2021:** RBI mandated the use of the Legal Entity Identifier, a 20-digit alphanumeric code for RTGS/NEFT transactions greater than INR 50 crore to uniquely identify all the participating entities. This will improve the accuracy of the financial system and risk management for high-value transactions services transactions.
- **PIDF, January 2021:** The RBI operationalised the PIDF to increase the penetration of acquiring devices across the country.
- **Access to Centralised Payment Systems, July 2021:** An RBI mandate suggests that it will encourage participation of all non-banking entities in its Centralised Payment Systems such as NEFT and RTGS in a phased manner. This will not only reduce the overall risk in the payments ecosystem but also be advantageous to non-banks in multiple ways.
- **Devices for card tokenisation, August 2021:** The RBI has extended the scope of permitted devices for card tokenisation. In addition to mobile devices and tablets, other consumer devices like laptops, desktops and wearables were made eligible.
- **Framework on outsourcing of payment systems, August 2021:** For effective management of risks related to the outsourced services model followed by payment system operators (PSOs), the RBI has come up with a framework which all PSOs need to adhere by 31 March 2022.
- **Incentive scheme for promotion of RuPay debit cards and low-value BHIM-UPI transactions (P2M), December 2021:** To boost digital transactions in the country, the Ministry of Electronics and IT (MeitY) announced that with effect from 1 April 2021, acquiring banks will be incentivised by the Government on RuPay Debit card transactions (P2M) and low-value BHIM-UPI transactions (up to INR 2,000) (P2M) on an ad valorem basis. The scheme, estimated at INR 1,300 crore, will be applicable for a period of one year.
- **RuPay and UPI MDR repayment, December 2021:** The Government of India has decided to provide one-time repayment of MDR on RuPay and UPI transactions to encourage banks to come forward with more digital transactions via these two modes. The MDR on these transactions will be effective from the new Financial year (for one year) and the revenue loss incurred during the last FY will be reimbursed to the banks by the Government.
- **e-RUPI, February 2022:** The RBI has enhanced the cap for e-RUPI prepaid digital vouchers. As per the new mandate, the present cap of INR 10,000 will be increased to INR 1 lakh per voucher. Also, the voucher can be used more than once.

2.

An overview of the top payment instruments

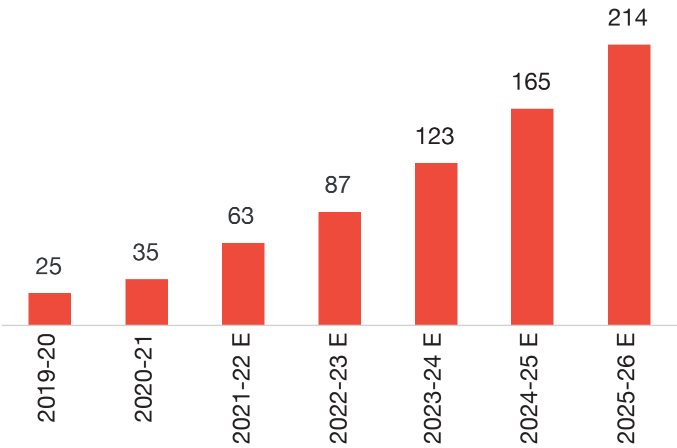
With the number of use cases of digital payments increasing drastically, it has become possible to offer customers a more user-centric and personalised experience. While UPI is the fastest growing payment mode, other payment modes and platforms such as cards, buy now pay later (BNPL), BBPS and NETC have also seen steady growth.

How the market will shape up

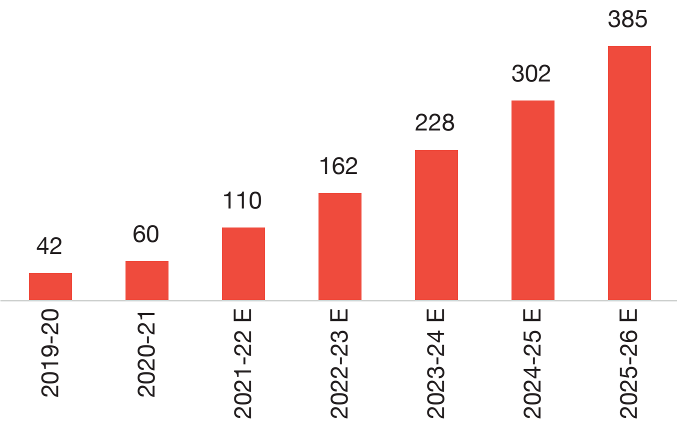
In the last few years, the Indian digital payments market saw steady growth at a CAGR of 23% (volume wise). Initiatives taken by the Government of India and RBI to make India a fully digitised nation can be considered as major stimulators. With the recent inclusion of non-banking entities into the system, this growth trend is expected to continue. Further, new entrants into the are making digital payments more consumer friendly, and this has led to an increase in transactions, especially in urban and semi-urban areas.

Digital payments market

Transaction volumes (in billion)



Transaction value (in INR trillion)



***Source:** RBI, NPCI, PwC analysis
**Includes UPI, cards, NETC and PPIs

UPI is expected to continue to be the fastest mover and one of the major contributors in the digital payments space across the country in the coming years. UPI QR codes and interoperability of payment service providers (PSPs) have made payments easier and convenient for end users, and this reflects in the growth. The RBI's decision to increase UPI's limit beyond INR 2 lakh could also boost the contribution from this mode of payment.

BNPL has emerged as a game changer for small-ticket credit-based transactions and will continue to grow. This mode of payment will continue to be popular amongst the consumer category that lacks credit history or has a low CIBIL score.

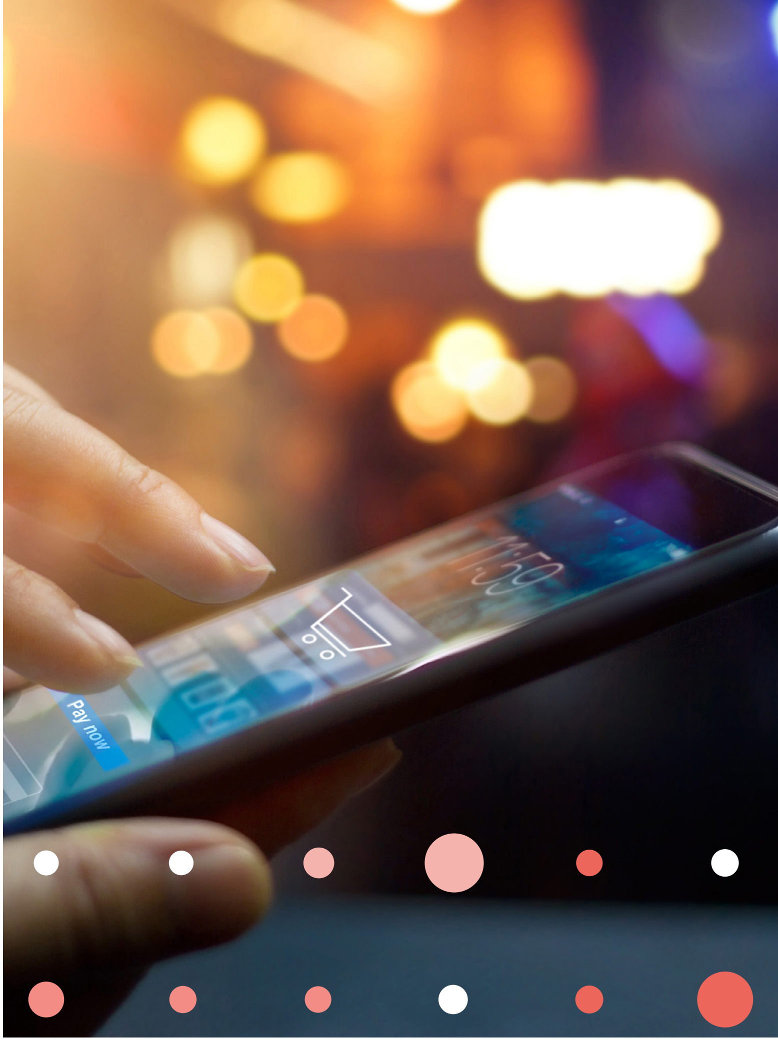
Credit and debit cards payments continue to grow within the country. The emergence of new players with a focus on digital journeys, an expanding customer base in tier 3 and 4 locations are some of the factors driving this growth. Tokenisation would make card payments more secure and popular. EMI facilities on credit and debit cards are also driving big-ticket purchases on cards. Integration of National Common Mobility Card (NCMC) on credit and debit cards to facilitate transit payments will provide further impetus.

Interoperability of prepaid wallets effective from January 2022 would also contribute to steady growth for the pre-paid industry. With the resumption of regular international air connectivity, travel cards will see a rebound.

National Electronic Toll Collection (NETC) has been another steady contributor to the growth of digital payments over the years. With FASTag having been made compulsory for all four wheelers, NETC is also expected to grow exponentially in the coming years, especially with the opening up of new use cases like parking and fuel payments.

A. UPI

UPI has had a tremendous impact on the Indian payments landscape. Simple mobile-based accessibility, ease of use and changes in consumer behaviour due to the pandemic have led to a significant increase in UPI transactions. Users have started buying goods on e-commerce platforms and making payments at retail outlets via QR codes. Partnerships with other countries like Singapore, the UAE, Nepal, Malaysia, Thailand, Cambodia, Hong Kong, Taiwan, Japan, Vietnam, Philippines, South Korea and Bhutan[6] to enable low-value transactions and cross-border remittances through UPI will contribute to this growth.



Uptake in UPI transactions

4,186 million
Transactions in November 2021

45%
Of P2M transactions overall

Transactions worth
INR 7,684 billion
In November 2021

CAGR of
316%
Since inception

Source: NPCI, PwC analysis

Since its inception in 2016, UPI has been at the forefront of India's evolution as a digital economy. The growing preference for UPI among customers and merchants stems from its unique benefits, i.e. contactless, interoperable, instant, and safe mobile-based payments. We are also observing accelerated acceptance and adoption of UPI for everyday shopping, bill payments, money transfer, and more from tier 2 and 3 cities.

Mahendra Nerurkar, CEO and VP, Amazon Pay India

6 *https://timesofindia.indiatimes.com/business/india-business/pay-via-upi-in-10-more-countries/articleshow/86184175.cms*

Guidelines issued by the operator in March 2021 on limiting the share of UPI transactions to 30%[7] of the overall volume of transactions on digital payment apps will reduce the concentration risk by fostering the emergence of new players in the space. Third-party apps with a market share of more than 30% will need to moderate new customer acquisition in order to be complaint by the end of 2022. The guideline ensure that in future, UPI will not be dependent on a single player and has been drawn with a view to mitigate risks caused by a monopolistic market and ensure parity. This guideline will also benefit small players such as payment and neobanks who rely on an app or transaction-based model.

Players have enabled recurring mandates, EMI recovery, linking with overdraft accounts and B2B collection along with new use cases such as autopay and IPO subscriptions. These are generating additional revenues.

With the RBI announcing reimbursement of MDR on UPI transactions for the year, industry players will gain much-needed relief. It is expected that MDR will be re-introduced in the next few years. With UPI gradually getting enabled for cross-border remittances, participants will gain from forex arbitrage.

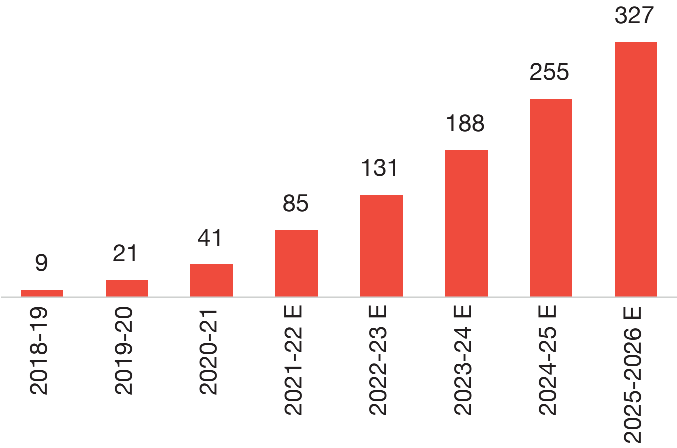
Factors affecting the growth of UPI and impact on industry players

7 *https://economictimes.indiatimes.com/tech/technology/npci-enforces-new-market-share-rules-on-upi-for-google-pay-phonepe-paytm-others/articleshow/81701508.cms?from=mdr*

UPI has emerged as the fastest growing payment instrument in the country. The volume of UPI transactions stood at 22 billion in 2020–21. With a CAGR of 122% since 2018, it is expected to reach 169 billion by the end of 2025–26.

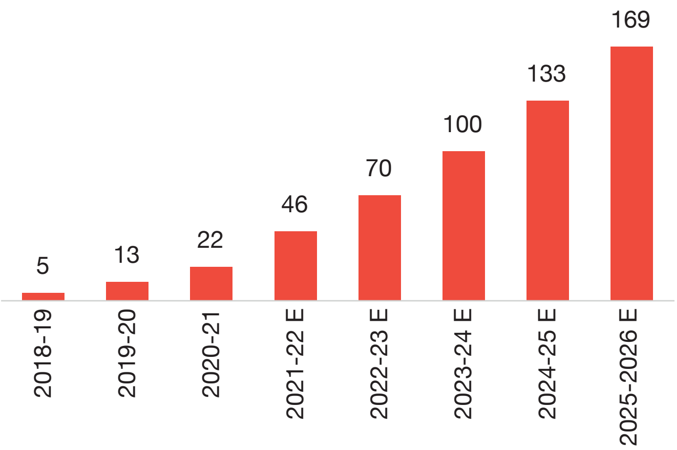
Growth of UPI

Transaction value (in INR trillion)



Source: NPCI, PwC analysis

Transaction volumes (in billion)

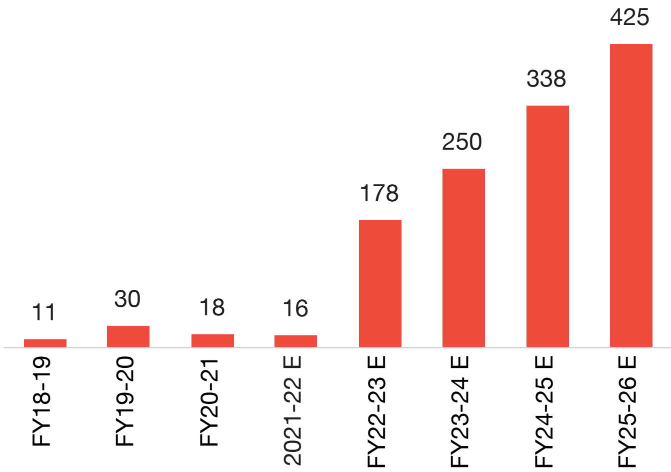


Source: NPCI, PwC analysis

Revenue heads for UPI

MDR charged to a merchant for payment processing services	**P2P** interchange collected by issuing institutions from acquiring banks
Registration fee charged by the banks for autopay registration	**PSP** fees charged by the PSP to accept online payments

UPI revenue pool (in INR billion)



Source: PwC analysis

Note: MDR has been omitted from the UPI revenue pool for FY 2020–21 and 2021–22. However, we expect MDR to return from FY 2022–23.

B. BNPL

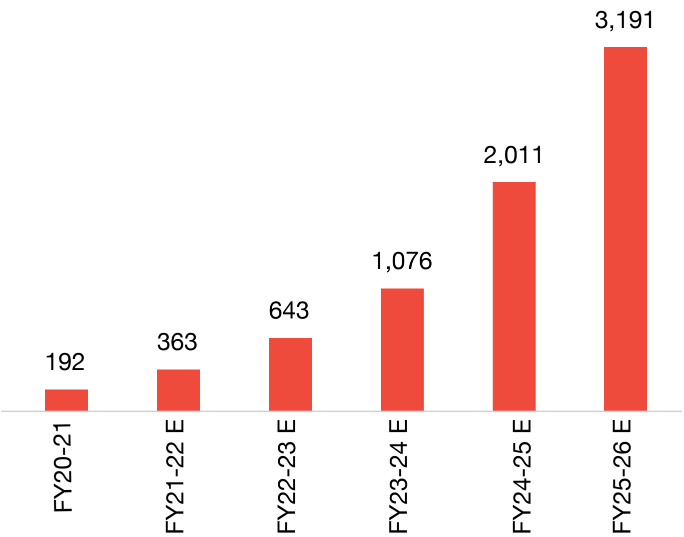
BNPL has seen tremendous growth across the world over the last few years. In India, it has emerged as one of the preferred modes of payment among millennials. New age FinTechs and banks are entering this space as it allows them to target a customer base that is new to credit or lacks access to credit. Adoption of BNPL has also expanded among people with access to credit in metro and urban locations as it allows them to make low-value purchases with the option to pay at a later date either as bullet payments or in instalments.

Currently, two types of BNPL are offered:

- **Split payments** enable the consumer to pay their dues over a three-month interest free period.
- **Instalment loans** are usually big-ticket transactions for a duration longer than three months.

BNPL is expected to grow phenomenally over the next five years. Currently estimated at INR 363 billion, BNPL is expected to reach INR 3,191 billion by the end of 2025–26.

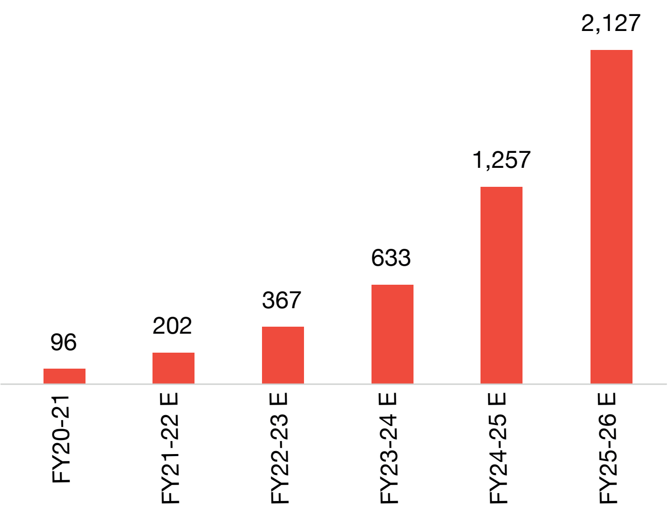
Transaction value (in INR billion)



Source: PwC analysis

BNPL users are expected to reach upwards of 15 million by the end of the current financial year, and the total transaction volume is expected to surge at a CAGR of 67% since inception and reach 2 billion by FY 2025–26.

Transaction volumes (in million)



Source: PwC analysis

What's next for BNPL?

Partnerships: As millennials continue to adopt BNPL, it is important for service providers to provide an omnichannel experience. Enabling a customer to pay through wallet as well as card would require tie-ups with in-store as well as e-commerce merchants. Offers on the check-out page or usage for large-ticket transaction categories like white goods and travel will further boost the uptake of the product.

Focus on collections: As the adoption and usage rate increase among consumers, service providers and banks will need to strengthen their collection mechanism. Enabling an early warning system to detect cases of probable default and taking remedial steps will help in management of non-performing assets (NPAs) and improve profitability of operations.

Regulations: While the segment continues to grow, it is imperative that there is oversight by the regulator or by the industry itself. This will not only allow service providers to operate in a healthy manner but also ensure customer education and protection.

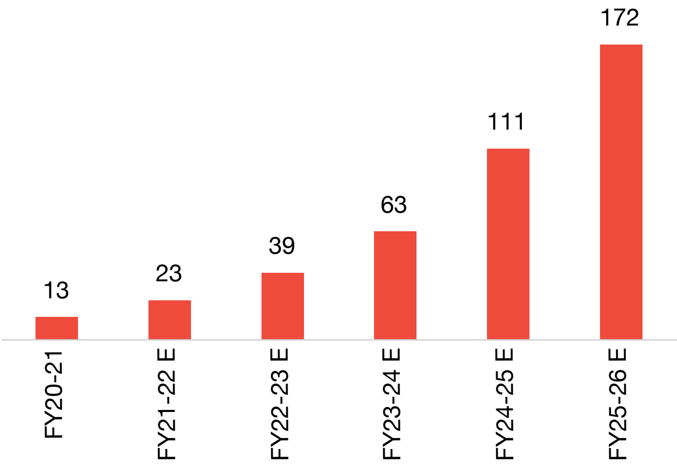
Revenue for BNPL

Interchange fee

Late payment fee

Interchange and late payment fees are the revenue lines for BNPL service providers. These revenues are estimated to reach INR 172 billion by the end of 2025.

BNPL revenue (in INR billion)



Source: PwC analysis

C. NETC

The NETC system has seen steady growth in recent years. The Government's regulation on mandatory installation of NETC tags on four wheelers has supported tag issuance. The opening up of the economy and increased movement of vehicles across states has led to a steady increase in numbers.

NETC at a glance

429
NETC is live at 429 toll plazas across the country (422 National Highway plazas and 7 state highway plazas).

36 million
Almost 36 million FASTags issued till July 2021

33
Number of parking plazas accepting NETC

14
Number of acquirer banks live on NETC

35
Number of issuer banks live on NETC

Source: NPCI, NHAI

Growth drivers

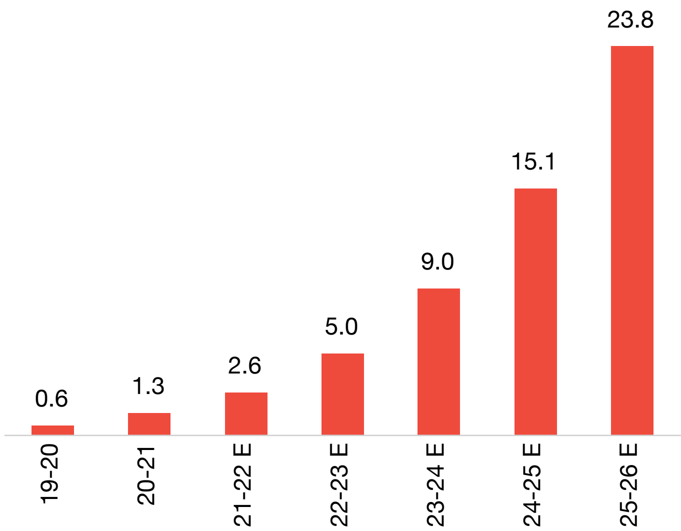
Government mandate: Installation of NETC tags on all four wheelers has increased the tag base across the country. As economic activity grows, leading to increased registration of commercial vehicles and a shift in customer preferences for owned vehicles, this base will increase further.

New use case: While the proof of concept (PoC) for parking fee collection through NETC tags is underway at various places, the commercial launch covering public and private parking spaces will drive growth. Other use cases like fuel payments and traffic challans will contribute to the growth.

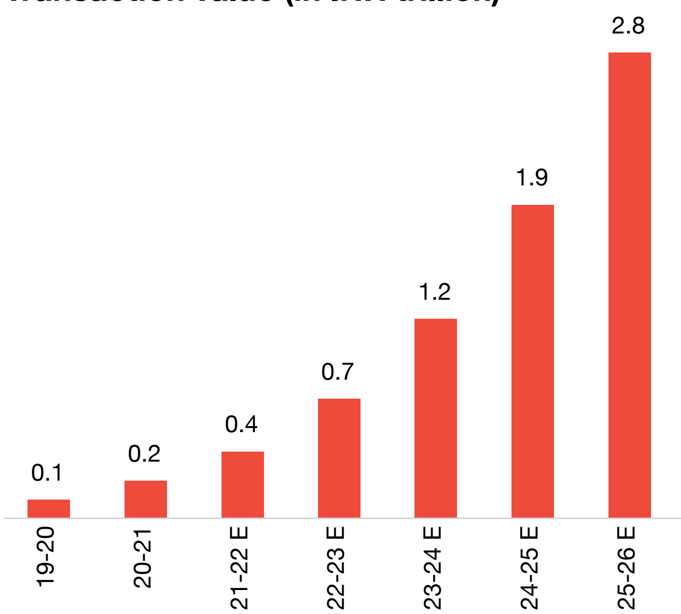
Tag activation: Along with increased tag issuance, it is imperative that tags are activated and used by vehicle owners. Issuers will need to put in place a monitoring mechanism and conduct outreach towards vehicle owners to ensure activation and usage.

Accessibility: Tag holders would require easy access to dashboards to see the usage, balance, raise disputes, load tags, access contact centres, etc. Customer-friendly applications will provide customers the necessary confidence to adopt and use the tags.

Transaction volumes (in billion)

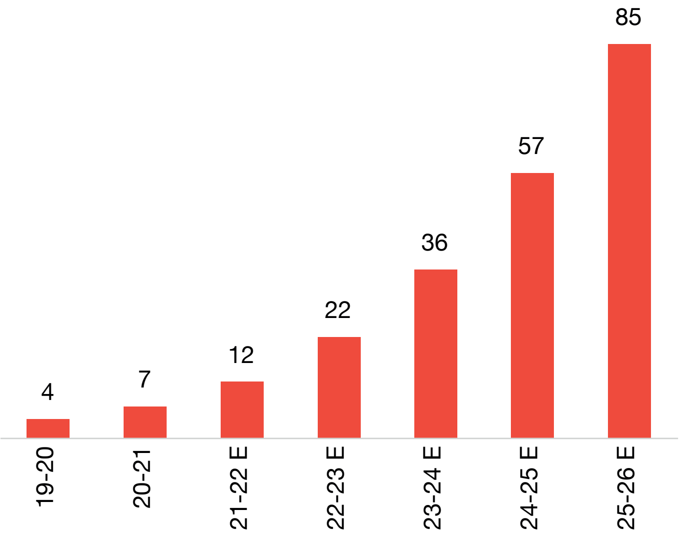


Transaction value (in INR trillion)



Source: NPCI, PwC analysis

NETC revenue (in INR billion)



Source: NPCI, PwC analysis

Income lines for NETC

Tag issuance fee

MDR

D. Cards:

Cards – namely credit, debit and prepaid – have remained one of the stable contributors to the growth of digital payments in India. Given the increase in the number of physical acceptance points and e-commerce sales, the entry of new issuers will drive the growth of card issuance and transactions volumes. While card transactions continue to play a key role in shaping digital payment modes in the country, recent guidelines on recurring mandates and storage of card details with merchants are expected to re-orient the way customers use the existing payment modes for their recurring e-commerce transactions.

Card transactions in India were always one of the popular modes of digital transactions, especially in urban and semi-urban areas. In the past four years, debit and credit card transactions have grown at a CAGR of 20% and 19% respectively.

Numbers at a glance

71 million
Credit cards estimated to be live in India by the end of FY 2021–22

INR 8,548 billion
Estimated value of debit card transactions for FY 2021–22

952 million
Debit cards estimated to be live in India by the end of FY 2021–22

2,201 million
Credit card transactions estimated for FY 2021–22

4,760 million
Debit card transactions estimated for FY 2021–22

INR 8,573 billion
Estimated value of credit card transactions for FY 2021–22

Source: PwC analysis

Credit cards are still a sunrise business in India, with only 71 million cards issued and huge headroom for growth. This business will continue to enjoy high growth rates for the next few years as the need for purchase credit and electronification of payments accelerates in the country. The next wave of growth will come primarily from the tier 3 and tier 4 towns, and deepening of acquiring infrastructure aided by the RBI's PIDF would significantly aid the same.

Sudipta Roy, Group Head – Unsecured Assets, Cards, Payments Solutions, Student Ecosystem and Millennial Banking, ICICI Bank

Recent trends show that credit card transactions have gained popularity in the e-commerce space. Customer are also increasingly adopting contactless transactions at physical points, which has given a fillip to low-value high-frequency transactions. As people get comfortable and familiar with card payments and the convenience they offer, usage of debit cards will also increase. New features like EMI on debit Cards will attract people seeking credit facilities along with a convenient payment option but are apprehensive about using credit cards.

With subscriptions to OTT platforms, journals and news portals growing, recurring transactions through cards will contribute to an increase in transactions volumes. Further, the RBI mandate on expanding the scope of permitted devices and allowing card on file tokenisation will contribute to the growth of card payments. It will not only impart security but also enhance the customer experience of card payments at e-commerce sites and through enabled devices at physical points.

It is expected that card-based transactions will continue to witness steady growth, at almost 16% year on year for the next four years.

Growth drivers

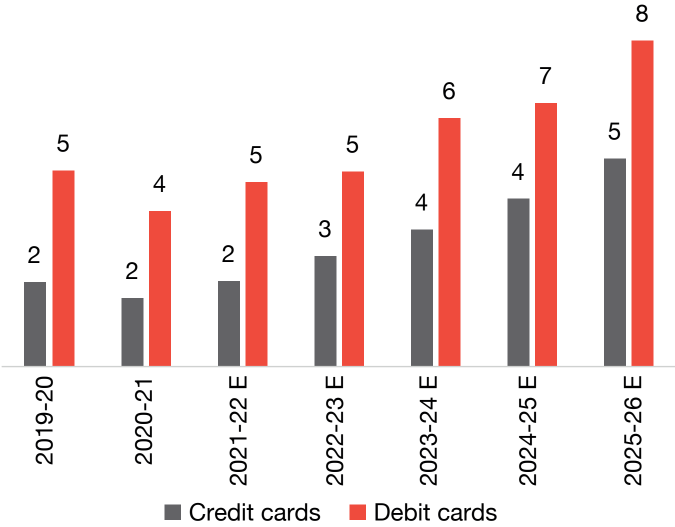
Adoption of contactless payments: Contactless payments will contribute to the growth of low-value card transactions. Increased issuance of contactless cards and availability of card tokenisation supporting devices and applications along with consumers shifting towards such technology will spur the growth of contactless card based payments.

Usage at transit systems: The availability of credit and debit NCMCs along with substantial increase in their acceptance points, as multiple transit systems become operational, will contribute to their growth. As multiple transit systems become commercially functional for mass usage, they will accept NCMCs as payment instruments, thereby increasing high-frequency small-value transactions.

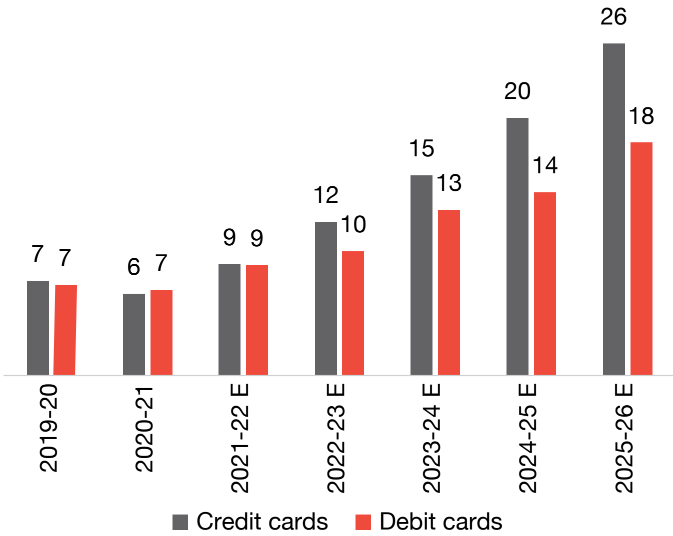
Emergence of offline payments: Card networks are working closely with acquiring service providers to enable offline payments. Such methods complement the existing online solutions to cater to the needs in rural and border areas of the country where network connectivity is poor or nil. Offline payments will also help people in urban locations with inconsistent internet connectivity.

Change in value propositions: Issuers are constantly reviewing their product propositions. Shifting customer preferences have resulted in issuers modifying existing product features along with launching new products that are suitable for the changing needs. Partnerships with brands and FinTechs are being used to build new customer bases.

Transaction volumes (in billion)

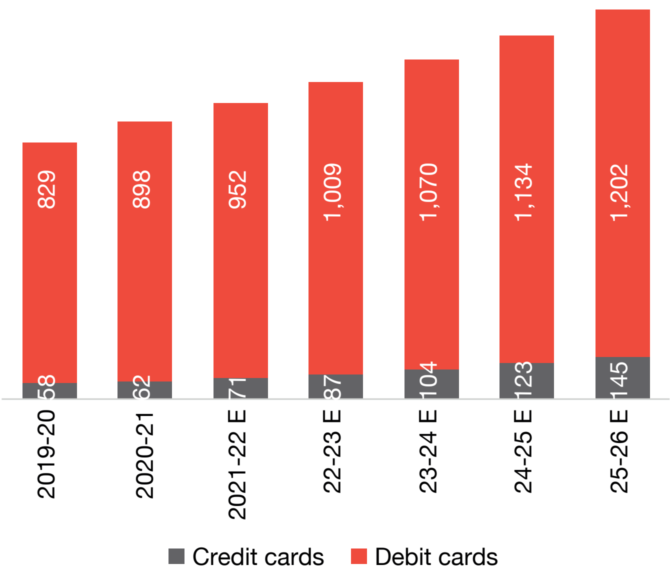


Transaction value (in INR trillion)

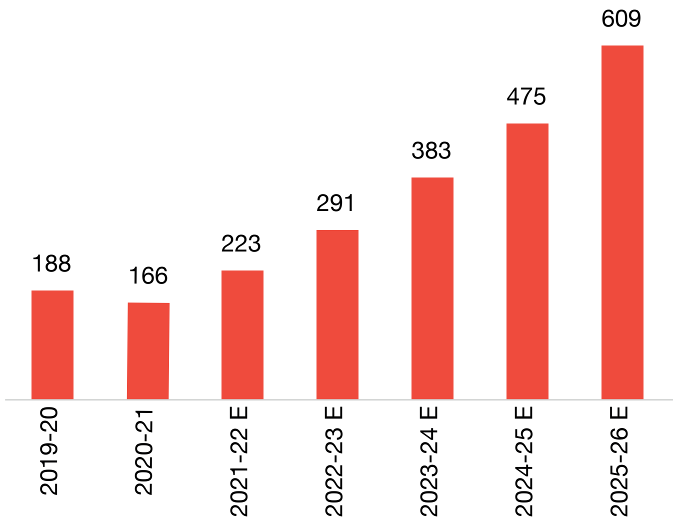


Source: RBI and PwC analysis

Growth in card issuance (in million)



Revenue (in INR billion)



Source: RBI and PwC analysis

Income lines for cards

Transaction interchange fee

Interest and float income

Card issuance fee

E. Prepaid instruments (PPIs)

PPIs are one of the emerging segments in India's digital payments landscape.

Prepaid wallets, accounting for a significant portion of India's PPI market, have emerged as a contemporary of prevalent prepaid cards such as gift cards and forex cards. Like all other modes of payments, prepaid wallets also witnessed a dip in the number of transactions during FY 2020–21 due to the COVID-19 outbreak.

The prepaid cards segment primarily consists of gift cards, semi-closed/open-loop cards and travel cards. The pandemic impacted some of these segments, which may result in their slower growth in near future. Gift cards and travels cards saw reduced usage during the pandemic as people weren't keen to spend on gifts and global restrictions prevented them from travelling.

Latest developments around wallet interoperability and the influx of online workspace could result in steady revenue flow for gift cards and the wallet industry.

More corporates are entering into prepaid segments like expense management and food cards, which can also result in the overall steady growth of PPIs.

Issuance of PPIs in India

128 million
Gift cards issued in India in FY 2020–21

6.9 million
Travel cards issued in India in FY 2020–21

4.6 million
Prepaid cards issued in India in FY 2020–21

Source: PwC analysis

Growth drivers

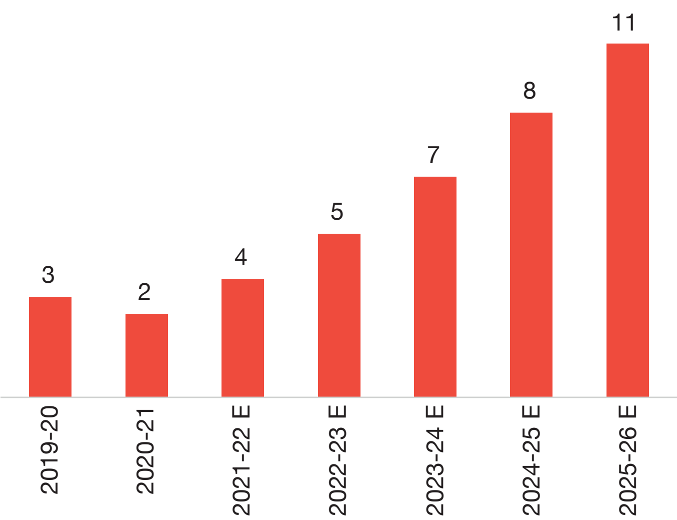
Digital wallet interoperability: The RBI's recent guidelines on the interoperability of digital wallets, which will come into effect from 31 March 2022, would lead to the steady growth of semi-closed as well as open-loop digital wallets.

Expansion into newer avenues: The prepaid card space could be expanded into newer avenues like meal cards. Fast-moving consumer goods (FMCGs) can issue specific prepaid cards to be used only to purchase their goods, which can result in increased transactions in PPI space.

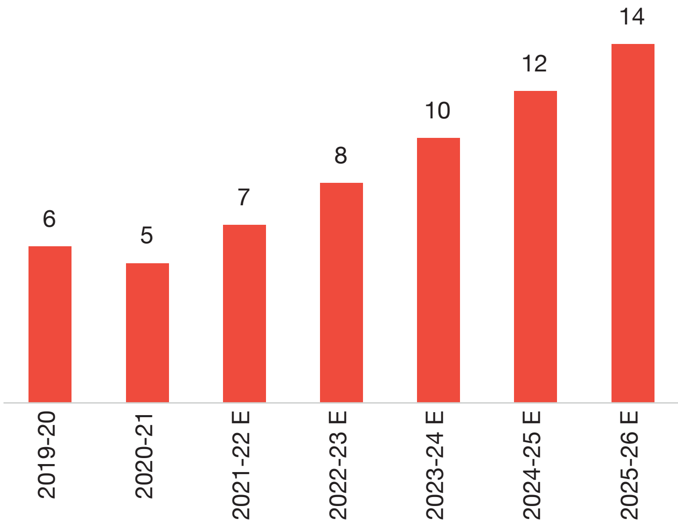
Travel cards: Travel cards emerged as one of the safest and popular modes of payment amongst consumers travelling abroad. As international travel gradually resumes, the uptake of travel cards is expected to increase.

BNPL: Prepaid cards issued by BNPL service providers will significantly contribute towards increasing the PPI base along with growth in transaction value and volume.

Transaction volumes (in billion)



Transaction value in (INR trillion)

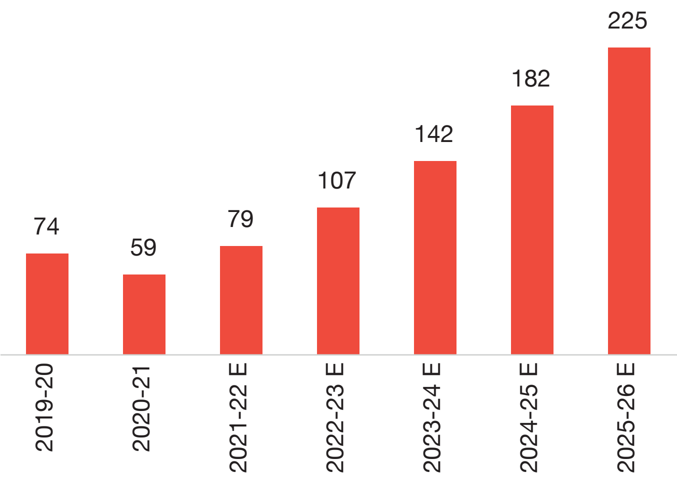


Source: PwC analysis

The revenue for prepaid instruments comprises the amount earned by issued prepaid cards, wallets, travel cards and gift cards.

Revenue (in INR billion)

Slide 9b



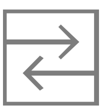
Source: PwC analysis

F. Merchant acquiring infrastructure

Merchants operating both online and offline would eventually have to offer a choice of modes to their customers for completing transactions. In the last one year, the merchant base has expanded from metro and urban locations to semi-urban and rural locations. Merchant acquiring infrastructure, which was earlier limited to card-accepting machines, has now expanded to cover QR, UPI, wallets, BNPL, etc. The emergence of new players with improvised product offerings in terms of value-added services coupled with support from the PIDF has enabled them to penetrate the semi-urban and rural segments. MeitY is also promoting the expansion of acquiring infrastructure and has assigned targets on terminal deployments (PoS and QR codes) for public and private sector banks.

Deployment of QR codes at small merchants has allowed significant expansion of the merchant acquiring base. At present, 100 million QR codes are operational with merchants all over India and the number is expected to reach 170 million by 2025–26.[8]

Income lines for PPIs



Transaction charges/loading fee

Interchanage income

Float/breakage income

8 *PwC analysis of RBI data*

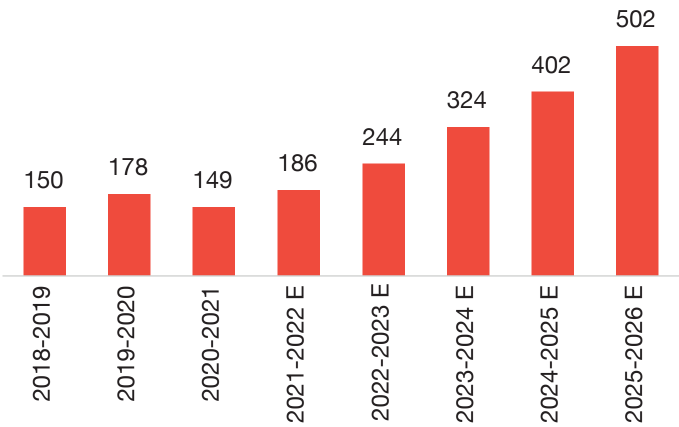
The RBI estimated that debit card usage at PoS devices would be 44% of the total transactions (PoS + ATM) by the end of 2021. However, due to the pandemic, there was a significant reduction in the number of new PoS devices installed, which reached 4.5 million by April 2021 due to low economic activity along with shifting of customers towards e-commerce. As the economy reopened and people adopted to the new normal, the total number of PoS merchants has increased with 5.1 million devices by the end of October 2021.

PoS devices supporting contactless payments from cards or near-field communication (NFC) enabled devices with payments application and authorisation have gained significantly in terms of value and are playing a crucial role in the steady growth of PoS devices which are estimated to have increased by 15% compared to 2020.[9]

The adoption of contactless PoS terminals has positively impacted revenue growth in the merchant acquiring space.

Banks and technology providers are constantly working together to develop a partnership-led model and digital solutions to expand their offerings to existing and new merchants.

Merchant acquiring revenue pie (in INR billion)



Source: PwC analysis

G. BBPS

BBPS has contributed substantially to the overall growth of digital payments since the beginning of this fiscal year. The volume of transactions which stood at 35.13 million in April 2021 has increased to 59.5 million by the end of November 2021.

With the RBI expanding the biller categories for BBPS, new billers are getting onboarded at an increased pace. Categories of billers who offer recurring payments are eligible participants of BBPS and now mobile prepaid charges will also be added as a new biller category. New billers are getting onboarded under both existing and new categories depending on their commercial or other interests, and constantly adapting to this interoperable bill payment space.

Further, multiple banks and non-bank applications are continuing to integrate with BBPS to offer bill payment and recharging options to customers. BBPS gained the maximum momentum in the month of September 2021 with 12 billion transactions compared to 5 billion in April 2021.

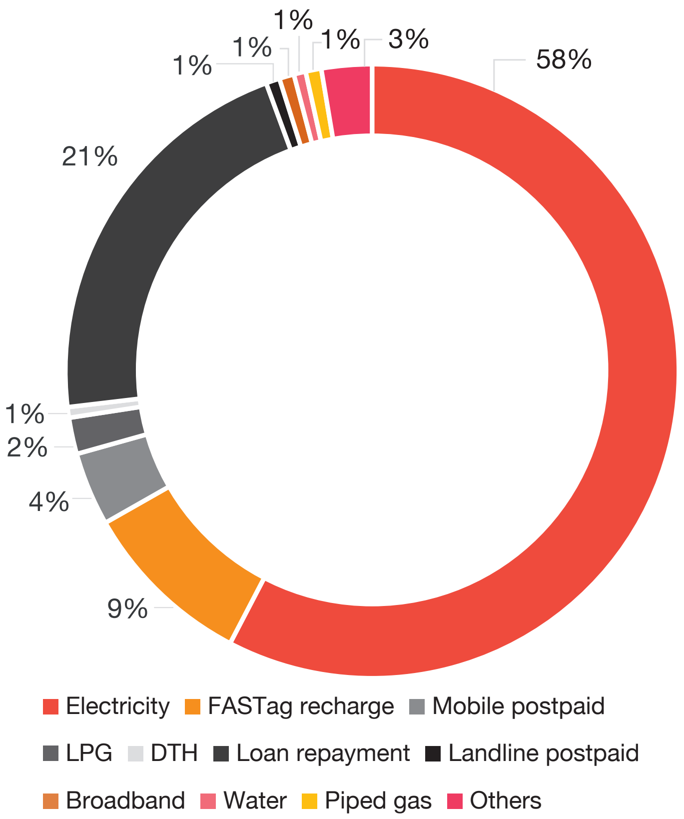
The positive traction in BBPS volumes has motivated certain biller categories like prepaid recharges, utility bills, finance, and taxes to explore the stack developed by the NPCI. Further, this stack, along with operations, has been carved out and shifted to a new subsidiary called NPCI Bharat BillPay Limited (NBBL).

Biller categories for BBPS

Recharge	Utility bills
Mobile recharge	**Electricity**
DTH/cable TV	**Broadband/landline**
FASTag	**Mobile postpaid**
	Water
	Piped gas
	Education
	Gas cylinder booking
Finance and tax	**Others**
Credit card bill payment	**Subscription fees**
Insurance	**Housing society**
Loan repayment	**Hospital**
Municipal tax	**donations**
	Clubs and associations

9 RBI

Estimated share by value for each business category (2021–2022E)



Source: NPCI data and PwC analysis

Utility bill payments account for the highest value and volume of transactions within the BBPS ecosystem, followed by financial services. The number of existing category users is expected to increase and it makes enormous business/commercial sense for the new billers to get onboarded with the support of banks. NPCI has analysed the upcoming potential categories that may be considered in recurring payments.

E-challan

Ticketing

Wallet reloading

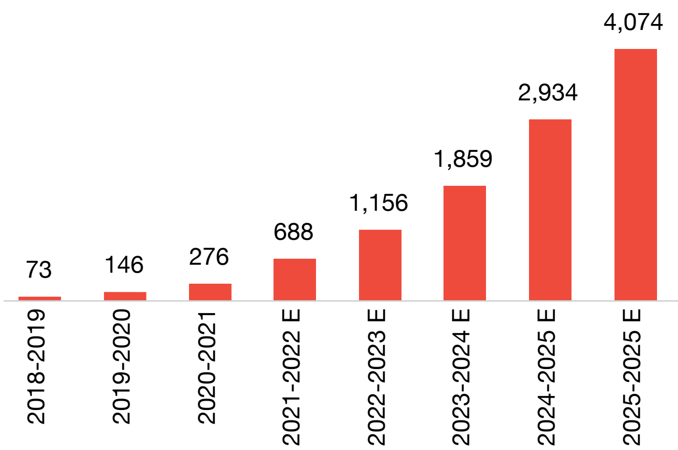
Semi-closed PPI reloading

Rent payments

Government initiatives towards building better infrastructure, particularly for rural areas, shall lead to more households with electricity and water supply, subsequently adding more demand for telecom and gas connections, and hence, increasing the customer base of BBPS users. By 2025–2026, new biller categories are expected to reach an estimated value of INR 1,179 billion with existing categories still accounting for a majority of the transaction value at an estimate of INR 2,189 billion.

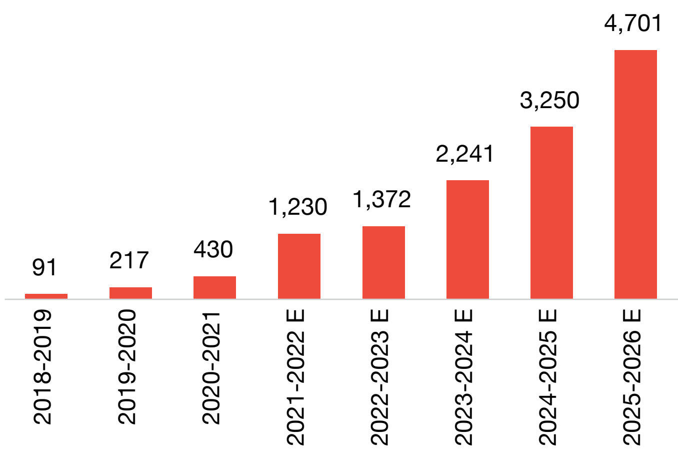
The transaction volumes of BBPS at the end of FY 2020–21 stood at 276.05 million and they are estimated to reach 688million by the end of the current financial year. Looking at its current growth trajectory, it is expected to increase by six times, reaching four billion by the end of 2025–26.

BBPS volumes (in million)



Source: BBPS website and PwC analysis

BBPS value (in INR billion)



Source: BBPS website and PwC analysis

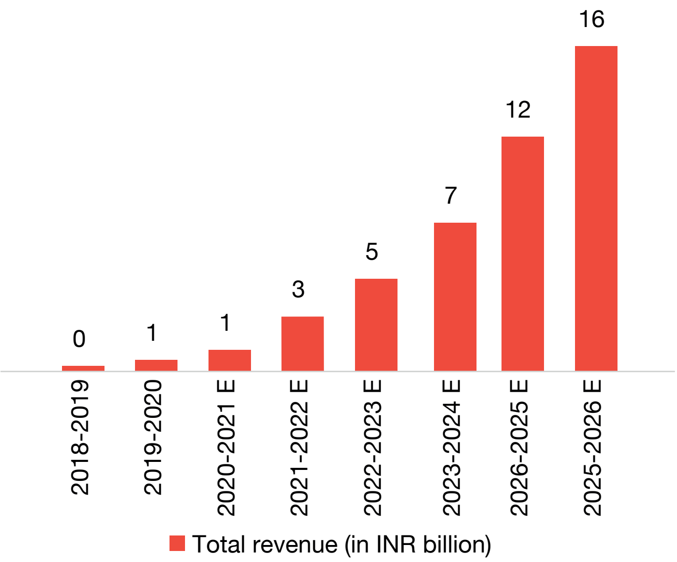
BBPS revenue line

Interchange paid by biller operating unit (OU) to customer

Customer convenience fee

Float income

Interchange paid by biller OU to customer OU



Source: PwC analysis

The transaction volumes of BBPS will be further boosted with new biller categories getting introduced and existing ones gaining more customers as organisations leverage the business-correspondent model to provide this easily accessible, reliable, cost-effective and convenient bill payment feature for rural customers.

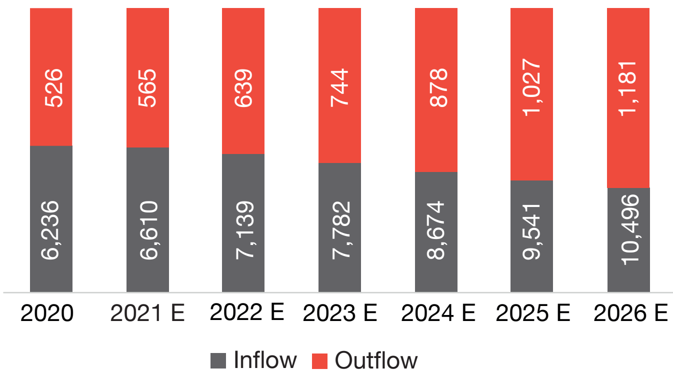
H. Cross-border payments

International payments act as a catalyst for cross-border trade and investments, and have played an important part in shaping up the Indian economy. Rapid technological advancements are transforming business characteristics, resulting in close-knit global economies and an increased demand for secure, effective and efficient cross-border remittances. Despite the pandemic, there has not been a significant change in the volumes of cross-border remittances.

Remittance has always been an area of interest for regulators, development agencies and participants. Growth in trade and labour migration is directly linked to the growth in the volume and value of both domestic and cross-border remittances. Over the years, channels, modes and operating models have evolved for both domestic and cross-border remittances, providing multiple options to customers.

India is the largest global market for inward remittance flow at approximately INR 6 trillion. Since 2016, the volume of India's cross-border remittances has grown steadily at a CAGR of 4.5%.

Cross-border remittances (inflow vs outflow) (in INR billion)



Source: World Bank and PwC analysis

The emergence of FinTech and strategic initiatives like the Money Transfer Service Scheme (MTSS) has eased cross-border payments even further. Indian banks have partnered with various international exchange houses to provide faster inward remittance services to Indians residing abroad. The International Financial System (IFS) and faster payments rails with more innovative approaches have been adopted by FinTechs in the cross-border payments space which is expected to reach INR 10,496 billion by the end of 2025–26.

The cost of cross-border remittances will keep decreasing as FinTechs continue to make technological advancements and operational innovations.

Impact of UPI on cross-border payments

UPI has been recognised internationally and many countries are trying to create a similarly fast, efficient and secure payments platform. UPI's expansion into the international arena and partnerships with faster payments rails in other countries will lead to its increased usage for cross-border remittances.

Cross-border payments can leverage a few advantages of UPI such as:

- increased availability
- process simplification
- reduced cost.

However, transaction limits and disputes can become challenges while keeping UPI payments as a base for cross-border remittances. These challenges can be addressed by using the constantly developing innovations in the payments ecosystem.

Emergence of DLT

FinTechs are experimenting with distributed ledger technology (DLT) to leverage its features and bring efficiency in cross-border remittances. DLT will enable faster movement of funds along with timely settlements between parties. This will not only bring efficiency in the domain but also reduce the cost of remittance borne by the customers.

I. ATM transactions

Cash continues to be the predominant mode of payment in India. Currency circulation in the country increased gradually on a year-on-year (YoY) basis despite demonetisation. In 2016, the volume of currency in circulation was 90 billion which increased to 124 billion in 2021. Similarly, the total value of notes circulated in 2016 was INR 16 trillion which increased to INR 28 trillion in 2021.[10] This clearly shows that cashflow is essential for a highly populated country and ATM networks are instrumental in providing and maintaining the cashflow.

ATM kiosks in India play a significant role in 'do-it-yourself' banking by offering a range of banking benefits to consumers. Apart from cash disbursements, ATM machines can be used as a one-stop solution for multiple essential non-financial transactions such as card blocking, generating a PIN, applying for cheque books and depositing cash. By bringing banking services to the street corner, ATMs are indirectly contributing to digital inclusion across the country.

ATM transactions in India were growing at a steady rate before flattening due to the introduction of digital payments and the pandemic. These cumulative events had an impact on the volume of cash circulating in India and ATM transactions were affected due to the same. The lockdown also resulted in fewer people withdrawing and using cash, thereby resulting in a decline in cash disbursements. Although the volume of cash transactions has started to increase, the latest payments trends suggest that the growth might be slower in subsequent years.

Number of ATMs and growth in transaction value

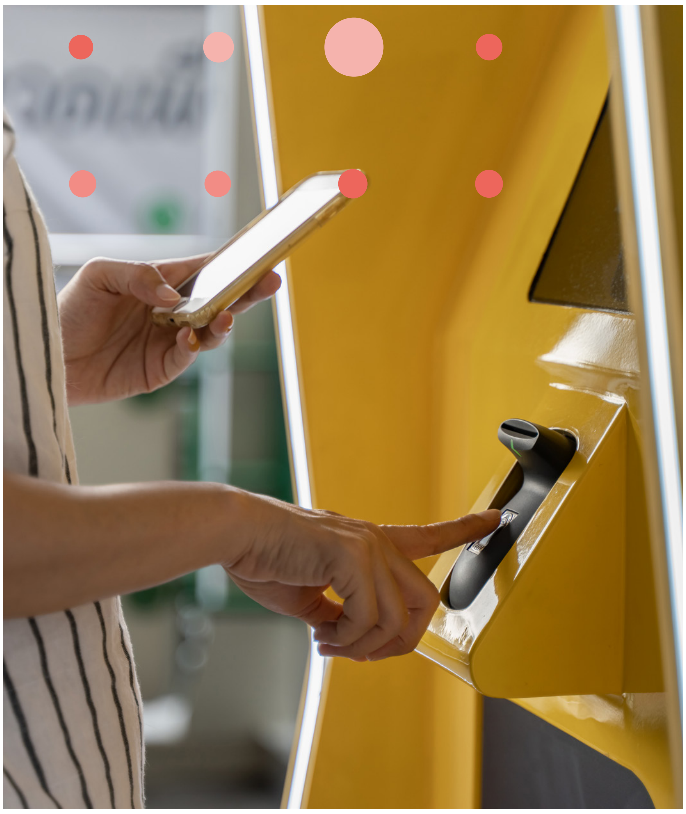
7%

CAGR growth of ATM transactions (in value) from 2016

2.13 lakh

ATMs were operational in India in the last financial year

Source: RBI and PwC analysis



10 https://timesofindia.indiatimes.com/business/india-business/cash-in-circulation-touches-rs-29-lakh-crore-despite-surge-in-digital-payments/articleshow/88450092.cms

Growth drivers

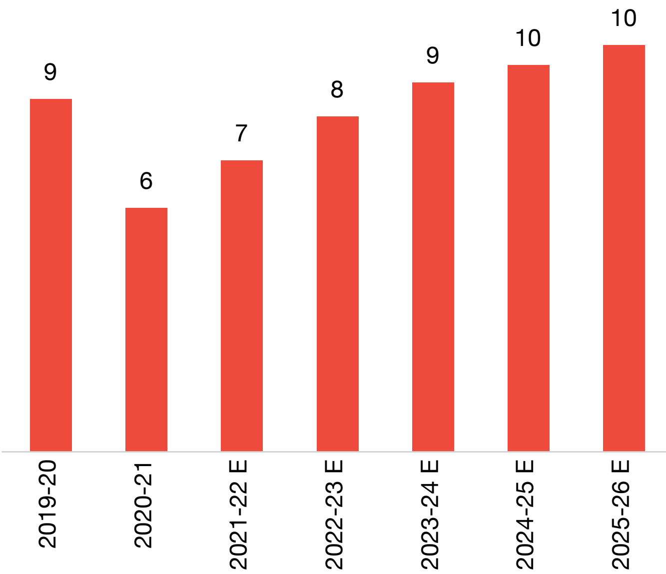
Increase in interchange fees: The RBI's latest mandate on increased interchange fee will contribute towards making ATM operations profitable. This will lead to the further growth of ATM networks, albeit at a slower rate.

Impact of COVID-19: Post COVID, cash transactions reduced, resulting in ATM usage growing at a very slow pace. Urban and semi-urban areas may witness a shift from ATM usage as people in these areas adopt other digital modes of payment.

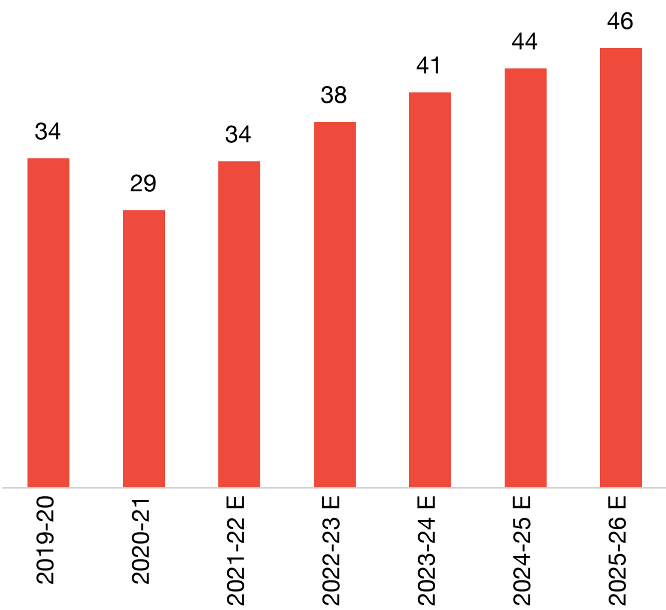
Government initiatives: Different Government initiatives around digital payments are major factors in reducing the popularity of ATMs. The PIDF scheme initiated by the RBI to spread the acquiring side of the digital payments business in tier 4, 5 and 6 centres as well as the North-East region might lead to a dip in transactions in those areas.

Higher establishment cost: ATMs, especially white-label ATMs (WTAs), are closing down due to higher establishment and security costs, lower usage and customers shifting to more convenient digital payment modes. One of the major WLA operators in India has reduced the number of ATMs significantly over the recent years due to lack of revenue generation against the cost of setting up of an ATM.

Transaction volumes (in billion)



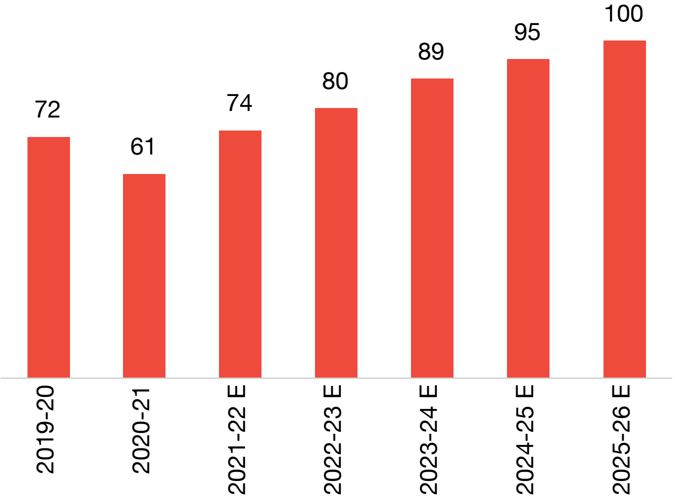
Transaction value (in INR trillion)



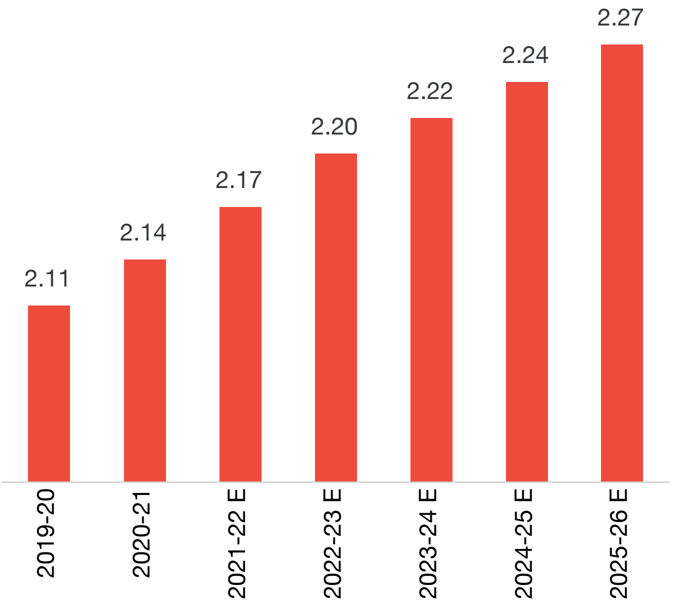
Source: RBI and PwC analysis

Revenue (in INR billion)

Despite slow growth, the revenue from ATM transactions is estimated to reach INR 100 billion by FY 2025–26



Number of ATMs (in lakh)



Source: RBI and PwC analysis

***Fees levied on customers for financial and non-financial transactions have not been considered.**

Income lines for ATMs

Non-financial transaction interchange fees

Financial transaction interchange fees

3.

The future of digital payments in India

Digital payments will continue to grow over the next few years. The section below highlights some of the key focus areas that will define the growth of digital payments in the near future.

A. Expansion of tokenisation

The RBI on 25 August 2021 and 7 September 2021 expanded the scope of tokenisation to cover additional use cases like laptops, desktops, wearables (wristwatches, bands, etc.), internet of things (IoT) devices along with card-on-file tokenisation (CoFT). Till date, tokenisation remained limited to mobile phones and tablets. This expansion will bode well for the new use cases with CoFT being the prominent one.

With the volume of e-commerce transactions increasing and customers opting for storage of card details on merchant sites, tokenisation of these details is a step in the right direction. Along with enhancing card-related security, it will ensure that the overall customer check-out experience remains intact. This is significant for leading merchants in grocery and retail, food delivery, apparel, etc., who experience repeated purchase transactions from their customers.

Further, for issuers, participating in tokenisation becomes important as service unavailability can impact the card usage of customers, resulting in a decline in transaction volume and revenue from the card business.

Some of the leading mobile-based payment applications, which till recently had UPI and wallets as the only modes, have enabled tokenisation of card details. This can be further leveraged for QR-based transactions where customers will get an additional payment option for cards.

As the number and usage of wearable devices across segments increase, tokenisation will help propel small-value transactions for in-store and transit payments. Also, use cases like IoT in retail, automotive and FMCG will need to leverage tokenisation for embedding card-based payments in the ecosystem.

B. Offline payments

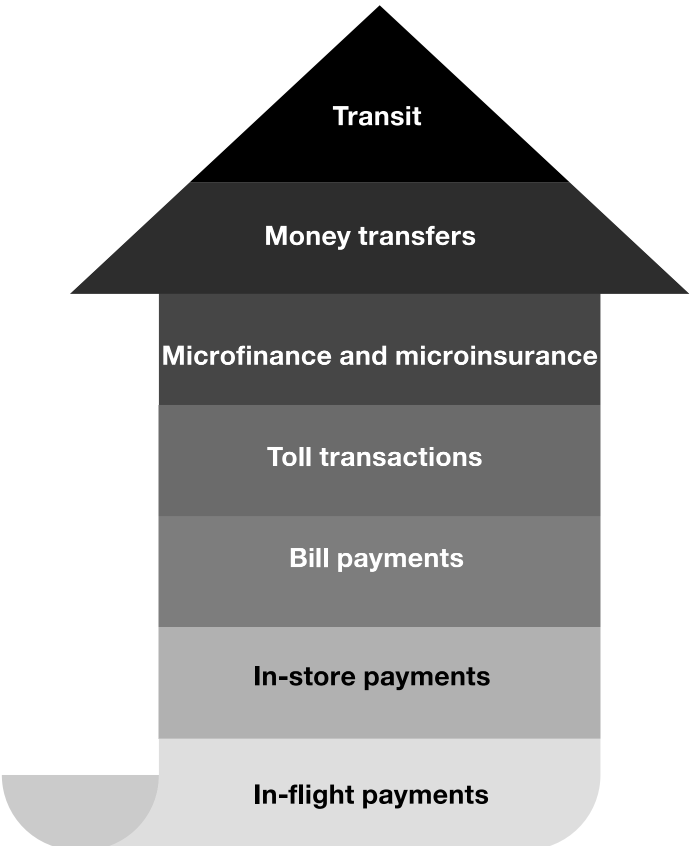
The growth of digital payments has been largely driven by online modes. While the adoption rate of online payments along with transaction value and volumes are encouraging, a section of the population is unable to leverage such solutions. Patchy network connectivity due to infrastructural issues and topography have been identified as the primary reasons for this impediment. This is also hampering larger-scale financial inclusion as customers are unable to fully utilise banking services.

These impediments have opened up an opportunity for various solution providers to explore the concept of offline payments and develop solutions for the same. Efforts have been made by various players in the past to develop and deploy such solutions but with limited success.

The recent RBI guidelines[11] on offline payments have provided a much-needed impetus to the segment. They will give the necessary directions to the participants in developing offline payments solutions. Further, it will encourage banking and non-banking companies to collaborate with the solution developers.

The RBI's regulatory sandbox has provided a much-needed testing environment for solution developers to pilot their offerings amongst a substantial population size.

Use cases for offline payments



C. Growth in acquiring infrastructure

The development of payment acceptance infrastructure has grown significantly in India in the last couple of years. This growth is primarily led by UPI, which itself is seen as an alternative to cash and has witnessed exponential increase in numbers, especially in low-ticket transactions. UPI QR infra grew by 100% last year.[12] With MDR coming back for person-to-merchant (P2M) transactions, super apps/big techs will push for building more UPI acceptance infrastructure.

Similarly, PoS infrastructure has grown steadily and the number of machines reached more than 51 million in October 2021. The expansion of tokenisation for other devices has helped issuers and acquirers to become gradually ready to utilise such technology. This could be a good growth accelerator for India's PoS infrastructure. We expect the next level of growth in the digital payments acceptance space to come from tier 2, 3 and 4 cities.

Regulators are also keen to expand the digital payments acceptance infrastructure, especially in low-tier cities. The RBI launched the PIDF scheme in January 2021 with an emphasis on setting up both digital and physical payments acceptance infrastructure for QR and PoS machines. Under this scheme, 2.46 lakh PoS devices have been installed and over five million QR (UPI and Bharat QR) codes have been generated till September 2021.

The emergence of a number of FinTechs and super apps in the acquiring space with their unique offerings like integrated payments solutions (card, UPI and Bharat QR under one app) and the Government incentivising acquiring merchants, the digital payments infrastructure in India is poised for healthy growth in the next five years.

D. Corporate payments

Modern FinTech platforms have resulted in the significant evolution of corporate payments over the last few years. These changes are bringing corporate payments closer to real-time payments while improving transparency, security and compliance.

Financial institutions and service providers are offering payments solutions which can fulfil all the requirements of organisations and increase their operational efficiencies. Companies need a more robust and resilient framework. They must also continue adapting to technological changes to cater to the majority of corporate payments attributes.

11 *https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12215&Mode=0#:~:text=The%20upper%20limit%20of%20an,in%20online%20mode%20with%20AFA*

12 *RBI*

Key focus areas

Payments data monetisation

Corporates are looking to fully utilise payments data to improve operational efficiency and optimise the essential processes. Tracking and forecasting payments for accurate cash management and ensuring enhanced security and fraud protection are some of the key services that corporates are seeking from service providers. A lot of data-related analytics services would be offered in future by financial institutions to help corporates improve their efficiency and business outcomes.

Integrated payments solutions

Integrating payments into enterprise resource planning (ERP) software that helps to automate essential business functions such as payroll and accounts receivables saves a lot of manual effort and improves the cashflow of any business. This is the primary reason why corporates are inclined towards this one-time integration which enables organisations to focus on their core functions. Integrations can now facilitate omnichannel access with centralised data with the emergence of cloud and application programming interfaces (APIs).

Corporate credit cards for SMEs by FinTechs

Small corporates/start-ups often struggle to get the desired credit cards for their employees. Some of the FinTechs working in the corporate credit card segment are catering to these needs. They are providing not only credit cards but also integrated solutions for vendor payments, tax payments, recurring spends, payrolls and insurances. We expect a number of FinTechs and banks to start offering these value-added services to small businesses.

E. CBDC

With cryptocurrencies gaining more significance as an alternative payment mode, central banks worldwide are acknowledging their possible impact on economies. A number of central banks are researching CBDC. As per a BIS survey conducted in 2021, 86% central banks were actively researching on the potential for CBDCs, 60% were experimenting with the technology and 14% were deploying pilot projects.

The RBI too has expressed its intention to conduct research on the applicability of CBDC in India. The Indian payments landscape has multiple rails that can be accessed through several channels. Given the present scenario, CBDC will need to co-exist along with the existing rails rather than replace them.

Some of the prominent use cases of CBDC that are applicable in the Indian context are:

1. programmable Direct Benefit Transfer (DBT)
2. online and offline retail payments
3. cross-border remittances.

Programmable DBT and retail payments are two areas that are important in terms of CBDC's usage in the Indian context. Programmable DBT is expected to assist in the end-use tracking of the grants given by government agencies, thereby ensuring targeted disbursement and monitoring. In retail payments, the use of CBDC to make offline payments is emerging as an area of interest. Ecosystem participants are developing solutions to support offline payments alongside online solutions using CBDC.

For CBDC to become usable in cross-border remittances, central banks will have to collaborate and develop a multilateral model similar to the existing remittance networks worldwide. As the value of each country's CBDC will be based on the respective currencies, determining the exchange rates will be a major consideration for central banks.

Conclusion

The growth of the digital payments ecosystem has been supported by an expanding e-commerce marketplace and the wider availability of acceptance infrastructure at physical stores. With changing customer preferences, new use cases are being made a part of product offerings, rendering traditional payments modes obsolete. New product offerings developed with technological and infrastructural advancements are ushering in an era of innovative and fast digital payments, and nurturing the growth of retail payments.

India is one of the world's largest growing FinTech markets. Its overall FinTech market opportunity is estimated to be USD 1.3 trillion by 2025.[14,15] Banks and card networks are collaborating with FinTechs to redefine product offerings and enhance customer experience, in order to create effective solutions and thrive in the new payments landscape.

PSPs are leveraging existing platforms to offer a plethora of innovative digital payments solutions. The pandemic has resulted in more users adopting digital payments, and this trend is expected to continue as economies worldwide continue to recover. We expect the payments industry to focus on the following areas over the next two years:

- **Enhanced customer experience:** Zero touch payments are expected to gain traction in future as they reduce waiting time and can be used both online and offline.
- **IoT:** With the emergence of connected devices and people gradually upgrading to smart homes and connected cards, IoT embedded with payments will emerge as the next area of exploration. Identification of use cases along with the ability to support multiple payments modes will be a necessary requirement for acceptance among the masses.
- **Leveraging AI/ML:** Leveraging artificial intelligence (AI)/machine learning (ML) solutions to analyse transaction data will provide deep insights into customer preferences. Such information can be used for targeted offers, fraud management, credit decisioning, customer service, etc. Operational activities of a routine nature can be automated using ML, bringing efficiency into the overall payments value chain.
- **DLT:** Players in the payments space will leverage DLT to build new use cases around smart contracts and transaction settlements, thus bringing in more efficiency into the existing system.

14 https://inc42.com/datalab/decoding-1-3-tn-fintech-market-opportunity-for-indian-startups/

15 https://timesofindia.indiatimes.com/business/india-business/explained-how-india-is-outpacing-the-world-in-digital-payments/articleshow/88580555.cms

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