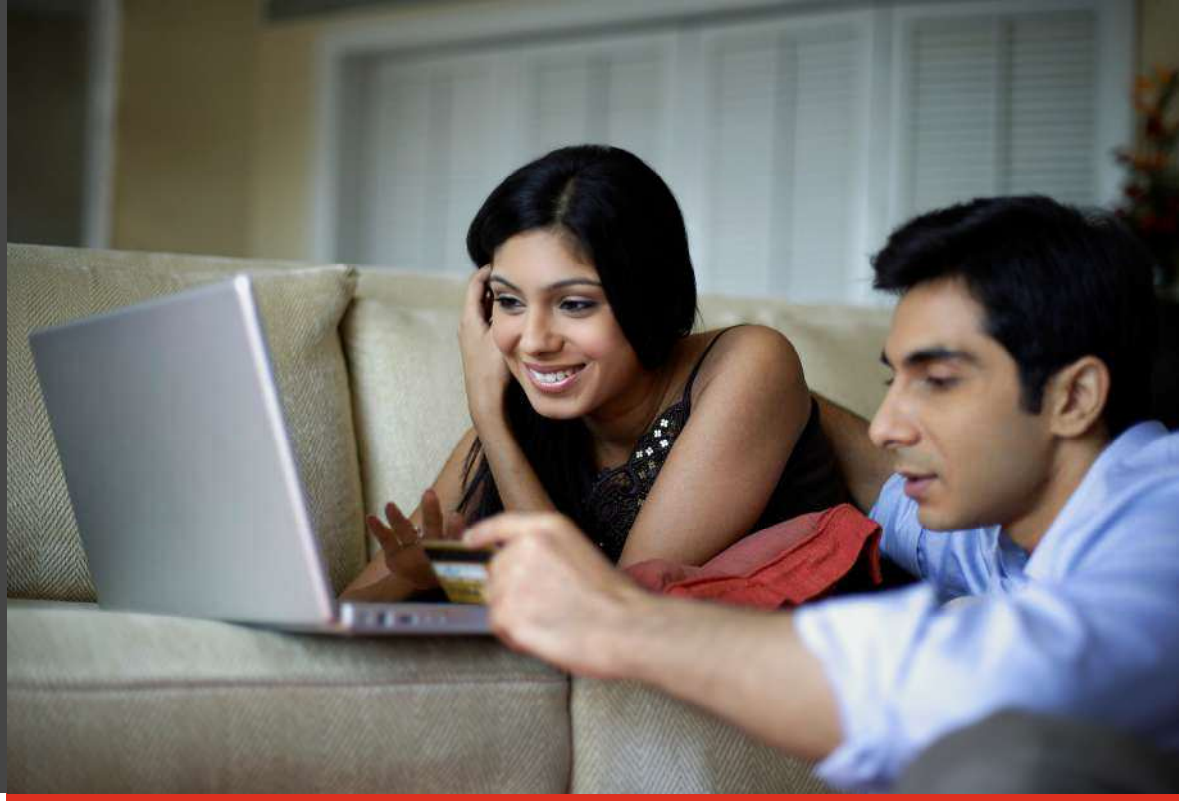


Empowering payments: Digital India on the path of revolution

July 2020

pwc

PCI
PAYMENTS COUNCIL OF INDIA

Executive summary

Digital payments have witnessed steady growth across the globe with the emerging markets leading the charge in recent times. Global transaction value for digital payments is expected to reach $12.4 trillion by 2025[1] on account of growing adoption, technology innovation and increasing customer preference for digital modes of interaction. Newer forms of payments are emerging across voice, biometric etc. that is expected to make digital payments even more convenient for customers, thereby resulting in increased adoption.

Globally, payment sector has been shaped by five trends including the increasing degree of collaboration between fintech players, payment service providers and banks, the emergence of BigTech as viable payment option, modernisation of payment systems by leveraging new age technologies like AI/ML, RPA etc., regulatory reforms, evolving customer needs and the abillity to deliver contextualized and personalized payment options by leveraging data. These trends have shaped the progress of payments globally and will be driving force behind the future of digital payments.

India's digital payments journey has been marked by specific events that have reshaped user preferences and needs. While, the issuance of debit and credit cards in India has grown steadily for many years now, the inflection point was the launch of the United Payments Interface (UPI) and demonetisation in 2016. These events exposed the general population to the benefits of digital payments and also resulted in a new crop of startups that sought to change the status quo and reshape the contours of digital payments in India. Today, India is regarded as one of the leading payments ecosystems in the world, operating one of the largest real time payments systems in the world and delivering innovations across the entire payments continuum. It serves as a benchmark to many countries and a case study in leveraging technology to make payments accessible to all.

Policymakers have played a proactive role in ensuring that payments innovations reach the masses and have ensured that the solutions developed are specific to the Indian context and take into account multiple factors such as demographics- the mix of rural and urban population along with their varying needs, internet and smartphone penetration, assessment of convenience and security requirements for end users etc. The Reserve Bank of India (RBI) has also worked towards ensuring that the payment products offered are safe, secure, efficient and low cost enabling such products to succeed in the market. It is expected that the innovations in digital payments space going forward would continue to be based on the factors mentioned earlier.

The COVID-19 pandemic has presented a massive opportunity for the digital payments industry to flourish. Consumers and businesses are now preferring various mode of digital payments while transacting. The demand for contactless is increasing and businesses are looking at integrating their online and offline channels to provide an omni-channel experience to its customers. Organisations are also looking at utilising overlay services such as Request to Pay to provide enhanced customer experience and improve their payments collections. Digital payments in India is also expected to witness the transformations that will be borne out of this pandemic and come out of this stronger than ever.

India is arguably one of the fastest growing countries in the world and has great potential to continually show a rapid progression in transformation of digital payments, largely due to its large population and demographics. The future outlook of digital payments industry in India looks promising. It has been attracting significant investments from private equity / venture capital firms and other international payment companies that want to enter India in the near future. With the focus on innovation and collaboration of various stakeholders such as Central Government, RBI, banks, payment service providers and the end consumers, it could be a game changer for India in its vision of moving towards a less-cash based economy.

[1] Mordor Intelligence - https://www.mordorintelligence.com/industry-reports/digital-payments-market

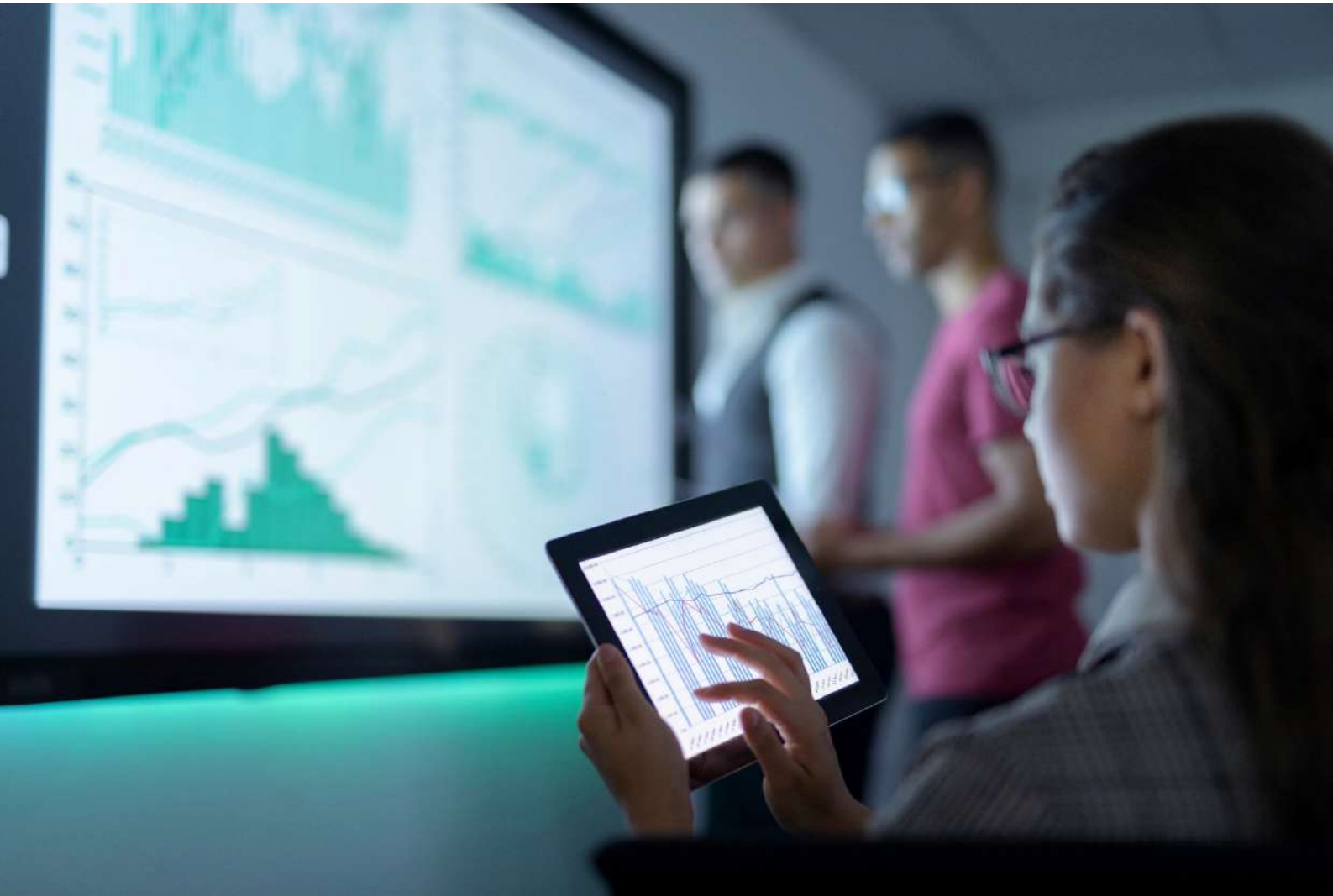
Table of Contents

List of abbreviations

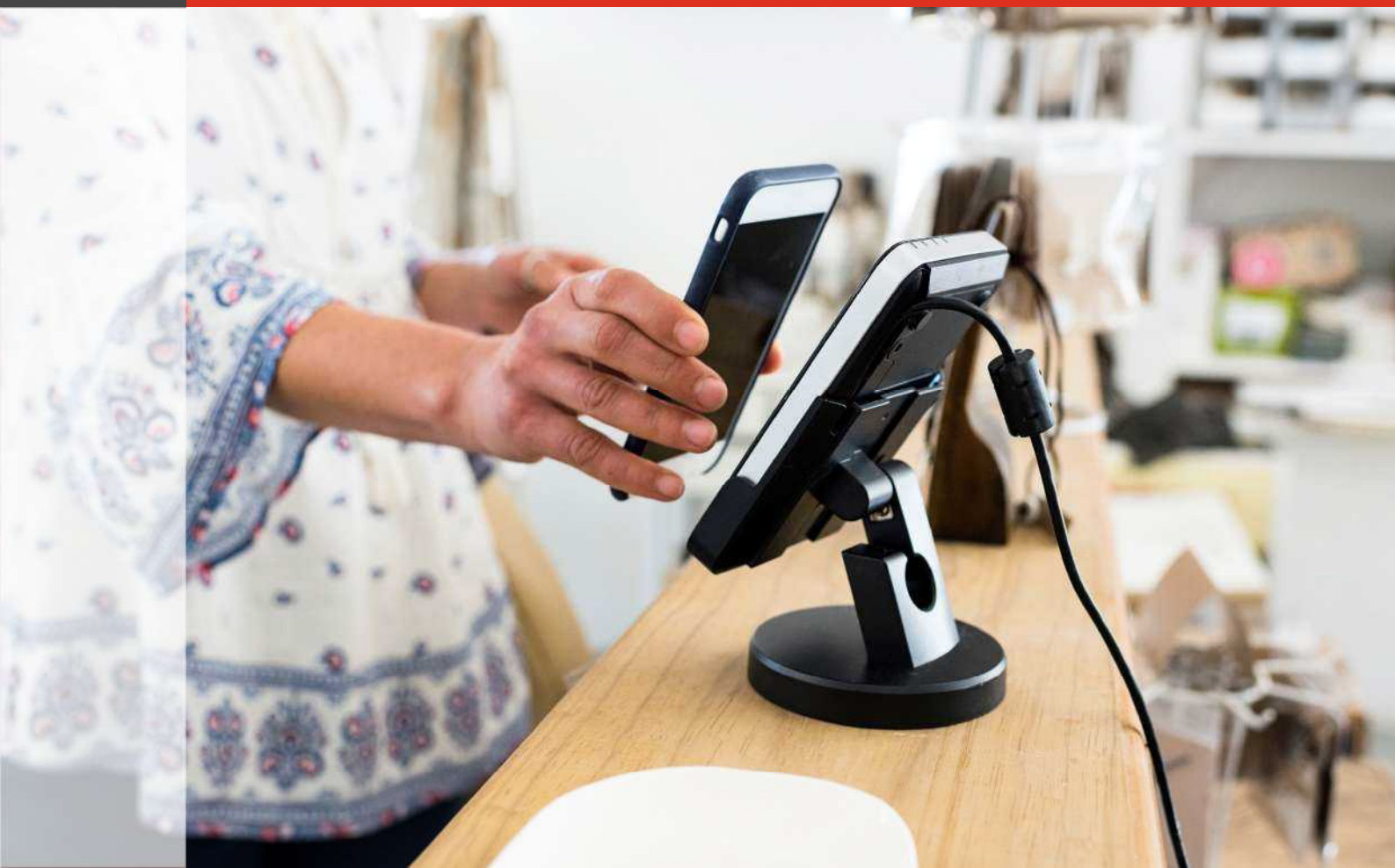
Abbreviation	Definition
AePS	Aadhaar enabled payment system
AI	Artificial intelligence
API	Application programming interface
ATM	Automated teller machine
B2B	Business to business
BBPS	Bharat bill payment system
CAGR	Compound annual growth rate
COVID-19	Coronavirus disease of 2019
DLT	Distributed ledger technology
FPS	Faster payment service
GDP	Gross domestic product
KYC	Know your customer
MDR	Merchant discount rate
MEA	Ministry of External Affairs of India
MeitY	Ministry of Electronics and Information Technology, Government of India
NEFT	National electronic fund transfer
NETC	National electronic toll collection
NPCI	National Payments Corporation of India
NUE	National umbrella entity

List of abbreviations

Abbreviation	Definition
OTT	Over the top
P2M	Peer to merchant
P2P	Peer to peer
PAN	Permanent account number
POS	Point of sale
QR	Quick Response
RBI	Reserve Bank of India
RPA	Robotic process automation
UPI	Unified payment interface

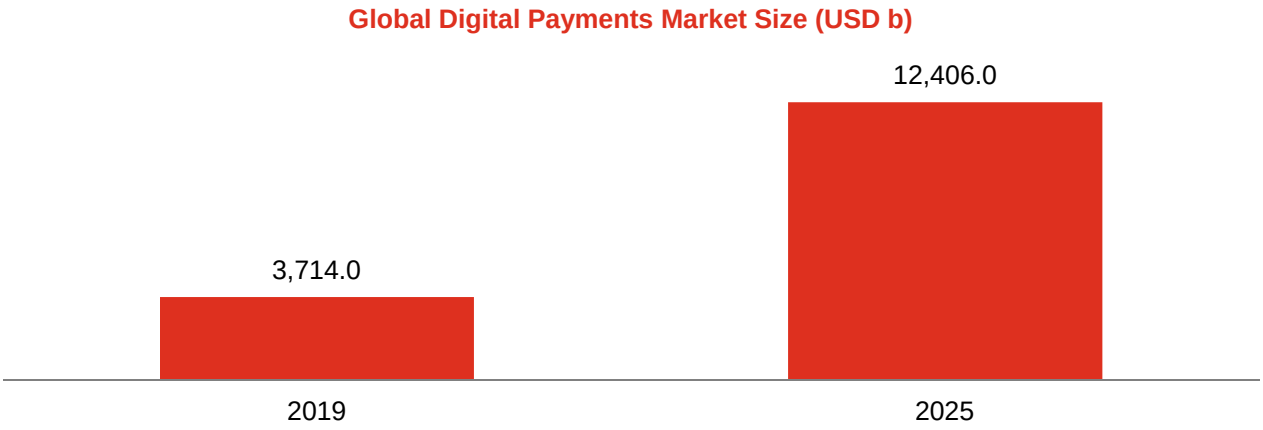


1. Developments in digital payments



Developments in digital payments

Payments have evolved rapidly – from traditional cash and cheques (paper money), to plastic cards (credit and debit), to an online single-channel, closed loop model to omnichannel, integrated payment experiences. The global payments landscape has witnessed a steady stream of innovations that have enabled widespread adoption of payment methods and steady increase in transaction volumes. Multiple factors have contributed to this growth in digital payment including the growth in organized retail and more specifically ecommerce or online retail. Payment methods have evolved in various regions based on the unique mix of infrastructure availability, regulatory landscape, demographics and other socio-economic factors. For example, while many of the developed nations steadily moved from cash to cards to mobile payments, emerging markets, predominantly China and India, have leapfrogged into the era of mobile wallets, driven by the more widespread availability of smartphone and better internet penetration. It is estimated that globally over 1 billion shoppers will use mobile wallets-based payment in 2020.[2] The global digital payments market is expected to grow at a CAGR of 23.8% to reach USD 12.4 trillion in transaction value by 2025.[3]



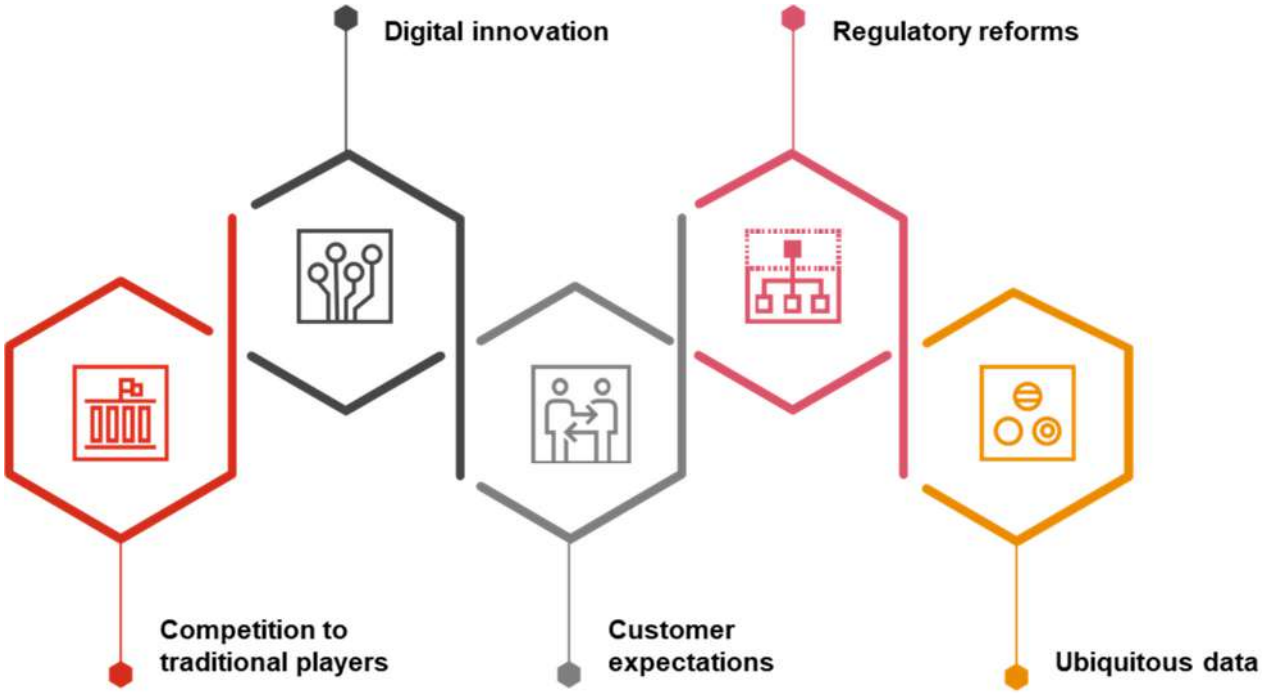
In terms of payment methods used globally, digital and mobile wallets were the preferred mode of payment for ecommerce transactions, accounting for ~42% of the total spending. However, at the regional level, preference for digital/mobile wallets varied significantly with China accounting for a major share of wallet transactions. For point of sale (POS) transactions, credit and debit card transactions together accounting for ~45% of the transaction value globally.[4]

Newer payment channels, using voice, wearable technology and even sound waves, have emerged to further improve customer experience by eliminating the need to reach out for cards. This has been further accelerated by the COVID-19 pandemic, which has increased the use of contactless payments across the globe. For example, Mastercard witnessed a 40% increase in contactless payments in the first quarter of 2020.[5] This has been supported by over 49 countries increasing the transaction limits on contactless payments, since the start of the pandemic. A survey conducted by Dynata across 11 countries indicated that around 59% of consumers prefer contactless payments versus 38% combined for cash, Chip & Pin and magnetic stripe cards.[6]

Technology and digitisation have been the driving forces behind the plethora of opportunities that have opened up in the payments landscape globally over past few years. The dynamics in the payments sector have facilitated a change in the way funds now flow across businesses, with both businesses and customers evincing a preference for a gradual shift from physical cash to alternative digital payment methods. Global economies have recognised the high cost that cash entails and are thus spearheading efforts to transit to a less-cash, if not cashless, economy.

2 FIS Worldpay – Global Payment Trends 2019
3 Mordor Intellgence - https://www.mordorintelligence.com/industry-reports/digital-payments-market
4 FIS Worldpay – Global Payment Trends 2019
5 https://www.cnbc.com/2020/04/29/mastercard-sees-40percent-jump-in-contactless-payments-due-to-coronavirus.html
6 Dynata Global Consumer Trends – A Breakthrough for Contactless Payments https://www.dynata.com/dynata-global-trends-report-special-edition-series-covid-19/

The five mega trends driving the digital payments space that are expected to significantly improve the future of this industry are as under:

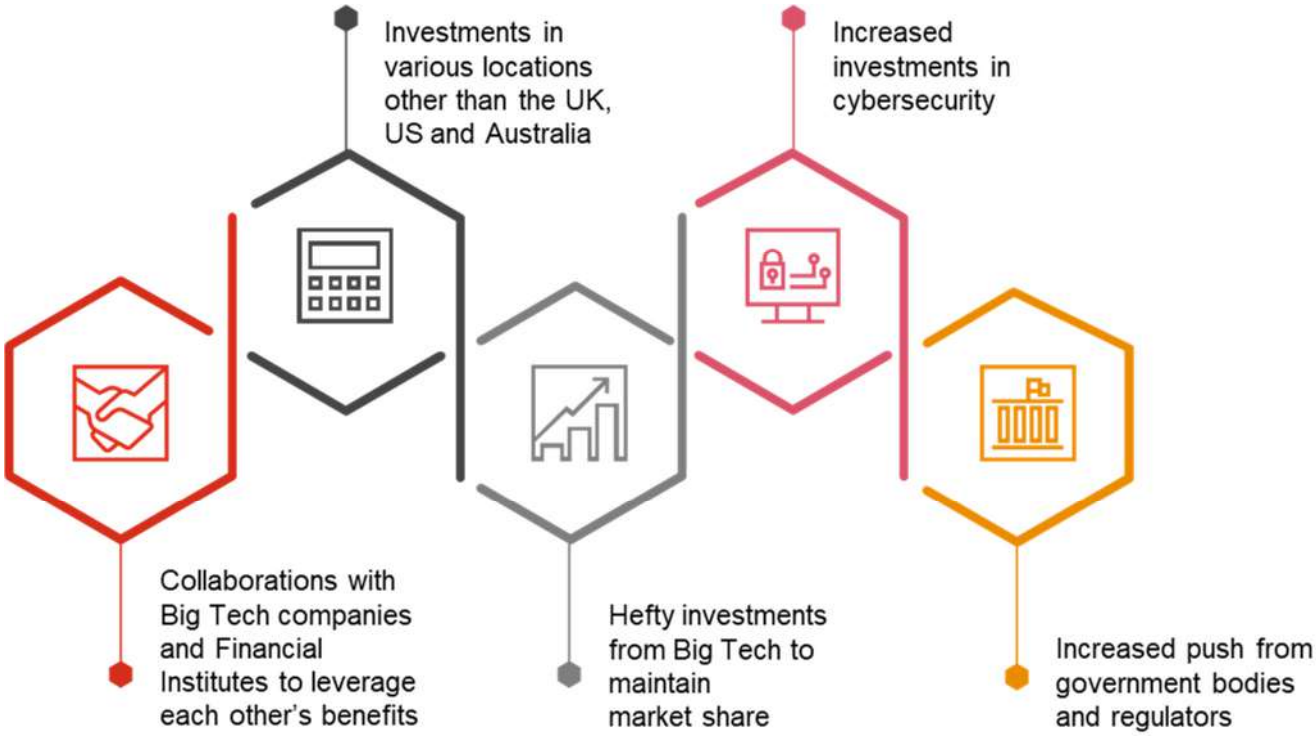


1.1. Competition and collaboration with traditional players

Payments have always been considered as a commoditised offering, lacking differentiation and being largely volume driven. However, by leveraging technology and building value-added services across the value chain, payment service providers have been able to deliver significant value to all stakeholders.

The evolution of FinTech in the last few years has transitioned the highly competitive banking and financial services ecosystem into a more collaborative environment, with the incumbents partnering with new entrants in delivering superior customer experiences. Regulators worldwide are looking to explore this collaborative approach through open banking in a bid to foster innovation and benefit the customers. Implementation of the open banking system in the UK by the Competition and Markets Authority on behalf of the UK Government is a cutting-edge move to bring competition and innovation in the financial sector. By virtue of the open banking system, essentially, third-party payment service providers are provided access to banking, transactional and other financial data via APIs, with the intent of rendering customer-centric services and an enhanced customer experience. Moreover, the proposed implementation of the Payments Services Directive 2 (PSD 2) in the European Union, as well as account aggregation licences in countries such as India, is expected to accelerate the disintermediation of payments.

Large payment processors and acquirers have also moved upstream and downstream by acquiring other players in the payment ecosystem, thereby developing the ability to offer full-stack, integrated offerings to their customers. This is evident from many consolidations within the sector. Minimal regulatory oversight of these TechFin players has accelerated the pace of innovation in the sector, while consolidation has enabled companies to provide omnichannel solutions to merchants.



Consolidation within the sector

While digital payments started with a limited use case or proposition, over the years, the ecosystem has responded to the growing need for ubiquitous solutions that facilitate the use of a single application for performing financial transactions. This has been possible to a certain extent through consolidation in the sector, which has resulted in the creation of omnichannel, integrated payments platforms.

Competition in the payments sector is becoming fiercer, witnessing multiple new entrants at regular intervals. The recent trends suggest that participants in this ecosystem are consolidating capabilities to provide an end-to-end payments platform to the customers – from issuance to acceptance. This has benefited both the customers and service providers.

One such example is a recent acquisition of a European FinTech firm by a leading global online payments system provider that offers mobile wallet and payment gateway solutions. This FinTech firm specialises in providing point of sale terminals, dongles and e-commerce tools to enable small businesses to accept digital payments. This acquisition enables the payment service provider to gain access to over-the-counter sales along with expanding its reach in the regions where the FinTech firm has significant presence, simultaneously allowing the FinTech firm to leverage the payment service provider's global network and resources.

Collaborative partnerships are appearing in areas of payments processing, POS solutions and data handling. Financial institutions have collaborated in the past with FinTech firms through partnerships, integration or acquisitions.

Impact of Big Tech on the payment ecosystem

With the entry of Big Tech firms in the financial services space, the concept of FinTech is evolving to TechFin. To illustrate this aspect, the top five technology firms in terms of market capitalisation – Alphabet (Google), Microsoft, Apple, Amazon and Facebook – have entered the financial services industry.[7] Apple offers its digital wallet service through Apple Pay. In addition, Google has already launched its digital payments wallet offering, Google Pay and Facebook plans to introduce a permissioned digital currency, Libra, which is expected to make global payments cheaper and faster, subject to regulatory clearances. Amazon already has a wallet offering called Amazon Pay. Microsoft has already entered the financial services with its mobile wallet Microsoft Pay.[8]

Big Tech firms leverage strong infrastructure capabilities such as cloud, strong computational power, highly skilful employees, innovation labs and experience in different business spaces. With access to large customer data, these firms can take advantage of the insights gleaned from such data to provide customised and personalised solutions to customers. This has contributed to the growth of the payments industry.

1.2. Digital innovation

Newer and innovative technologies have stimulated operational and systemic changes in the financial sector. With the advent of technology in the payments sector, transactions have become faster, highly secure and more efficient. Technology providers are working hard to make the payment processes as frictionless as possible by finding alternate means of cash and cheque transactions.

Modern technology's influence on payment systems

Modern technologies have spurred innovation in all areas of the payments ecosystem by offering better customer engagement, operational efficiency, enhanced security and front-line innovations. Technologies spearheading this transformation include AI, API, DLT, machine learning and RPA. They will continue to drive the course of the payments sector, making the process increasingly end-user friendly and smooth.

Artificial intelligence

With machines performing human-like tasks, AI has the capability to bring enormous transformation in the payment sector by enhancing operational efficiencies and thus lowering operational costs. Currently, AI-enabled chatbots assist customers in opening or closing accounts, transferring funds and solving doubts 24x7. Automation has helped minimise human intervention in the sector. Moreover, there is expected to be a remarkable improvement in customer relationship and satisfaction as the technology becomes more pervasive.

(a)[9], (b)[10], (c)[11], (d)[12]

Real-time fraud detection and prevention capabilities are becoming further enhanced within payments by the inclusion of AI. Today, many payment activities involve manual intervention to reconcile and process these payments, especially in business-to-business transactions. By leveraging AI, these processes can be automated, thereby enabling straight-through processing. AI is also being leveraged by companies for further optimising the customer onboarding and know-your-customer (KYC) processes, with use cases combining AI with optical character recognition to read and understand customer documentation digitally without human intervention.

7 Article: https://www.visualcapitalist.com/the-big-five-largest-acquisitions-by-tech-company/#:~:text=The%20Big%20Five%20tech%20giants,entire%20businesses%20of%20aspiring%20competitors.
8 https://www.microsoft.com/en-us/payments
9 https://digital.hbs.edu/platform-rctom/submission/jp-morgan-coin-a-banks-side-project-spells-disruption-for-the-legal-industry/
10 https://promo.bankofamerica.com/erica/
11 https://www.yesbank.in/digital-banking/yes-robot
12 https://v1.hdfcbank.com/htdocs/common/eva/index.html

Distributed ledger technology

DLT is a digital technology that records transaction details in multiple places at the same time, unlike the traditional databases. Including the blockchain technology, DLT operates a set of synchronised and shared ledgers managed by one or more entities, unlike traditional databases that have a central administrator. These ledgers are immutable, thus enabling more secure financial transactions. This is because data across multiple, geographically spread ledgers need to be updated in parallel and undergo multi-party validation before the update takes effect. This works on a zero-trust policy as all the institutions involved need to validate the data on any changes. Many central banks across the globe have started experimenting with DLT and blockchain technology as fraud prevention and security of the financial transactions are the evident benefits of this technology. Countries such as Australia, Bahamas, Brazil, Cambodia, Canada, Eastern Caribbean, Japan, Russia, Saudi Arabia, Singapore, South Africa, Sweden and Thailand are exploring this technology for multiple use cases like introducing retail digital currency, wholesale digital currency and settling interbank securities.[13] In the long run, DLT is also expected to reduce the processing and transaction fees in payment transactions.

Nevertheless, banks are finding it difficult to implement DLTs, given their dependency on legacy systems. In light of this, many banks have put DLT experimentation on hold. Central banks across the world as well as concerned regulatory authorities have shown caution in espousing this technology due to various regulatory challenges associated with its complexity.

Robotic process automation

RPA has streamlined a wide variety of manual back-office activities. Validation and approval of credit card application of a customer now happens in a matter of hours, as opposed to the days that RPA needed previously. It performs background checks, credit checks and takes decision based on a set of parameters to confer whether the customer is eligible for a credit card or not. RPA's if-then method helps identify potential fraud and highlight it. RPA is used by multiple banks for automating KYC processes, report generation and account closure processes. It reduces the painstaking back-end manual processes and thus proves to be time effective overall.

Application programming interface

APIs are a set of codes and rules that decide how two components should interact, enabling them to communicate with each other well. API interfaces enable third-party applications to link to the bank's database, forming a network that encourages the promotion of services, payments and products. This aggregation of data from a bank works well for private clients, businesses and, above all, owners of financial institutions. For customers, it saves time spent on transactions, makes available the needed services and products, facilitates all operations and offers practical and simple solutions to every problem.

APIs are essential for banking-as-a-service. Through APIs, FinTech firms and third-party services can connect to the banks' systems. It also helps increase banks' offerings beyond the FinTech firm's technical infrastructure. Payment APIs are most commonly used in online payments to integrate multiple payment sources and allow merchants to easily integrate these payment options on their website or mobile application. Increasingly, APIs are, to an extent, allowing brick-and-mortar customers to access more digital modes of payments.

Overall, these modern technologies have widened the horizons of the payment industry and encouraged traditional players to redefine their customer service models from reactive service to proactive customer engagement. With exciting times ahead in the payment sector due to these technologies, there is a need for the financial services industry to continue to develop a digitally driven society that accommodates all dynamic elements of payments' evolution. Central banks and regulators across countries also need to keep pace and faith in the transformative power of technology, while being mindful of and helping mitigate the risks associated with the use of such technology.

[13] World Economic Forum: https://www.weforum.org/agenda/2019/04/blockchain-distrubuted-ledger-technology-central-banks-10-ways-research/

1.3. Customer expectations

Customers experience digital technology on an ongoing basis due to the growing influence of the Internet and smartphones. Resultantly, the expectations to have convenient banking solutions, beyond the usual hard-wired ones, have only multiplied. For this purpose, traditional players such as banks have also recognised the importance of investing in newer digital technologies.

Open banking is one such innovation in the financial sector that has addressed customers' concerns about accessing convenient and customised banking services from the comfort of their homes. This has also benefitted the banks on various fronts, including wider reach, enhanced customer experience, etc. However, open banking as a way of banking is yet to gather momentum in many countries.

Real-time payments

With the evolution of smartphones, an entire gamut of services is available with the touch of a button. With the growing demand from end users to transfer funds on the go 24x7, the growth of real-time proxy payments across countries, which enables end users to transfer money on a real-time basis using the mobile platform, has followed.

Real-time payments improve the cash flow, operational efficiencies, customer engagement, data transparency and accuracy. At a rather great pace, real-time payments are proving useful in eliminating the mounds of cheques and cash flows, thus reducing the cost surrounding them.

Faster payments service (FPS) in the UK is one such example that aims to reduce the time taken for a payment to realise to typically a few seconds. FPS was launched in 2008 for non-scheduled immediate payments only. FPS processed 240.6m transactions in June 2020, marking an increase of 29% over June 2019. [14]

Very few countries have pioneered the establishment of a real-time payment infrastructure such as in the UK, China, India and South Korea. Moreover, certain countries have been quite slow to catch up with the pace of development of real-time payments, since adopting real-time payments is challenging in terms of integration with the existing legacy banking systems. Interoperability thus becomes an issue for real-time payments, as they require a strong underlying core-banking platform that supports availability 24x7.

[14] FPS website: https://www.fasterpayments.org.uk/statistics

1.4. Regulatory reforms

Regulations play a significant role in determining the nature and success of payments. With technology evolution improving the payment infrastructure across countries, regulators have a key role in ensuring that countries take advantage of this trend by shifting economies from cash-based to cashless, boosting efficiency and volume of transactions and reaching out to a broader customer-base.

For example, implementation of the open banking system in the UK, by the Competition and Markets Authority on behalf of the UK Government, is widely viewed as a means to bring further competition and innovation in the financial services ecosystem.

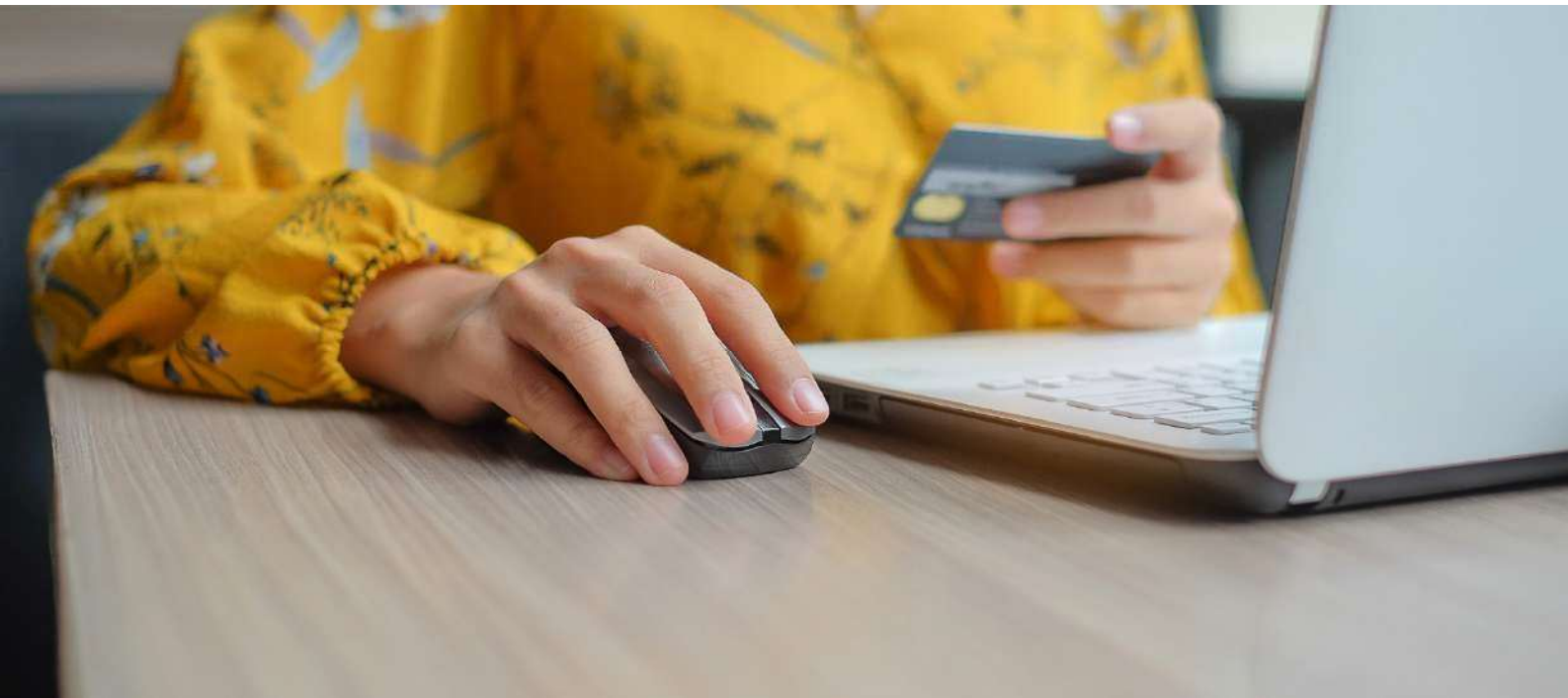
Major banks in the UK have launched apps in collaboration with FinTech firms, riding on the concept of open banking. These apps act as a one-stop solution for customers to view information on various bank accounts as well as loans, mortgages and credit cards in one place. This ensures greater customer engagement and a shift from the traditional hardwired solutions to a more flexible and tailor-made solution.

1.5. Ubiquitous data

Transaction data embody a pool of information regarding customers' behaviour. These data can provide rich insights into how customers transact along with their buying patterns, potential income levels, etc. This can then be leveraged in multiple use cases, including real-time customer analytics, fraud analytics and credit decisioning.

Loyalty programmes and reward point offerings can be restructured to make them more dynamic based on the customers' preferences and transaction history. This will entail high level of collaboration among the banks, payment providers and merchants, as customers would want to pay and redeem their rewards at the same time via their preferred channels.

Banks can go contextual by leveraging customer transactional data and offering new products/ services to the customer without involving sales personnel. They can also use the data to offer the next best action to the customer, such as intelligent payment routing decisions.



2. Digital Payment Story – directed and powered by policymakers

India digital payment story – directed and powered by policymakers

India has historically been a cash-based economy with the cash in circulation, even as of April 2020, at 12.4% of the GDP.[15,16] RBI and central government have undertaken a multitude of initiatives for promoting the use of the country's digital infrastructure while taking measures to instil customer confidence therein. Thus, digital payments in India have and are expected to witness a continued revolution. UPI, Bharat QR and mobile wallets have ensured last-mile connectivity, covering small merchants, tea-sellers and even hawkers. Historically, given the challenges associated with a large and diverse population and a patchy payments infrastructure, the India's digital payments journey is unique in its own way. UPI, today, is among the largest real-time payment systems in the world, clocking over 1bn transactions every month[17]. Moreover, Bharat QR is aiming to connect a large merchant base across Tier-2 and Tier-3 cities and rural areas of the country. India is thus aspiring and is successfully able to make a mark on the global payments landscape on aspects such as innovations in retail payment products, effective regulations and availability of alternate payment systems. In this context, it is worth highlighting that the report on *Benchmarking India's Payment Systems*, released in 2019, benchmarks the payment systems in India on various parameters alongside those of 20 other countries. India has been identified as strong and a leader on various parameters, such as regulation of costs of payment systems, laws in place, availability of alternate payment systems, share of e-money in payment systems, oversight by the Central Government, fast payment systems available in the country, volume and growth of e-money, etc. While India's digital payment ecosystem and story are maturing gradually, the recent regulatory push is expected to accelerate their growth.

The genesis of this digital transformation can be traced back to three disparate pieces of infrastructure that came together to create the rails for digital payments in India.

Jan Dhan-Aadhaar-mobile trinity	India Stack	Goods and services tax (GST)
Digital enablers 398.2m Jan Dhan Yojana accounts[18] 1.26bn Aadhaar generated[19] 1.15bn Wireless subscribers[20] 718.7m Internet subscribers[21]	**API's for India** 1. **Aadhaar**: anytime, anywhere verification 2. **eKYC**: paperless KYC 3. **UPI**: real-time account-to-account transfers 4. **DigiLocker**: secured, verified digital documents storage 5. **eSign**: sign documents electronically using Aadhaar	**One nation, one tax[22]** 15 Indirect taxes replaced by GST on 1 July 2017 12.3m Registered GST taxpayers 143.2m GST payment transactions

15 GDP figures for 2019 (converted at USD/INR: 75) are taken from https://www.businesstoday.in/current/economy-politics/modi-govt-5-trillion-gdp-target-by-2025-simply-out-of-question-says-former-rbi-governor-c-rangarajan/story/390818.html.
16 https://www.cmie.com/kommon/bin/sr.php?kall=warticle&dt=2020-04-27%2015:33:32&msec=513
17 NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics
18 https://pmjdy.gov.in/
19 https://uidai.gov.in/aadhaar_dashboard/
20 Telecom Regulatory Authority of India (TRAI) – The Indian Telecom Services Performance Indicator Report October–December 2019
21 TRAI – The Indian Telecom Services Performance Indicator Report October–December 2019
22 https://www.gstn.org.in/

a. The Jan Dhan Yojana allowed millions of individuals without any access to formal banking channels to become a part of the ecosystem, thereby enabling digital payments to reach the masses. This was aided by the widespread adoption of mobile phones across India as well as the growing penetration of Internet in India. Together, these created awareness and armed the general population with the infrastructure to access digital payments

b. India Stack, the backbone of UPI and eKYC in India, is a set of APIs that provided FinTech and payment companies access to tools that allowed the creation of interoperable ecosystems for payments. It also provided the means for financial services companies to digitise aspects of their business that have traditionally been paper-based and required manual intervention.

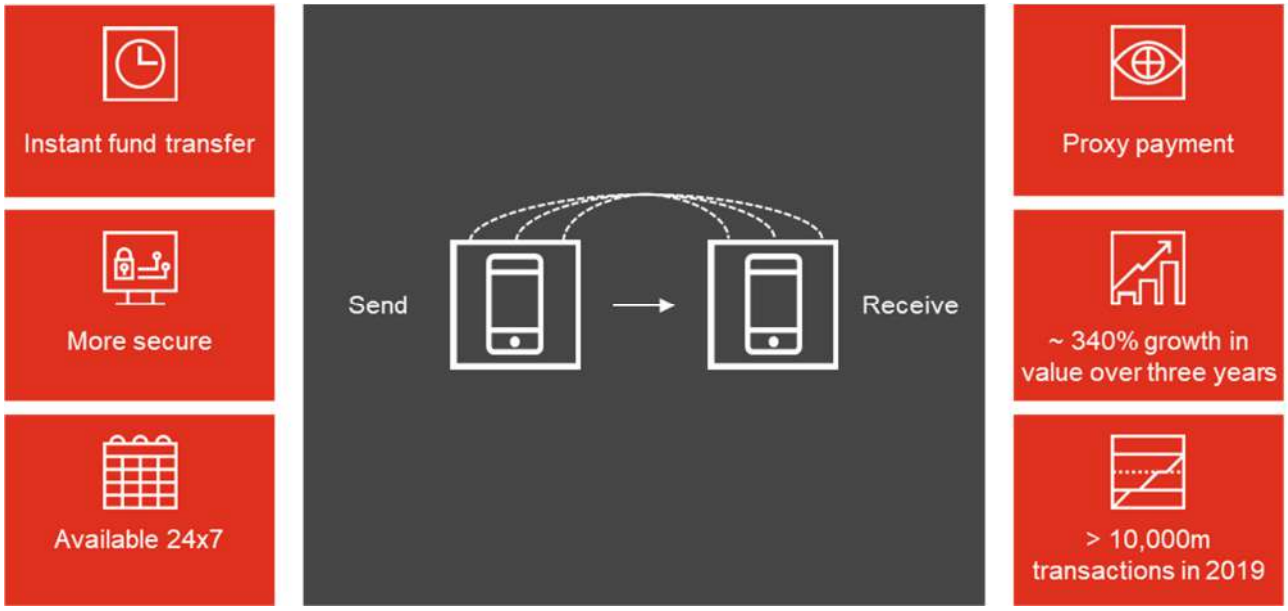
c. GST has resulted in the formalisation of the informal sector in India, thereby enabling multiple small and medium-sized entities to explore digital payment options to reduce the dependence on cash. Strict enforcement of this tax regime eliminates any perverse incentive to continue to operate with cash.

2.1. Overview of digital products in India

India has consistently innovated and developed retail payment products to address the needs of end customers, ranging from the UPI to national electronic toll collection (NETC), with the National Payments Corporation of India (NPCI) spearheading these product innovations. Each of the following products have contributed significantly in furthering India's digital payments agenda.

UPI	Bharat QR	AePS
Launched by the NPCI in 2016, UPI is the real-time payments initiative with use cases across peer-to-peer and peer-to-merchant payments.	NPCI launched Bharat QR, a low-cost, QR based merchant payment solution for faster e-commerce and m-commerce transactions.	AePS is a bank-led model that allows interoperable online transactions at the micro automated teller machine of any bank using Aadhaar authentication.
NETC	**BBPS**	**RuPay cards**
NETC is an interoperable nationwide electronic toll payment solution with clearing house services for settlement and dispute management.	BBPS is envisioned as a one-stop interoperable, accessible and cost-effective ecosystem for payment of all utility bills.	Launched by the NPCI in 2012. RuPay was created to fulfil the RBI's vision to have a domestic, open and multilateral system of payments.

Unified payments interface

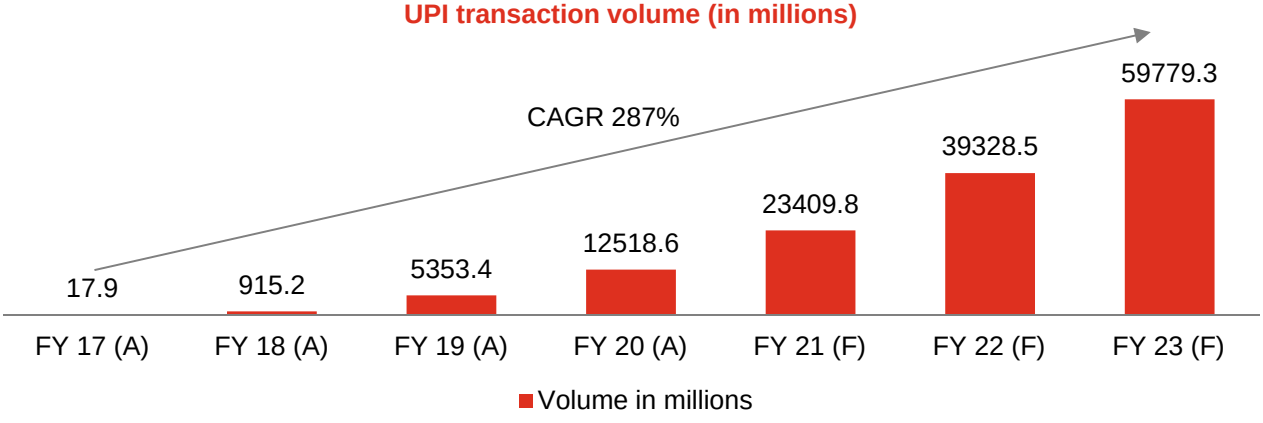


[23]

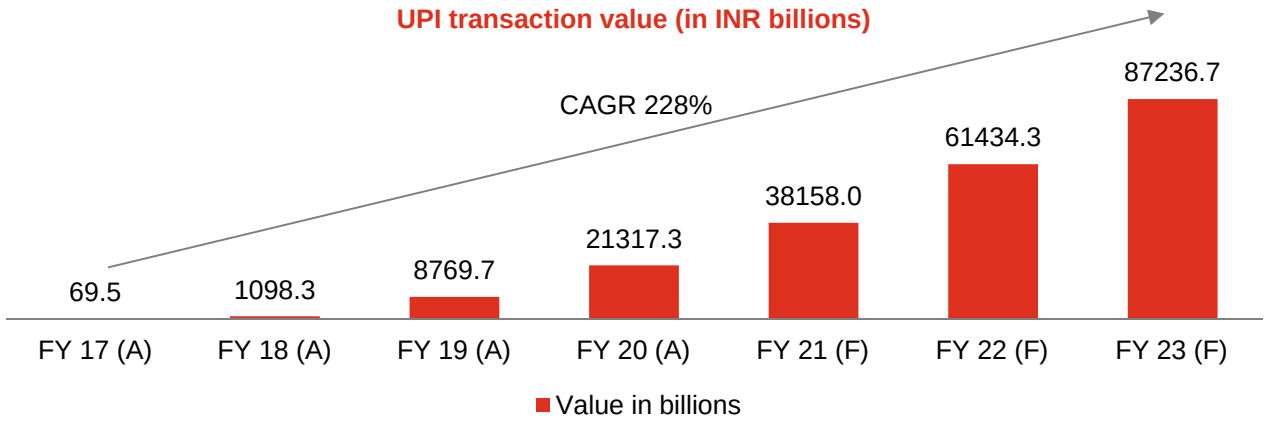
UPI, as proxy-based payments in India launched by the NPCI, has broken all records in the Indian payments industry. UPI transactions have been growing ever since its launch. UPI has been proven to be a masterpiece of NPCI, breaking the records year over year. UPI has been a collaborative effort of the government, RBI, largest public sector to private sector banks, FinTech firms and customers. P2P payments have been the major contributors of UPI volumes, as the initial focus of UPI was targeting P2P transfers. Comparatively, P2M payments are lagging. Thus, to make P2M payments frictionless, the regulator is coming up with the norms of no or less merchant discount rate (MDR). This will hugely benefit small merchants popularly known as *kirana* vendors who have a significantly low-ticket size. RBI's *Payment and Settlement Systems in India – Vision 2019–2021* focuses more on going cashless, which will promote this digital product.

UPI has gained a lot of traction in the digital space of India's economy right since its launch in 2016. The compound annual growth rate (CAGR) of this product from financial year (FY) 2017 to FY 2020 is ~785% in volume and ~570% in terms of value. Based on PricewaterhouseCoopers's internal analysis and forecast, the volume of the UPI product would reach nearly ~59bn due to its high P2P type of transaction penetration. The figures below show the growth of UPI in terms of transaction volume and transaction value over the years along with its expected future growth.[24]

UPI transaction volume (in millions)



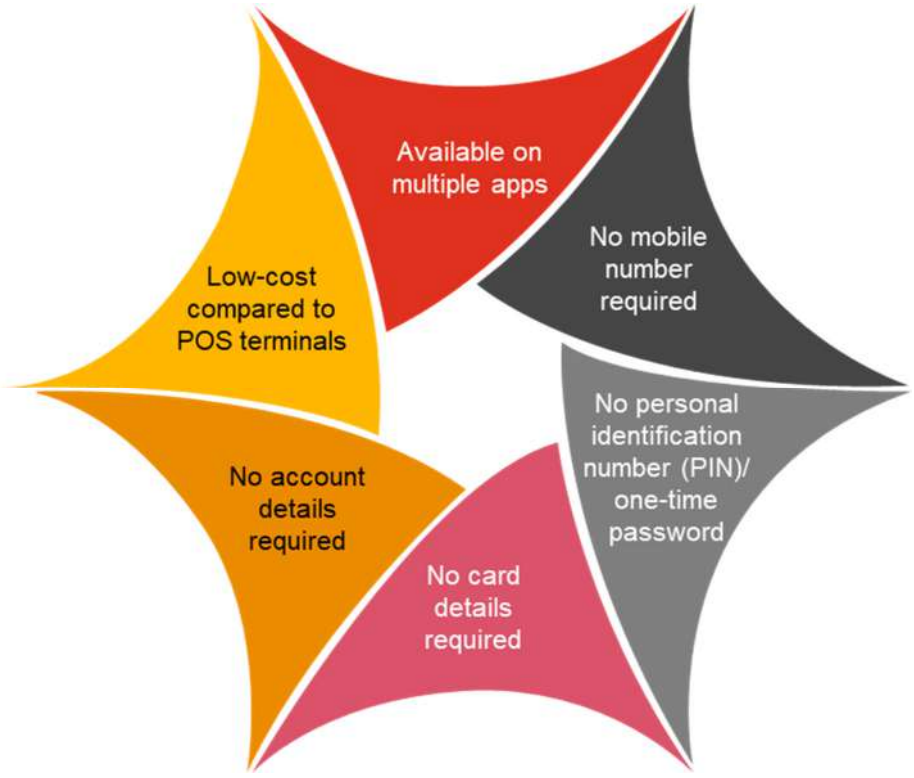
[23] Statistics source: NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics
[24] NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics, PwC analysis



Bharat QR

QR code-based payments are already very popular in China, but since the launch of Bharat QR and Bharat Interface for Money (BHIM) QR, it has also gained significant traction in the Indian market. The growing usage of smartphones and convenience associated with QR-based payments has led to increased adoption of this payment method. It also provides a great cost-effective alternative to POS terminals for merchants. Low-cost infrastructure, remote management of merchants and customers, interoperable QR code, push based transaction and elimination of the need to store charge slip copy by the merchant are all the key selling features of this type of transaction. As per data of the Ministry of Electronics and Information Technology (MeitY), around 0.7m shops are now implementing Bharat QR with the target to reach 1.5m. [25]

RBI has set up a committee to analyse the usage of QR codes to process contactless transactions, in view of the current COVID-19 pandemic situation. The main agenda of the committee is to analyse the economics of using QR codes at merchant locations, identify the advantages of having an interoperable and open-loop system and recommend guidelines for standardising QR deployments. [26]

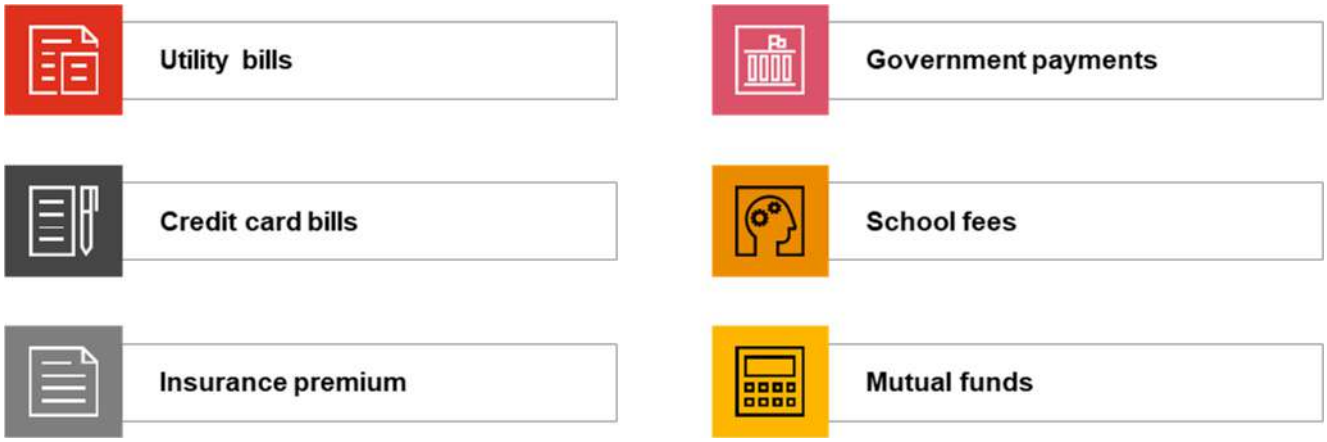


[25] News article: https://payswiff.com/swiffblog/how-bharat-qr-fuels-the-growth-of-digital-payments-in-india/
[26] News article: https://tech.economictimes.indiatimes.com/news/mobile/rbi-sets-up-panel-to-study-qr-codes-for-contactless-transactions/76962669

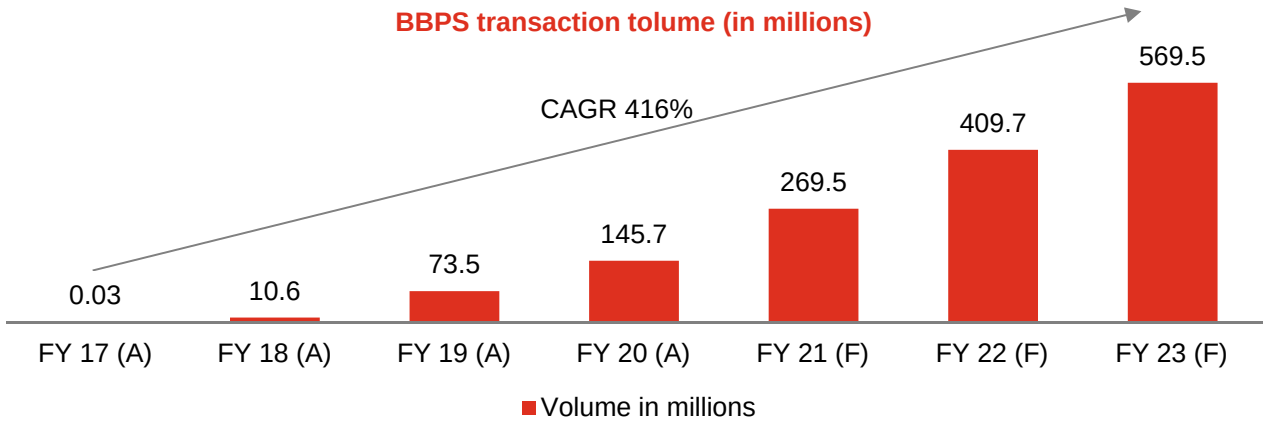
Bharat bill payment system

Bill payments form a major component of retail payment transactions. Launched in 2016 and owned and operated by NPCI, BBPS is envisioned as a one-stop interoperable, accessible and cost-effective ecosystem for payment of all utility bills. Moreover, it is available 24x7. It provides a single platform that allows banks and non-banks in aggregation business, payment service providers, billers, retailers and customers to connect, present and pay bills.

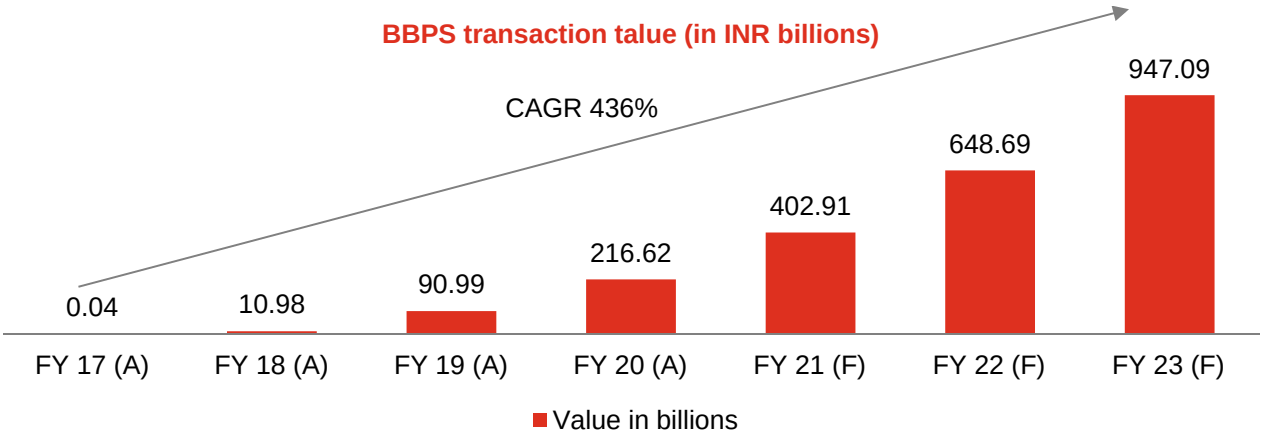
Transactions on BBPS can be initiated through multiple channels such as Internet banking, mobile-banking, POS, mobile wallets, kiosks, ATMs, bank branches, agents and business correspondents.



BBPS has shown remarkable growth with a CAGR of ~1,590% in volume and ~1,650% in value from FY 2017 to FY 2020. RBI is expanding BBPS boundaries to include other merchant categories such as life insurance, health insurance, educational institutes and local municipal bodies to facilitate repetitive payments in the form of insurance premiums, school-fees and municipal taxes. This can further accelerate the growth of BBPS in India's retail payment sector. The figures below show the growth of BBPS in terms of the transaction volume and transaction value over the years, along with its expected future growth.[27]



[27] NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics, PwC analysis



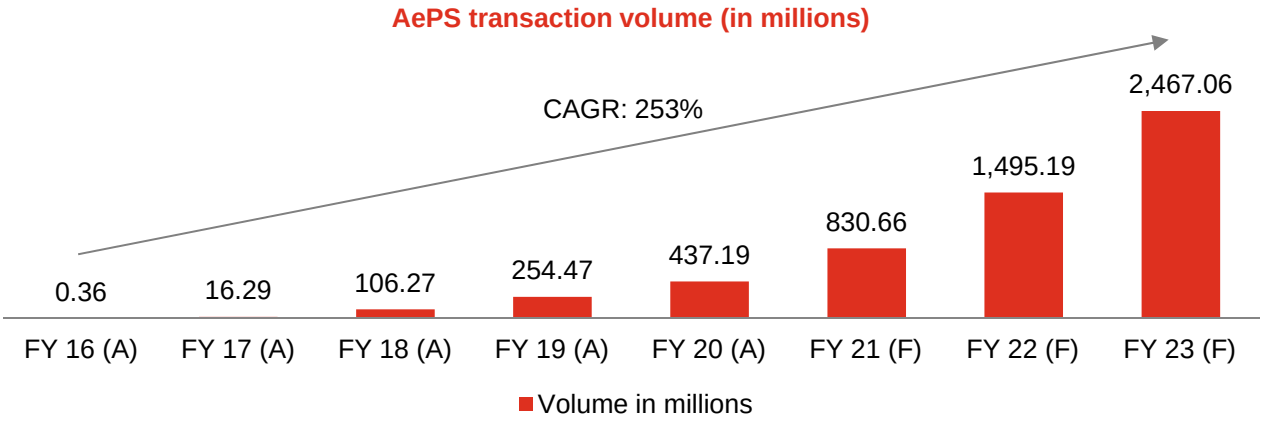
Aadhaar enabled payment system

AePS was launched with the objective of financial inclusion within the country. It is a bank-led model that allows interoperable transactions at micro ATMs through the business correspondents of any bank by means of Aadhaar authentication (Aadhaar number and fingerprint).

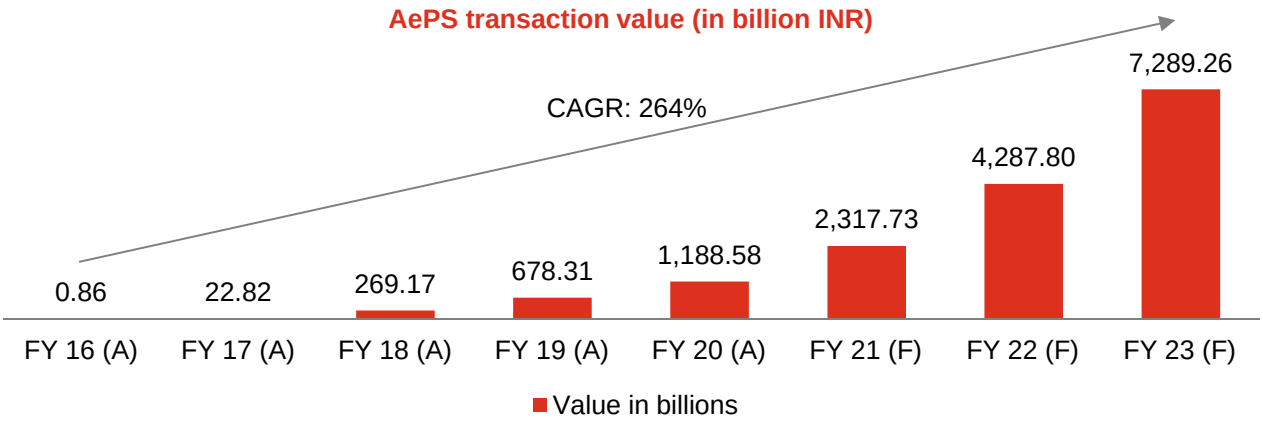
AePS offers following types of transactions at micro ATMs – cash withdrawal, cash deposit, balance enquiry, Aadhaar-to-Aadhaar fund transfer, mini statement and best finger detection. The system is available 24x7. AePS is available through the following channels: business correspondents (micro ATM), biometric-enabled ATMs and merchant POS terminals capable of accepting biometrics.

It started gaining traction in the market once the acceptance of the Aadhaar card increased. The government started using AePS in its financial inclusion schemes such as Jan Dhan Yojana, Pradhan Mantri Garib Kalyan Yojana and Mahatma Gandhi National Rural Employment Guarantee Act. Moreover, the recently announced stimulus package by the government during the COVID-19 crisis utilised AePS for its disbursements.

AePS has been a game-changer for the government in fulfilling its goal of financial inclusion, and its adoption would only continue to grow in the coming years. The figures below show the growth of AePS in terms of transaction volume and transaction value over the years along with its expected future growth[28].



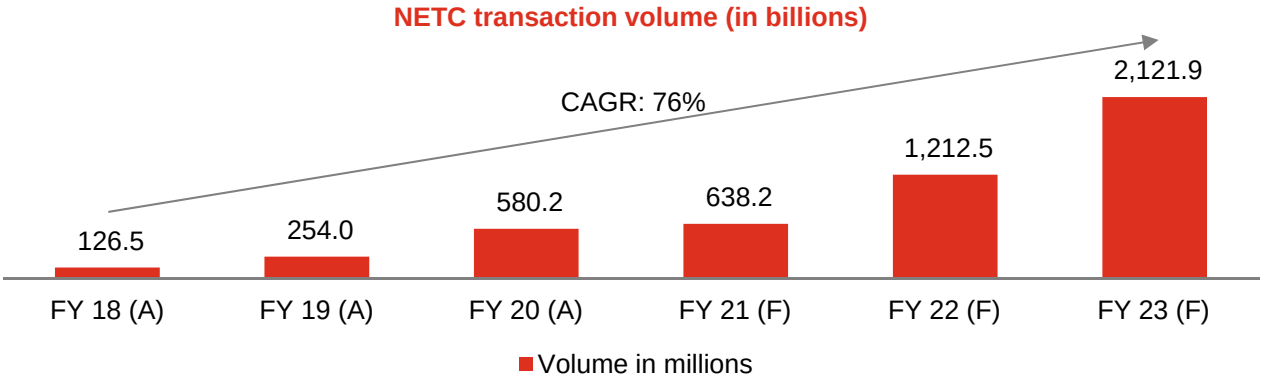
[28] NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics, PwC analysis

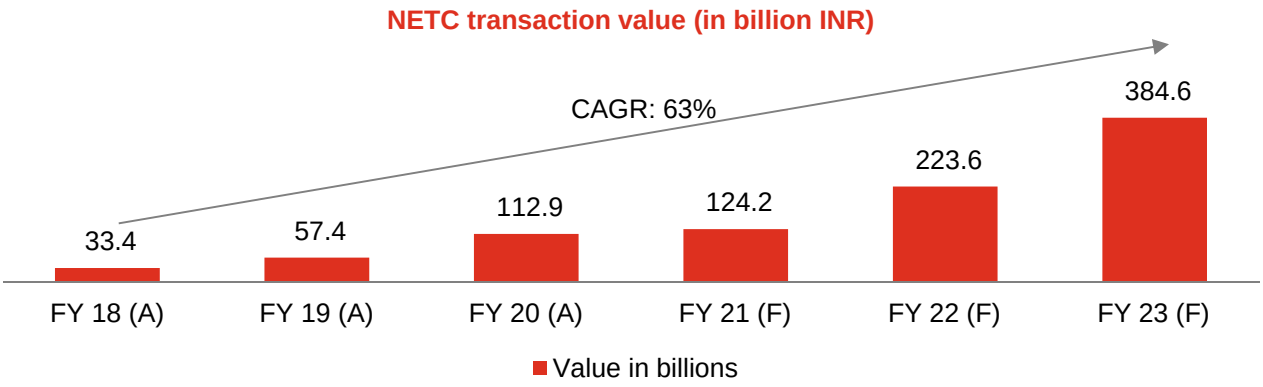


National electronic toll collection

NETC is an interoperable nationwide electronic toll payment solution with clearing house services for settlement and dispute management. FASTag (a device that employs radio frequency identification [RFID] technology for making toll payments directly while the vehicle is in motion) can be used at any toll plaza. FASTags that run on the NETC platform can be bought by visiting POS locations at toll plazas, POS outlets of NETC member banks, their distribution agents or sales offices or online at the issuer bank's website. FASTags are available through online and physical channels and can also be recharged on both.

The recent regulation on mandatory use of FASTag on highways for toll collection has significantly led to the increase in its adoption. This mandate came in December 2019 due to which the product transaction statistics have increased considerably. In addition, the government plans to introduce FASTag for fuel payments as well in the future. This shows a promising future for the product. The below figures show the NETC's transaction volume and volume growth over the years[29].



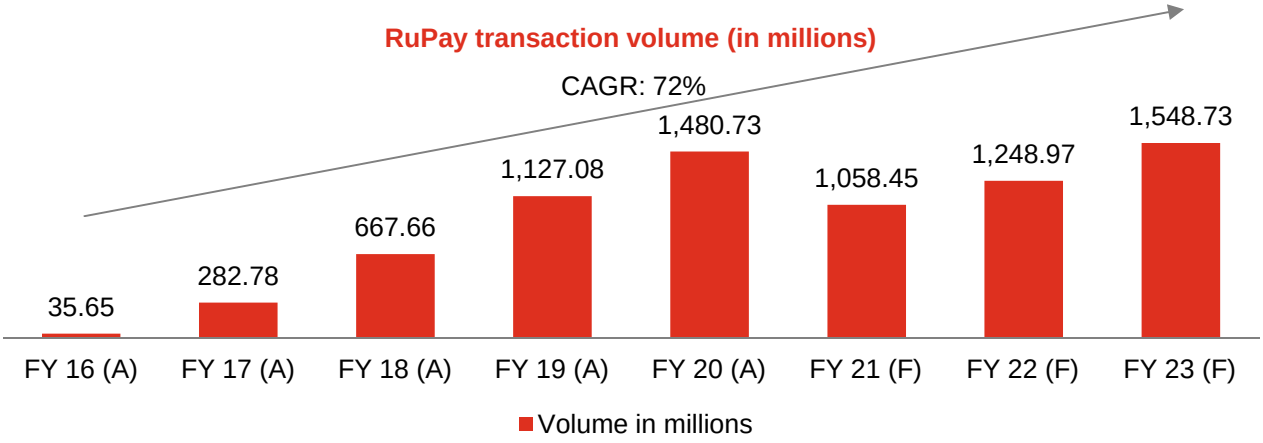


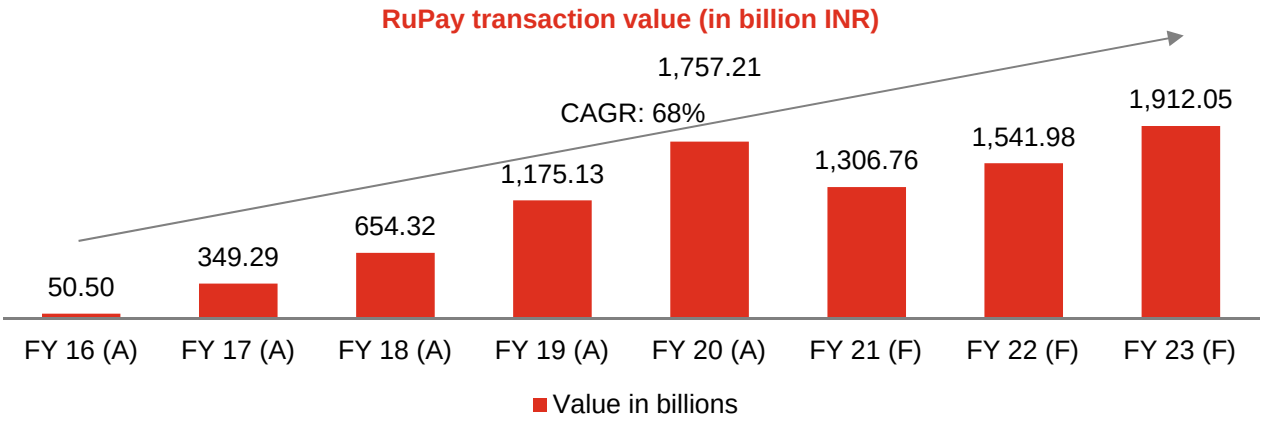
[29] NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics, PwC analysis

RuPay card scheme

RuPay is a card payment scheme launched by NPCI to offer a domestic, open-loop and multilateral system that allows Indian banks and financial institutions to participate in electronic payments. It offers debit cards, credit cards, prepaid cards, global cards, contactless cards and QR code payments (through Bharat QR) and has wide acceptance at ATMs as well as online and offline merchant locations across India.

It has gained traction in the market due to lower MDR rates compared with Visa and MasterCard. The below figures show the transaction volume and transaction value of RuPay over the years[30]. It is expected that the transaction volume and value would fall in FY 2021 largely due to the COVID-19 crisis; however, the growth is expected to pick up over the subsequent years.





2.2. Initiatives taken by the Government of India to boost digital payments

The Government of India launched the Digital India programme with a vision to transform India into a digitally empowered society. The primary objective of the government in promoting digital payments is to include each strata of the society under the umbrella of electronic payments. MeitY is responsible for strengthening the digital payments infrastructure and for creating digital awareness. MeitY has setup a devoted Digidhan Mission in collaboration with stakeholders to build strategies and approaches via which digital payments can be promoted. In keeping with that, MeitY has taken several initiatives to attain the goal of creating awareness. A few of them are outlined as below:[31]

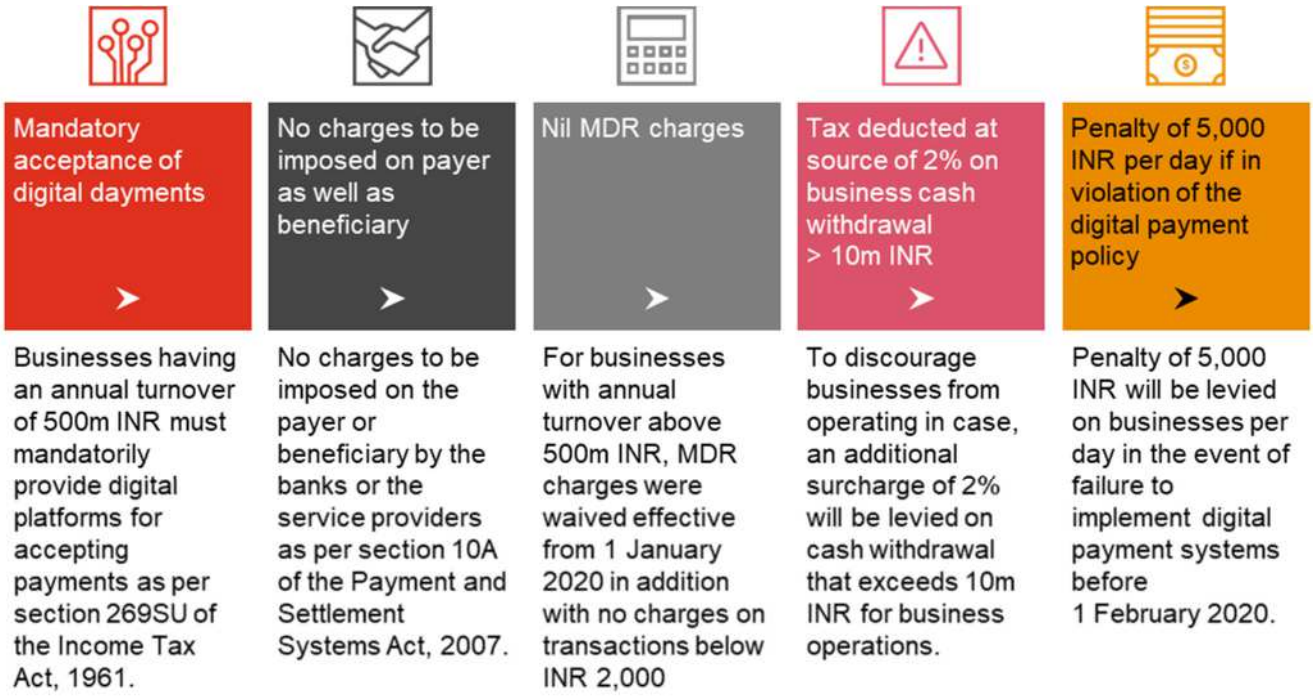
- Targets set for banks in terms of the number of digital transactions processed,
- Dashboard for tracking and monitoring the progress of banks in achieving the target,

[30] NPCI website: Retail payments statistics on NPCI platforms https://www.npci.org.in/statistics, PwC analysis
[31] MeitY website: https://meity.gov.in/digidhan

- Trainings and workshops on digital payments awareness with several ministries,
- BHIM cashback schemes for merchants, and
- BHIM Aadhaar merchant incentive schemes.

Digital India's mantra of being a "faceless, paperless, cashless" financial society is gaining momentum, with wide acceptance of digital payments across the country, as suggested by the individual electronic payment statistics. With the advent of these products, there has been a considerable decline in the usage of cheques. Overall, the economy is moving steadily towards being a cashless and contactless society.

The Indian government's ambitious efforts to shift from a cash-based to a digital economy saw a push in the form of demonetisation in 2016. The Government of India, along with RBI, Ministry of Finance, the Department of Revenue and the Central Board of Direct Taxes, has jointly developed policies to uptake the scope of digital payments. In keeping with that, some of the initiatives undertaken by them are as follows [32]:

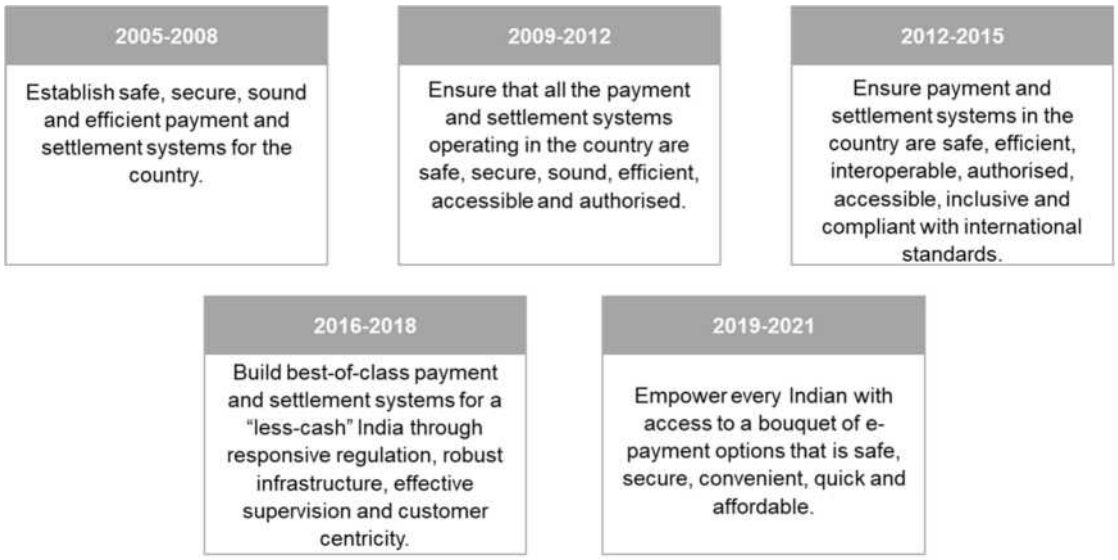


Multilateral forums such as G20 have formed the view that India has digitalised rapidly, particularly through public digital platforms such as UPI, Aadhaar and QR based transactions. The ever-growing statistics of digital payments in India are evidence of the progress India has made in its objective of becoming a "digital-first" economy. With the planned expansion of UPI into other countries, India is exporting its digital success stories while further strengthening its ties through digital diplomacy. The effort, a joint venture by MeitY and the Ministry of External Affairs, involves reconstructing digital payments in developing countries that have similar demographic or socioeconomic issues as India. Some countries are reaching out on their own to seek help with building digital platforms, while in other areas, India is taking the lead to promote its digital story.

[32] News Article: https://www.livemint.com/budget/news/budget-2019-aims-to-boost-digital-payments-further-1562315419515.html, https://www.thenewsminute.com/article/businesses-be-fined-rs-5000-day-not-offering-digital-payment-facility-115069#:~:text=Coronavirus-,Businesses%20to%20be%20fined%20Rs%205%2C000%20per%20day%20for%20not,more%20from%20February%201%2C%202020.&text=RuPay%20and%20UPI%20are%20among,Merchant%20Discount%20Rate%20(MDR).

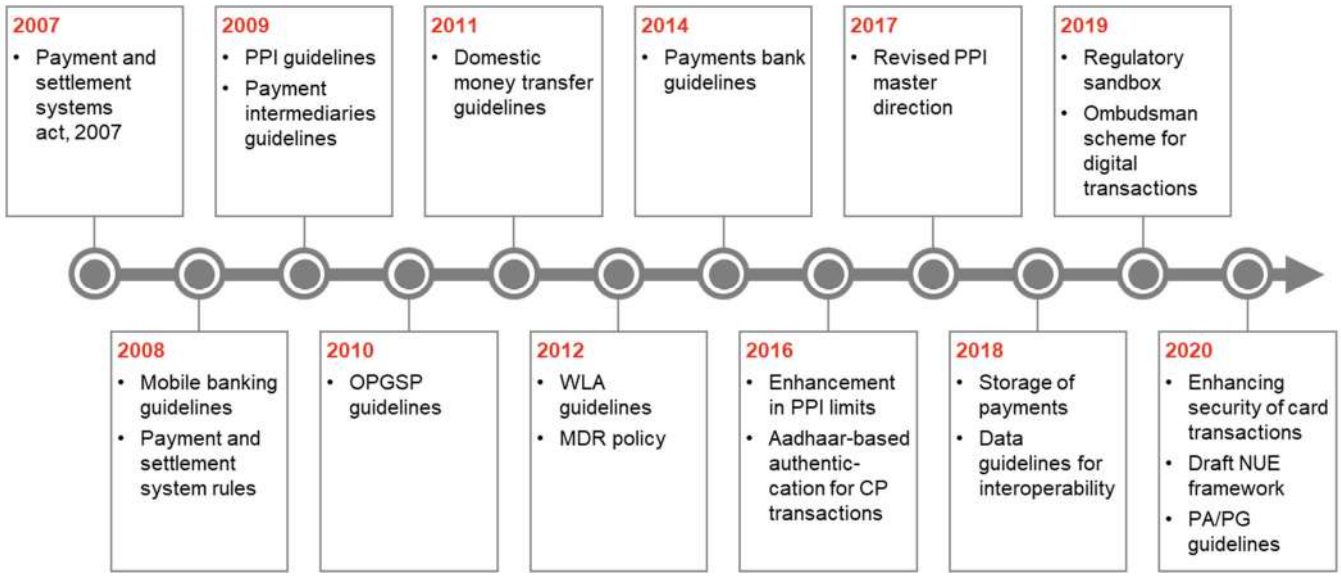
2.3. Initiatives taken by RBI to boost digital payments

It is a widely acknowledged fact that RBI has been a driving force behind the skyward progression of digital payments in India. Being tasked with the responsibility of being the principal payments regulator in the country, RBI has continually evolved regulations to govern the dynamic and innovative product propositions in digital payments. It has set well-thought-out payment goals every few years (through vision documents), which are in line with and do not hamper the pace of digital payments' growth. Thus, RBI has emerged as a strong regulator when it comes to digital payment products in the country. Moreover, by ensuring that the regulatory framework facilitates the meeting of its goals, RBI has put India at the forefront of the digital payments revolution. The following snapshot of RBI's payment goals over the years depicts the way in which the regulatory framework qua digital payments is maturing over the years:



While evaluating the means to promote safe, secure and wide-reaching digital payments, RBI has worked hand in hand with the central government and thus facilitated a stable regulatory framework governing the digital payments industry. It is felt that the recommendations made by various committees in the past (viz. deepening digital payments, expanding payment infrastructure, etc.) are taken into consideration by the RBI while designing the regulatory changes applicable to digital payments from time to time. The regulatory framework is thus progressive and can increasingly build the confidence of every Indian in the digital payment ecosystem in India.

Below is a quick snapshot of the way regulations governing digital payments have evolved over the years in India:



Having observed the evolution of regulations over the past many years, it is worthwhile to take a quick look at how RBI and the central government have reciprocated to the innovations and, in some instances, encouraged innovations in the digital payment space over the last few years. The table below summarises the initiatives of the RBI and central government as well as their objectives under the four goal posts envisaged in the latest payments vision document – *Competition, Convenience, Cost and Confidence*:

Initiative	Objective
Competition	
Regulatory sandboxes	RBI released the enabling framework for regulatory sandboxes aimed at fostering innovation across the FinTech ecosystem including digital payments.
Interoperability	RBI issued guidelines for interoperability of payments systems to allow PPI issuers, system providers and system participants of different systems to undertake, clear and settle payment transactions across systems without participating in multiple systems.
Convenience	
KYC and customer onboarding	In addition to e-KYC, RBI has recently issued much-awaited guidelines on using the video-based customer identification process and digital KYC, which will aid to ease the customers' onboarding process.
Mandatory use of FASTag	NPCI had launched the NETC program to permit electronic tolling across the country. Moreover, the use of FASTags for RFID-based digital toll payments was made mandatory by the central government in December 2019.
New category PPI (minimum KYC)	With a view to address the needs of users that wanted to have limited access to funds via PPIs without the hassle of going through the complete KYC process, RBI created a new category of PPI requiring only minimum customer details, with a limit of 10,000 INR.
Recurring payments with relaxed two-factor authentication (2FA) norms	RBI has allowed e-mandates on cards, with a relaxation on the requirement of 2FA for transactions up to 2,000 INR. This has provided a fillip to subscription businesses and added a degree of convenience for customers.
Cost	
Removal of charges on NEFT	RBI has mandated that banks cannot charge for NEFT transactions and that NEFT will be available 24x7 in a bid to further encourage large-ticket transactions all day.
Zero MDR on digital payments	RBI has mandated that zero MDR will be charged on UPI transactions and RuPay card transactions. This has been a bone of contention, given that the viability of payment processing businesses is hinged on having a reasonable MDR.

Initiative	Objective
Confidence	
Technology adoption	The central government has mandated all regulators in India including the RBI to develop use cases and standards for regulatory technology to further ease compliance and also study the applications of supervisory technology.[33]
Tokenisation	RBI has allowed tokenisation for card transactions including for prepaid cards, thereby increasing the confidence of the general public in safely and securely using digital payment methods.
Customer protection	RBI has taken multiple measures to safeguard customer interest by issuing guidelines on limited customer liability in payments, grievance redressal, data protection and localisation, customer data confidentiality, cybersecurity, etc.
Regulatory oversight	RBI has endeavoured to extend its regulatory ambit by bringing payment intermediaries such as payment aggregators under its regulatory purview. It has also issued detailed technology guidelines for payment gateways. The aim of both is ensuring customer protection.

Further, to accelerate the adoption of digital payments and increase the deployment of acceptance infrastructure in underserved locations, RBI announced the creation of the Payments Infrastructure Development Fund (PIDF). This fund will be administered by the RBI and governed through an advisory council. The PIDF will be utilised to deploy POS infrastructure (across offline and online channels), in Tier-3 to Tier-6 cities and northeastern states.

In February 2020, the RBI also issued a draft framework to establish a new pan-India umbrella entity(ies) to focus on retail payment systems (NUE framework). These entities are expected to effectively set up and operate new payment system(s) as well as clearing and settlement systems. The scope of activities for these entities will include[34]

- Set up, manage and operate retail payment system consisting of but not limited to ATMs and white label POS, and to Aadhaar-based payments and remittance services;
- Develop new payment methods, standards and technologies;
- Monitor related issues in the country and internationally;
- Take care of developmental objectives such as enhancement of awareness about the payment systems;
- Identify and manage relevant risks such as settlement, credit, liquidity and operational and preserve the integrity of the system(s); and
- Monitor retail payment system developments and related issues in the country and internationally to avoid shocks, frauds and contagions that may adversely affect the system(s) and/ or the economy.

[33] Report of the Steering Committee on Fintech Related Issues 2019, Department of Economic Affairs
[34] RBI – Draft Framework for authorization of pan-India New Umbrella Entity (NUE) for Retail Payment Systems

The road ahead

The COVID-19 pandemic has significantly changed the way in which consumers and businesses interact. It has upended life globally and heralded a new normal across sectors – one that is low touch and highly digital in nature. This has presented significant challenges to the conventional ways of doing business for payments companies, ranging from the challenges in implementing physical KYC to going contactless on payments, to ensuring adequate security on digital transactions. RBI has been proactive in addressing some of these concerns both pre-COVID and during the pandemic. Some of these measures include

- Implementation of video KYC, thereby eliminating the need for physical KYC; and
- Guidelines on enhancing the security of card transactions.

RBI has also taken an active role in educating the common public on the means to reduce physical contact by leveraging digital payments across banking and payments. With the interest evinced by both the government and RBI in digital payments, the industry is hopeful that a slew of measures will follow to ensure wider reach of the digital payment infrastructure while ensuring that facilitators of digital payments are able to sustain the slowdown because of the COVID-19 pandemic.

Towards this, representing the interest of digital payments facilitators, industry bodies have constantly engaged with RBI and the Ministry of Finance to

- Highlight the impact of COVID-19 on the overall business growth;
- Regulatory/ policy changes to cope up with the aftermath of COVID-19; and
- Provide suggestions on measures that can be rolled out to reinstate the growth trajectory of digital payments in the country.

Some of the measures that are envisaged and expected to address the concerns of the digital payments facilitators are outlined below:

Initiative	Description
Regulatory Sandboxes	The COVID-19 pandemic presents an opportunity for many businesses to move to digital. Considering this challenging environment and its aftermath, RBI could launch a COVID-19 focused sandbox for payment and FinTech players to innovate.
KYC and customer onboarding	In addition to the recent KYC developments, permitting Aadhaar-based eKYC to non-bank entities will help non-bank entities expand the user base of digital payments through quick onboarding. Alternatively, the acceptance and assessment of a single KYC across all RBI-regulated entities should be allowed in a more simplified manner compared with the current Central KYC Records Registry mechanism.
Merchant onboarding	The merchant onboarding process is largely outlined by the acquiring banks. It is acknowledged that it is important to be vigilant with regard to onboarding merchants. However, in the interest of facilitating payments for multiple use cases and, thus, increasing volumes and values of digital transactions, simplifying the merchant onboarding process also assumes importance. One option for consideration is that given that the account wherein merchant funds are to be remitted is already KYCed by the respective banks, allowing payment aggregators to rely on such KYC vide some agreement would help in faster onboarding.

Initiative	Description
MDR benefits to payment players	While the objective of having zero MDR was to ensure enhanced usage of the digital payment infrastructure by Indians, the current mandate of zero MDR on UPI and RuPay P2M had severely impacted the Indian payment ecosystem requiring them to revalidate their revenue models, grapple with liquidity concerns and slowdown in the expansion of digital payment infrastructure in India. Instead of zero MDR, Government should consider allowing a lower controlled interchange on QR code/ UPI/ RuPay debit card transactions and resort to alternative methods to promote digital transactions such as giving tax incentives to merchants who accept digital transactions, promote incentive schemes to improve popularity of QR code, etc.
Fraud and cybersecurity	Cybersecurity has been an area of concern, further exacerbated by the pandemic. With the increasing digitalisation, there is an increased risk of fraudulent transactions. A systemic approach based on technology and AI could help in developing an enhanced anti-fraud mechanism.

An evolving set of regulations that align the interests of all stakeholders is expected to continually promote the skyward progression of digital payments in India. This is only possible if all the stakeholders engage with each other on an ongoing basis and streamline the issues faced in adhering to or operating within the confines of the regulations on a real-time basis.

In the post-COVID era, as the payments transformation in India enters its next phase of growth, both the RBI and the central government have demonstrated keenness to adapt to these challenging times and create a thriving ecosystem in the country. India has transformed into a global leader through technology-enabled innovation in payments, and the proactiveness of both the regulator and the government bodes well for the future.

2.4. Attracting investment for the Indian payments sector

In the last five years, private equity and venture capital investors have evinced continued interest in the FinTech sector in India. The top 20 deals in the Indian Fintech industry in 2019 were close to around USD 2 billion. The deals for payment companies comprised ~66% of the total in terms of value.

The following table shows the top investment deals in 2019 for payment companies in decreasing order of deal size.[35]

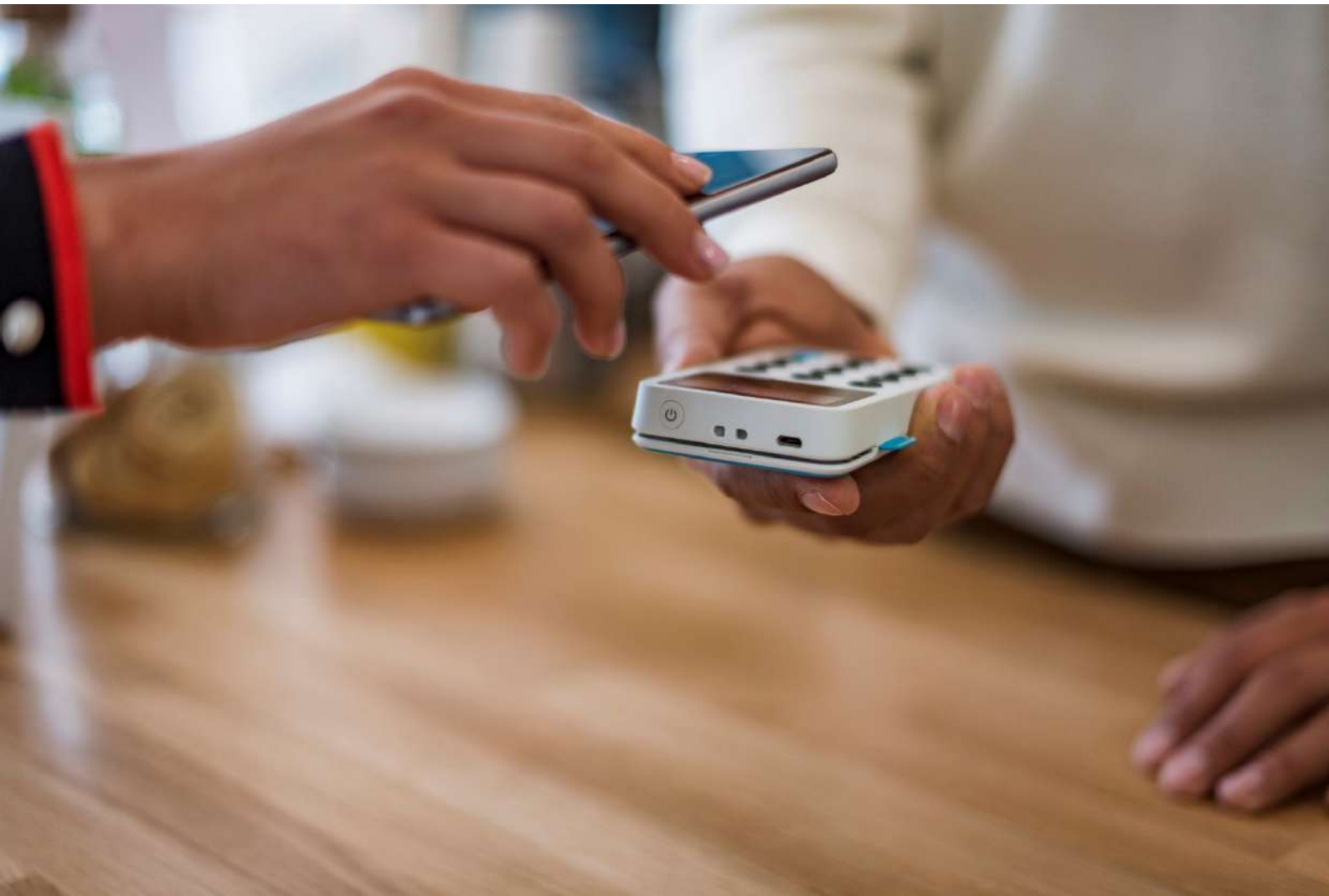
Name of the company	Investor details	Deal value (in million USD)
Paytm	US-based asset management firm T Rowe Price, and existing investors viz. Alibaba Group Holding Ltd, Softbank Group and Canada-based venture capital firm Discovery Capital	1,000
CRED	Ribbit Capital, Gemini Investment and Sequoia Capital	120
BharatPe	Insight Partners, Sequoia, Steadview Capital Beenext, Coatue Management and Ribbit Capital	66

[35] https://bfsi.economictimes.indiatimes.com/news/fintech/top-20-indian-fintechs-raised-rs-12000-cr-in-2019/73063865

Name of the company	Investor details	Deal value (in million USD)
Mswipe Tech	Falcon Egde, B Capital, Epiq Capital and DSG Growth Partners	31
PineLabs	Horizons Ventures, Tencent Holdings and JS Capital	30

The key factors attracting investments from private equity and venture capitalist players include the under-penetrated financial markets, growing SME and MSME sector, unbanked population, the potential to exponentially grow because of newer technologies, innovative product propositions and, most importantly, the central government and RBI's support in the growth of the sector.

Despite the COVID-19 pandemic and the resultant lack of resources, payment systems have proven to be largely resilient and durable and therefore, an increasing number of people have evinced confidence in using digital payments. While the other sectors continue to grapple with the COVID-19 aftermath, the payments sector is depicting early signs of recovery and has bounced back to pre-COVID-19 levels *(see the discussion in the next section)*. With regulatory, social and economic factors likely to keep driving the growth of the payments sector in India, the flow of funds from private equity and venture capital investment is expected to continually experience positive traction.



3. Digital payments – COVID-19 and beyond

Digital payments – COVID-19 and beyond

Over the past few years, India has proven itself on the global stage as one of the pioneers of innovative digital payments solutions with unmatched reach and convenience. Financial inclusion; extensive smartphone adoption; government and regulator push in the form of demonetisation and Digital India; and arrival and mass adoption of the mobile-based, real-time payment platform UPI have all given rise to one of the fastest growing digital payment economies in the world. By 2023, India is expected to contribute ~2.2%[36] of the world's digital payment market.

Emergence of e-commerce players has connected geographically separated businesses with customers across the country. This has prompted customers and businesses to exchange payments digitally. With digitisation in the government sector, tax returns, GST payouts and relief packages from the government are being processed electronically, leading to the popularity of digital payments in the country.

The COVID-19 pandemic has given rise to a digital wave. The number of transactions on the UPI touched an all-time high in June 2020. Fearing the spread of the pandemic because of the use of physical cash, existing customers and many first-time users have also resorted to digital payment methods. The consumers' shift to digital channels would enable every business, small or large scale, to embrace digital payments and facilitate financial inclusion at a macro level.

The pandemic is also accelerating the transition to online as physical retail stores and businesses have taken a massive hit. Omnichannel retail has become the go-to technology for most businesses, which has also spurred the demand for digital payment solutions.

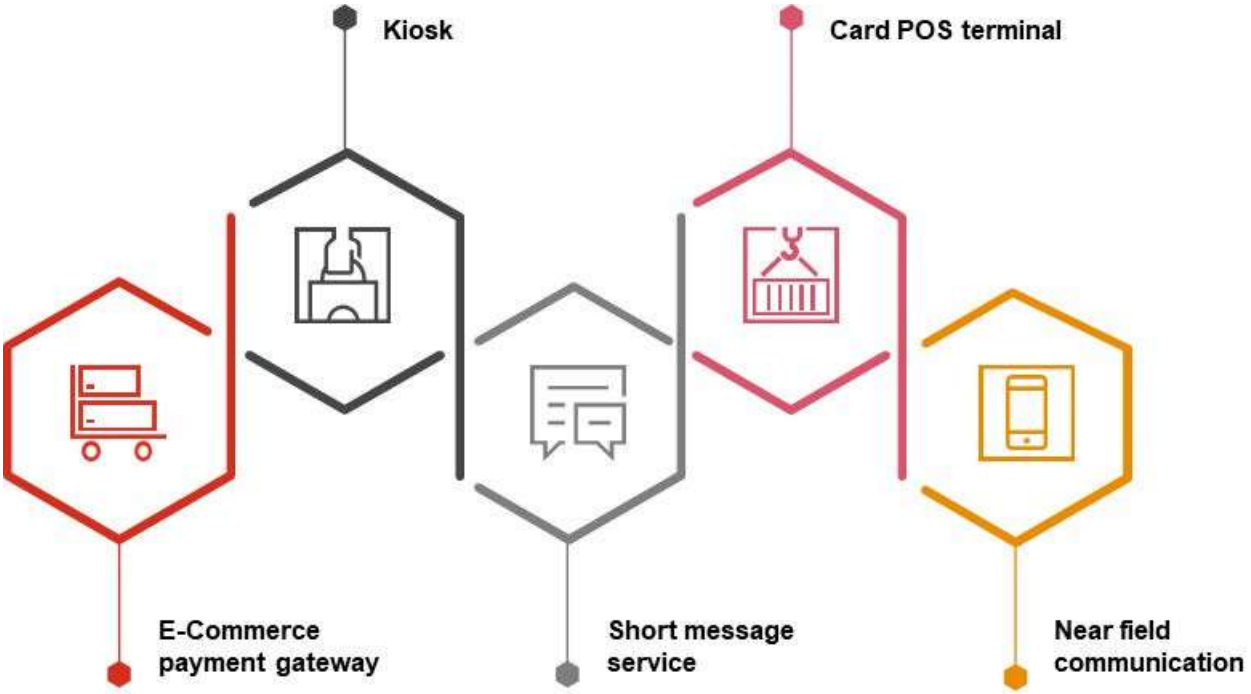
The following section briefly touches upon the impact of the COVID-19 pandemic on the growth of digital payments in India.

3.1. Omnichannel payment capabilities

The growth in digital payment volumes has seen a concomitant rise in the payment options available to customers, ranging from the traditional card payment methods, to UPI and QR code-based payments to even biometric or even sound-based payments. However, as businesses straddle both the online and offline worlds, it is imperative for them to offer multiple payment options that combine in-store and online payment options seamlessly.

The first phase of this transition involves multichannel payments that allow businesses to provide separate payment methods for their online and offline businesses. However, as e-commerce or online retail becomes more widespread, the need of the hour is to offer omnichannel payments. This is inherently different from just offering different payment methods across online and offline channels, as it also requires seamless integration of the online and offline experiences for the customer. In-store pickups, online orders at the store and easy return options across channels are all examples of how omnichannel businesses operate.

[36] India Statista



While physical payment transactions have witnessed a sharp decline during the months of lockdown, this has been offset to some extent by the increase in payments for online grocery, pharmacy, gaming and over the top. Utility bill payments, which have historically been an offline activity, have seen a strong surge towards online payments, and this trend is likely to persist in the post-pandemic era.

3.2. Contactless transactions gaining traction

The ongoing pandemic has resulted in several trends within digital payments that are likely to be resilient even after the end of the pandemic. Given the increased focus of governments across countries towards the health and well-being of the people, contactless payments are one such trend. Even the World Health Organization has recommended the use of contactless payment methods, whenever and wherever possible.

Regulators across the world have risen to the occasion and increased the transaction limits on contactless payments to provide further impetus. Based on an analysis by NFCW, 49 countries across the world have already increased their contactless payment transaction limits, with an average increase of 131% and median increase of 100%.[37] Leading payment network providers have also reported a significant increase in contactless payment volumes during and in the months following the lockdowns. In India, RBI is yet to take a call on increasing these contactless limits. However, given the widespread presence of QR codes and mobile payments as well as the low penetration of contactless cards, the results have been similar in terms of the uptick of contactless payments.

NPCI does not break down the statistics for UPI between P2P and P2M use cases. Nevertheless, based on the strong growth in volumes witnessed in May and June 2020, one inference that can be drawn is that its use for merchant payments has certainly increased compared with the pre-COVID-19 period.

There is a gradual increase in the volumes of both UPI and BBPS, apart from one dip in the month of April. This trend indicates that, since April was the first month of the complete lockdown with no movement whatsoever including restrictions on e-commerce deliveries, electronic payments saw a depression. With the unlock happening in phases, digital payments started gaining pace again in the subsequent months of May and June.

Increasing foothold of digital utility payments

While electronic bill payments have been widely acknowledged as being more convenient, in the pre-COVID era, utility bill payments were still done largely offline. However, the ongoing pandemic and the drive to move online have resulted in the shift to electronic bill payment across use cases such as utility bill payments, insurance premium payments and mobile bill payments.

[37] https://www.nfcw.com/2020/03/26/366173/table-contactless-payment-transaction-limit-increases-around-the-world/

BBPS, an initiative by NPCI to drive electronic bill payments, has been one of the driving forces behind this transition to digital and has seen significant since surge in value and volume since its launch in 2017. As all billers are connected via a single source, this initiative enables interoperability and standardisation. Typically, banks can save both time and cost as customers have switched to BBPS for payment of bills via the electronic form.

The pandemic has also resulted in an uptick in the digital adoption of bill payments and recharges. Digital payments also expected to witness a short-term increase in volumes as the government is planning to transfer the assistance under the COVID-19 relief package to the poor via direct bank account transfers.

Tap-to-pay cards

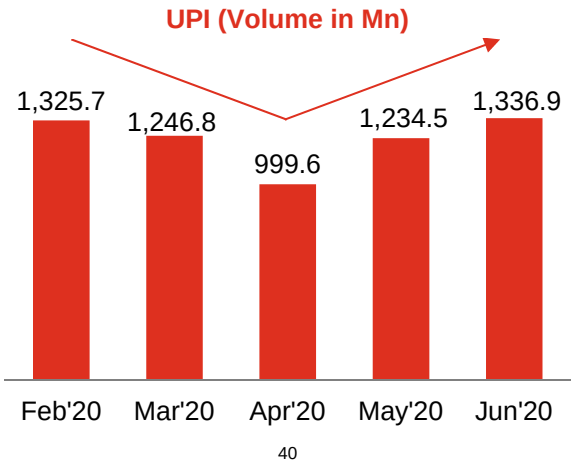
Tap-to-pay cards have gained traction in India after RBI gave the green signal to card networks Visa, MasterCard and NPCI (RuPay) to allow the tap-and-go functionality on card payments. This enables the customer to just tap the card on the POS terminal without handing it over to the merchant to ensure that safe payment is facilitated. For sales crossing 2,000 INR, 2FA is required by entering the PIN after tapping the card.

According to Visa, 48% of its total in-person transactions, excluding the US, are contactless. Out of the total Visa card transactions, Australia records ~90% contactless payments, with the UK and Canada having more than ~50%[38]. Contactless card payments are in their infancy stage in the US and India but are gaining momentum steadily.[39] Moreover, with the COVID-19 pandemic, transactions facilitated via the tap-and-go feature have risen as they allow the contactless form of transaction.

V-shaped Recovery of Payments

From the statistics of UPI, BBPS and NETC for the months of February to June 2020, a possibility of a V-shaped recovery in the digital payment sector is being prompted. Gradual increase is witnessed in the volumes after the dip in the month of April. This trend indicates that since April was the first month of complete lockdown with no movement whatsoever including restrictions on e-commerce deliveries, electronic payments saw a depression. With the unlock happening in phases, digital payments started gaining pace again in the subsequent months of May and June.

[38] https://www.creditcards.com/credit-card-news/contactless-tap-and-go-cards-us-market/
[39] News article: https://www.creditcards.com/credit-card-news/contactless-tap-and-go-cards-us-market/



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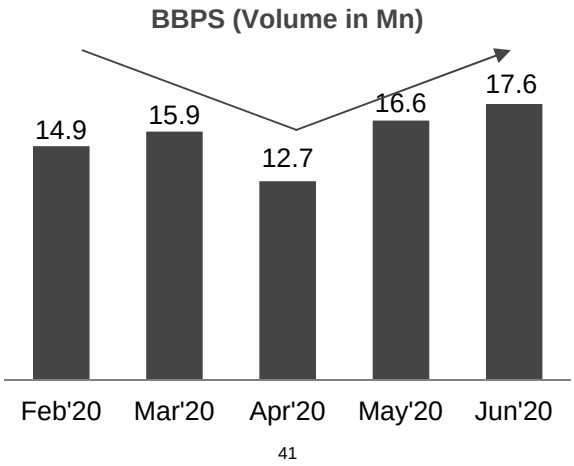

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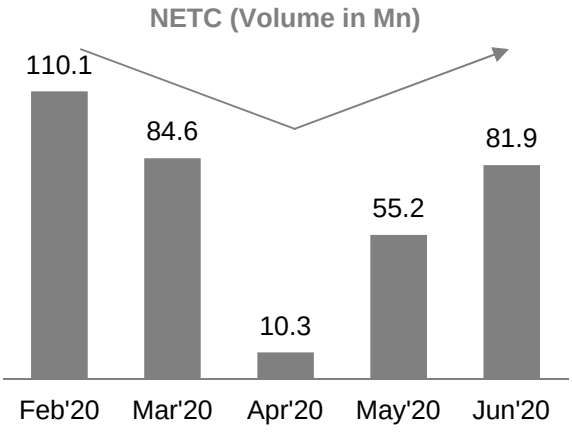

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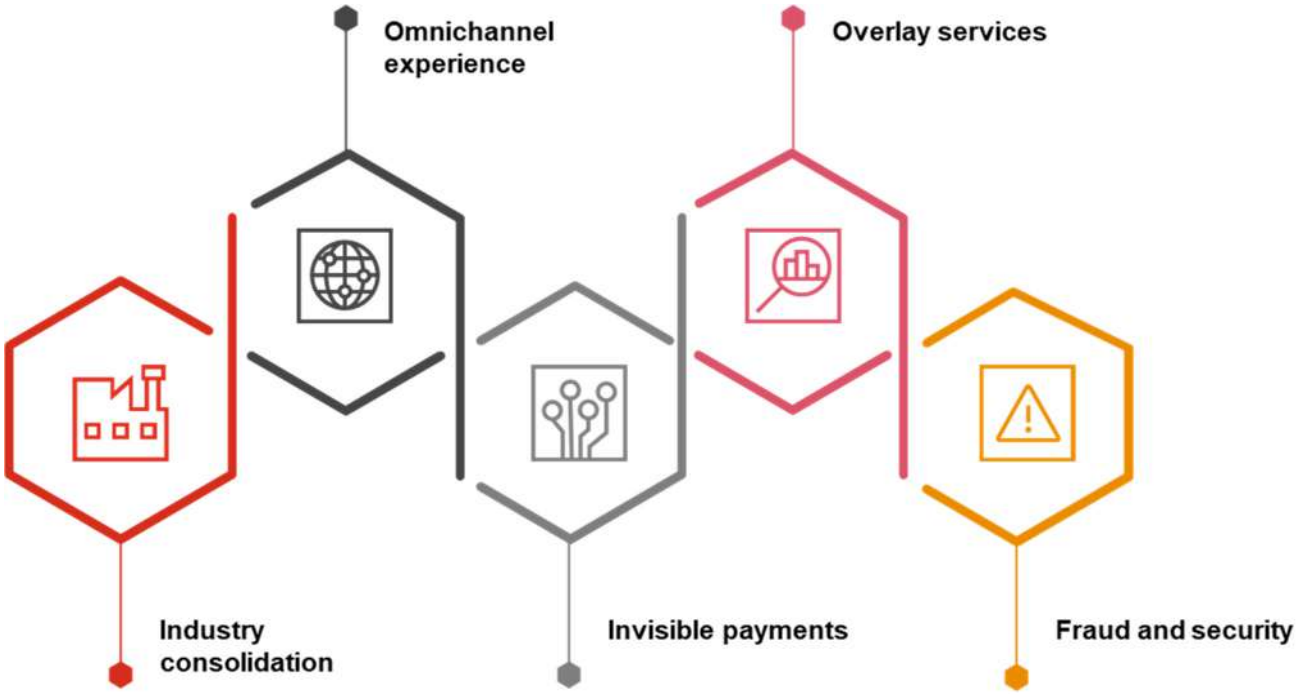
3.3. Way forward

The journey of digital payments in India has been phenomenal so far and the future looks exciting. Large technology and fintech firms are constantly focusing on innovation and exploring new ways through which businesses could adapt to the new normal post-COVID-19. With greater emphasis on going the contact-less way, the plethora of opportunities in the digital payments space that have emerged are promising.

Banks have also stepped up their efforts in grabbing the pie of the growing digital payments and are exploring multiple channels through which their products/services can be delivered conveniently and cost-effectively to the customers. They are focusing on strengthening their infrastructure to embrace digital and move beyond their traditional methods of operation.

Going forward, the digital payments industry is set to undergo a transformation with an aim to improve customer experience, cost efficiency, security. The uptake of digital payment methods is set to further increase and gain more acceptance in the market. Some of the key points that are envisaged to drive the course of digital payments in the future are highlighted below:

40 NPCI Website: https://www.npci.org.in/product-statistics/upi-product-statistics
41 NPCI Website: https://www.npci.org.in/circulars-type/bbps
42 NPCI Website: Retail Payments Statistics on NPCI Platforms https://www.npci.org.in/statistics



1. **Industry consolidation**: It is expected that the digital payments industry would undergo a consolidation phase with an aim to provide enhanced customer experience and explore ways of generating additional revenues through up-selling/cross-selling. As the COVID-19 crisis has significantly improved the uptake of digital payments, the prospects of the digital payments industry look encouraging and would attract significant investments in the future. Mergers and Acquisitions would be a path followed by companies to grow inorganically and establish themselves as a leading player in the market. These mergers and acquisitions could be aimed at improving the way the companies currently offer their products/services or enhance their presence in the payments value chain by offering new/value added products.

2. **Omnichannel experience**: The importance for businesses in providing omni-channel experience to its customers is further set to increase. Both merchants and consumers are demanding flexibility in the way they make payments. The consumers like to have multiple modes of payments based on their convenience ranging from internet banking, UPI, mobile wallets, card payments etc. On the other hand, the merchants are now going beyond accepting cash payments and shifting towards QR-based payments, point of sale and real time payments.

   It would be crucial for digital payment companies to provide a seamless experience to its customers. They would need to have a greater focus on integration, interoperability and secure infrastructure to provide payment services. The companies which are able to deliver on these fronts would have an advantage over the others.

3. **Invisible payments**: The adoption of invisible payments has significantly increased due to the COVID-19 pandemic. The preference to use cash, cheques, credit and debit cards by the customers has dropped going contact-less has gained traction in the market. Mobile wallets, real time payments are set to drive the course of digital payments in future. Various industries such as insurance, retail etc. are embarking invisible payments and this is set to further increase in future.

4. **Overlay services**: Overlay services would play a key role for businesses in improving their overall profitability in the future. Companies have started focusing on leveraging the overlay services such as Request to Pay in order to improve its collections, reduce costs and provide enhanced customer experiences. These services leverage the real-time payments platform to offer add-on services to the customers. These services have the potential to generate business for the players as well as value for their customers. It also helps businesses improve their relationship with its customers as they could avoid late payments. The usage of such overlay services is set to increase significantly in the future.

5. **Fraud and security**: Cybersecurity would be a critical aspect that companies need to keep in mind in order for the digital payments industry to flourish. The risks of frauds, cyber-attacks are set to increase as digital payments gains traction. Fintech and large technology firms are looking at exploring new technologies such as blockchain, artificial intelligence in order to mitigate such risks. The success of digital payments in the future lies at the backdrop of providing secure and risk-free payment services to the customers.

The future outlook of the digital payments industry looks positive and is set to play a key role in the success of India's vision towards a less-cash society. With collaborative efforts of the government, regulator and payment companies, the payments ecosystem is expected to improve in the future. The consumers would also play a crucial role in this transformation at the backdrop of increasing awareness and trust in the digital payment methods. India is expected to continue to serve as a global benchmark for countries in their endeavour of going towards a less-cash based economy.

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About PCI

The Payments Council of India was formed under the aegis of Internet and Mobile Association of India (IAMAI) in the year 2013 catering to the needs of the digital payment industry. The Council was formed inter-alia for the purposes of representing the various regulated non-banking payment industry players, to address and help resolve various industry level issues and barriers which require discussion and action. The council works with all its members to promote payments industry growth and to support our national goal of 'Cashto Less Cash Society' and 'Growth of Financial Inclusion' which is also the Vision Shared by the RBI and Government ofIndia. PCI works closely with the regulators i.e. Reserve Bank of India (RBI), Finance Ministry and any similar government, departments, bodies or Institution to make 'India a less cash society'.

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